



2018 Book of Accepted Abstracts

ACSP Annual Conference
October 25-28
Buffalo, New York

*This book includes only the abstracts accepted for presentation at the 2018 Annual Conference in Buffalo. This book was completed and posted to www.acsp.org on June 19, 2018.
Updated July 6, 2018*



Conference Theme:

The Continuing City: People, Planning and the Long Haul to Urban Resurgence

Buffalo has been the subject of a recent spate of “urban comeback” stories in the national press. Typically, these stories leave an impression that Buffalo’s recovery from long-term economic, physical, and social decline has somehow been a sudden thing. Like most planners, many of our citizens understand that improvements in the quality of urban life are the result of persistent and recursive planning and action across decades. Local conversations, like contemporary academic discourses, also acknowledge that these improvements are ongoing, partial, incomplete, and unevenly distributed.

Buffalo is currently enjoying an apparent explosion of new housing in and around our downtown. It seems sudden but center city housing has been a continuing focus of discussion, planning, and action for the past 40 years. And that’s only one example of how we can better understand the dynamics of planning and action when we look at them over “the long haul.”

The theme of The Continuing City will provide us with an opportunity to tell our stories while it invites others to share theirs, all within the longer temporal frame the theme suggests. This can be as appropriate to growing cities like Houston, Washington, or San Francisco as it is to our kindred “rust-belt” cities like Detroit, Pittsburgh, and Cleveland or disaster-battered cities like New Orleans. All have been made and remade in an ongoing way. In any of these cases planning plays a crucial role as governments, citizens, developers, and others strive to shape the future of their cities, year after year and decade after decade.

The temporal frame of “the long haul” also encourages participants to look at the development and propagation over time of ideas about the city, the role of embedded professionals and activists (Jane Jacobs’ “people who stay put”), the growth of specific (and local) knowledges in city-making, the long term development of advocacy organizations, the construction of procedures and protocols of participation and planning, the development of the institutional bases for planning, and the evolution of the physical and social city itself.

At the same time, The Continuing City theme urges participants to look forward, not just by years, but by decades, even centuries. If we got to where we are today through sustained action, long struggle, and continuous development we can imagine more distant futures by projecting the same kinds of step-wise processes forward.

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Notes about this Book

This book includes only the abstracts accepted for presentation at the 2018 Annual Conference in Buffalo. This book was completed and posted to www.acsp.org on June 19, 2018 and updated July 6, 2018.

Abstract ID

When submitted to the abstract management system, each abstract was assigned an abstract submission ID number for administrative search/find purposes. This is the number that authors should reference to staff with any questions regarding their abstract, their presentation, or their final paper submission. This number stays with the abstract throughout the process and becomes the ID of the presentation of the research at the conference.

Proposal

Organizers of pre-organized sessions used the abstract submission system to provide an overview or intent of the session, the name of a proposed discussant, and the authors and paper titles of those confirmed to be part of the session. The system assigned a proposal number to the grouping of these abstracts. This number stays with the session throughout the conference. When scrolling through this book and through each track, you'll find the pre-organized session proposals listed first followed by numerically ordered accepted abstracts within that track. The abstract will indicate if it is related to a pre-organized session.

Indexes Available

Separate indexes for Author Name and Keywords reference the Abstract ID #. These indexes can be found at the end of this book.

Order of Abstracts within Each Track

Abstracts are first ordered by the type of abstract.

- 1) Roundtable Abstracts
- 2) Pre-organized Session Summaries – the overview describes the intent of the session; followed by...
- 3) ...Abstracts for the papers within the pre-organized session
- 4) Individual Paper and Lightning Presentation Abstracts
- 5) Poster Abstracts

Order of Authors

The abstract management system used by ACSP allows for author role declaration.

- **For paper and poster abstracts** - Authors of abstracts in this book and in the final program will be indicated as presenting, primary, or co-authors of the paper. The presenting author is always listed first. No more than eight authors for one paper are included.
- **Roundtables** will have a moderator. The remaining names listed are confirmed participants of the discussion. Anyone in the audience can also participate in the discussion as well. There is a maximum of eight names listed for each roundtable.
- **Pre-organized sessions** will also have an organizer and some at the publishing of this book will have a proposed discussant. This proposed discussant has yet to be confirmed and their participation will be verified prior to the schedule of presentations being created.

Multiple Program Placement Policy

Multiple abstract submissions on behalf of one author will be reviewed and may possibly be accepted and included in this book. However, more than one presentation of a paper and more than one appearance as a roundtable participant during the conference will not be allowed on the final schedule of presentations. It is, however, possible to present both a poster and a paper, if both proposals are accepted.

Participants on the final program will be limited to:

- one presentation of a paper whether in a formed paper session, in a lightning session, or involved in a pre-organized paper session;
- one placement on a roundtable;
- one placement as a discussant of a paper session; and
- one placement in the poster session.

These roles are not interchangeable. If you have more than one submitted paper abstract accepted and are invited to participate on more than one accepted roundtable, in fairness to everyone, we will ask you to limit your participation.

Requests for Edits

All abstracts in this book are unedited and published as submitted by the author(s) for peer review. It is the policy of the ACSP that the abstracts will not be edited. If information is missing about an author, it may not have been provided when submitting the abstract. We do understand the importance of names; that paper titles change as time goes on; and authors are added or dropped. In these instances, any necessary changes for the final program should be sent to abstracts@acsp.org. Updates to this book are not made immediately.

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TRACK 1 - ANALYTICAL METHODS AND COMPUTER APPLICATIONS

ROUNDTABLE: WHO BENEFITS FROM “SMART CITY” TECHNOLOGIES? HOW CAN THEY BE A PIECE OF THE PUZZLE TOWARD SOCIAL AND ENVIRONMENTAL JUSTICE?

Abstract ID: 293

Roundtable

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The “Smart City” concept is increasingly receiving attention and investment from the planning practice. Many cities have established partnerships with companies that are implementing such technologies, ranging from collecting climate-related data to providing real time transit data (IBM, 2017). Technologies such as the internet of things, cloud computation, sensors, microcontrollers, and real-time monitoring are the core of smart city approaches (Cocchia, 2014). In this roundtable we explore whether the smart city approach can advance discourses of social and environmental justice. The reason we focus on justice here is the fact that such initiatives are being introduced by the ICT (Information Communications Technology) industry where justice is not the main objective (Bronstein, 2009). We will discuss whether the beneficiaries of such investments can be low income and vulnerable groups or are exclusively the capitalist entities.

Planners need to study these trends to be aware of how they change concepts of data, analysis, and more fundamentally space. Given the lack of critical and theoretical approaches for scrutinizing the functions of smart city technologies in urban contexts, there is a need to theorize their ontological and epistemological bases (Goldsmith & Crawford, 2014). Such theories, then, can guide us in understanding how industries and markets use such technologies in urban contexts. This needs a critical approach that scrutinizes the functions and consequences of the use of smart city technologies.

Cities may benefit from all the data and insight provided by this transformation only if there is a reasonable balance in costs and benefits. The data produced and collected by such technologies transforms our understandings of environment, climate, ecosystems, and human activities. Nevertheless, we need to re-assess the directions that seem to be suggested by smart city approaches. One of the main concerns of planning theory is social and environmental justice. With a critical approach, planning theory needs to lead the conversation incorporating justice into the smart city framework. Furthermore, planning theory can identify and prioritize justice issues that might benefit from high spatial and temporal resolution data and analysis.

In this panel we are going to address the following questions:

1. What are the ethical challenges for planners and planning institutions in adopting such technologies and tools?
2. Could “smart city” technologies be a significant tool for pursuing social justice? How?
3. Smart city technologies can help us to measure climate-related variables such as temperature, air quality, etc. How can planners adopt these tools systematically?
4. As the capitalist system is promoting such technologies for generating capital that transforms space, how can planners manage the inherent conflict with equity that this creates?
5. How can smart technologies be regulated to prevent them from undermining central planning goals such as sustainability and justice?

6. How should we change the planning pedagogy and research to manage unjust consequences of such initiatives?

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Key Words: Smart City, Social Justice, Environmental Justice, Planning Theory

ROUNDTABLE: EXPERIMENTAL METHODS IN URBAN PLANNING - LESSONS FROM THE FIELD AND THE LABORATORY

Abstract ID: 539

Roundtable

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As urban planning scholars, we often find ourselves asking causal questions. If we build a new transit line, will people use it? If we change zoning regulations, will housing become less expensive? Frustratingly, our quest for answers to causal questions are often thwarted by a reliance on cross-sectional data or self-selection. Experiments offer a tantalizingly straightforward approach for establishing causality and, over the past 15 years or so, experimenters have left the confines of the laboratory and entered the field (Gerber and Green 2012). Examples of field experiments in urban planning include ambitious, federally-sponsored projects like the Moving to Opportunity program and smaller-scale projects such as an examination of implicit racial bias towards pedestrians at crosswalks (Goddard, Kahn et al. 2015).

This roundtable brings together five scholars with experience conducting experiments in the field or the laboratory. Rather than focus on their findings, the panelists will reflect on the process of conducting experiments. With the benefit of hindsight, what do the experimenters wish that they had known at the outset? What unexpected challenges did the researchers encounter and how did they address them? When it comes to collaborating with outside agencies or gaining the approval of campus ethics committees, what do the seasoned experimenters recommend? In short, what should the novice experimenter know before embarking on a project?

Our aim is to foster a lively, participatory session. To that end, we hope that members of the audience will contribute to the group discussion with their own reflections on the experimental process.

The aims of this roundtable are three-fold: 1) to familiarize participants with the opportunities and challenges of conducting field experiments in Urban Planning; 2) to demystify the research experience through reflection; and finally 3) to inspire participants to develop field experiments of their own.

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Key Words: Research methods, Field experiments, Causality

ROUNDTABLE: TECHNOLOGY REVOLUTION AND THE NETWORK OF SPACES

Abstract ID: 718

Roundtable

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This forum intends to address how new technologies associated with, so called, the fourth industrial revolution affect individual locational choice, and hence, how spatial network would change in the future. Historically, technological innovations have promoted urban sprawl while they began the birth of urban area. The new, hyper-connected network would fundamentally alter our lifeway including our jobs and living spaces (Klaus Schwab, 2016). While it is highly difficult to expect the degree, scope and scale that the technical revolution would transform, we are already experiencing, at least, new technologies in numerous fields. Without proper responses to the revolution, people would fail to be involved or adapt to the new civil society that connects our spaces by artificial intelligence, robotics, Internet of Things (IoT), autonomous vehicles (AVs), 3D-printing, nano- and bio-technologies, quantum computing technologies and so on. So far, most discussions on this new technological revolution have been focused on the nature of technological innovations, missing to explain to what degree and how the revolution would affect our lives in terms of land use including housing and job locations. If we experience the new change and our location choice is affected, we should consider sequential changes in commuting, public transportation, and many urban environments, and eventually, the form of both urban and non-urban areas. For example, the Korean regional development strategy that has centered massive resources on a particular region has led it grow and become a big city, inducing large migration of the rural population to urban cities. Experiencing hollow villages due to the out-migration of the rural population, at the same time, the aging of the rural areas and the lack of basic infrastructure facilities have been threatening the existence of rural areas. The technological revolution may alternatively reverse this experience, revitalizing rural areas and resolving spatial and regional inequality between urban and rural areas (Castells, 2009). In the perspective of space network, alleviating the disparity of regional utility between urban and rural areas using the new technologies and virtual connections may change spatial inequality (Morgan, 2004). This is possible because IoT, 3D-printing and AV technologies will expand the flow of goods and services, which was mostly constrained and dominated by physical space, to the non-physical space, creating new flow of goods and services; these technologies will generate new utility levels for urban and rural areas. Therefore, this forum provides various discussion topics about the effects of technological revolution on the individual spatial choice, and hence, the current network of space. Especially, the different pattern occupying space due to the hyper-connections can generate a new perspective on spatial justice because it has been mostly constrained in the physical accessibility (Harvey, 1973). This forum can provide an opportunity to prepare the new era of digital transformation for local and central governments as well as other private firms and stakeholders and establish collaborating partnership needed for future regional development strategies.

Citations

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Key Words: Technological Revolution, Space network, Regional Planning, Spatial Justice

ROUNDTABLE: TECHNOLOGICAL DISRUPTION AND THE FUTURE OF CITIES - AN AGENDA FOR RESEARCH AND EDUCATION

Abstract ID: 952

Roundtable

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Autonomous vehicles (AVs), e-commerce and the sharing economy are rapidly changing the land use and transportation patterns within cities. The introduction of autonomous vehicles (AVs) may be on par with the initial introduction of private vehicles a century ago as to their impact on basic urban form and all the related economic, social, and environmental impacts. (Rosenzweig & Bartl 2015) While there has been substantial research regarding the technological aspects of AVs and e-commerce, there has been limited research on the secondary impacts on cities. AVs are projected to lead to significant reductions in parking needs which will then impact land use, street design, and development densities. (Litman 2016, Zhang et al. 2015) E-commerce is changing land use patterns by shifting from brick-and-mortar stores to warehousing and distribution centers. Airbnb is constraining the supply of long-term rentals in some cities. (DiNatale, 2017) These changes in turn will alter land value, residential and commercial location preference, and ultimately overall development form. Ultimately, technological shifts will impact equity, environment, economy and governance within cities.

This panel will feature researchers who are studying the secondary impacts of autonomous vehicles, the sharing economy, and e-commerce. Panelists participated in the inaugural Urbanism Next conference in Portland, OR where the academic, public and private sectors came together to discuss these issues. Panelists will discuss their research in this area, offer examples of working with the private and public sector on these issues, and posit about how planning education will shift in an era of transformative technology. Panelists are engaged in research projects related to autonomous vehicles and city budgets, the equity impacts of the sharing economy, how e-commerce is affecting land use, and how transportation network companies impact transit usage.

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Citations

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Key Words: e-commerce, sharing economy, autonomous vehicles

INFRASTRUCTURE ALTERNATIVES ANALYSIS WITH AN INTEGRATED LAND USE AND TRANSPORTATION FORECASTING MODEL

Abstract ID: 45

Individual Paper Submission

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Integrated land use and transportation forecasting models offer a great deal of value in the analysis of transportation infrastructure alternatives, transportation policy, land use policy, and expenditures on mass transit. These models can help cities achieve successful, sustainable urban futures that increase the quality of life of residents while assisting local governments in making wise use of government money on infrastructure and transit investment that yield the greatest return on investment. This paper presents the development of the Real Estate Market Model (REMM)—a custom implementation of UrbanSim2—in the Salt Lake City, Utah (USA) metropolitan region. This model development project was a joint effort between the Wasatch Front Regional Council, the Mountainlands Association of Governments, the Utah Department of Transportation, and the Utah Transit Authority. Cube Voyager was used as the travel demand model platform that was integrated with REMM. This paper summarizes the model development process, submodel specification, and two major transportation infrastructure evaluation and selection exercises. These exercises will be presented together with modeled results produced by the integrated model system. These results demonstrate the success of the model development process and the model itself. Research of this kind is valuable to researchers and transportation planning agencies interested in developing and improving integrated land use and transportation modeling as a field of study and as a tool for improved transportation infrastructure selection at the metropolitan planning organization level.

Citations

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Key Words: Land Use Model, Travel Demand Model, Urban Model, Infrastructure Analysis, UrbanSim

CREEPING OUTSIDE CITY BOUNDARY: SPATIAL ANALYSIS OF REGIONAL VARIATIONS OF NEIGHBORHOOD HARDSHIP AND ITS RELATIONSHIP TO SCHOOL PERFORMANCE IN SUBURBAN NEIGHBORHOODS OF THE BUFFALO METROPOLITAN AREA IN 2015 USING GEOGRAPHICALLY WEIGHTED REGRESSION ANALYSIS

Abstract ID: 77

Individual Paper Submission

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This paper aims to depict regional variation of suburban neighborhood hardship and relate it to the regional variation of elementary school (ES) performance in suburban neighborhoods of the Buffalo Metropolitan Area (BMA). The context of this paper is suburban neighborhood stratification between inner- and outer-suburban

neighborhoods of the BMA. In the U.S., inner suburban neighborhoods have undergone decline, experienced racial composition shifts, and faced economic adversity in the past years (Hanlon, 2008). The disproportionate racial composition and poverty issues that once were a problem of the inner city have slowly crept outside to its neighboring inner-suburban neighborhoods over the years and potentially become the next urban crisis (Lucy & Phillips, 2000). This increasingly disproportionate percentage of racial minorities and neighborhood hardships have impacted neighborhood school demographics (Tarasawa, 2012) and manifested in the variability of school performance across school districts in urban, suburban, and rural areas (Silverman, 2014). This study is an examination of those phenomena in the context of shrinking and segregated metropolitan area of the BMA.

The two research questions are: 1) is there any significant difference in the mean of the Neighborhood Hardship Index (NHI) between inner- and outer-suburban neighborhoods in the BMA in 2015? 2) is there any regional variation in school performance in relation to the neighborhood and school demographics in suburban neighborhoods of the BMA in 2015?

Neighborhood factors that constituted the neighborhood hardship index included: demographic factors (the percentage of the Black and Hispanic population), economic factors (the percentage of the population in poverty), and housing factors (the percentage of housing ownership, and median housing value). School demographic factors were: the percentage students who are Black and Hispanic; in the Free Lunch Program; and with Limited English Proficiency (LEP). The neighborhood and school factors are predictors of school performance. School performance is measured by the average of grade 3 ELA and Math tests of elementary schools in the academic year of 2015-2016. All data were aggregated at the block-group level.

This research hypothesizes that: 1) there is a significant difference of NHI between inner- and outer-suburban neighborhoods, 2) there is a regional variation of school performance within suburban neighborhoods of the BMA. Data for this study were derived from American Community Survey (ACS) 2015 5-year estimate from the U.S. Census Bureau, School Report Cards (SRCs) for the academic year 2015-2016 from the New York State Education Department (NYSED), and School Attendance Boundary (SAB) map from the National Center for Education Statistics (NCES). Cross-sectional data analysis in 2015 was conducted using descriptive statistics, Ordinary Least Square Regression (OLS), and Geographically Weighted Regression (Fotheringham, Charlton, & Brunson, 2001) using Geographic Information System (GIS) ArcMap 10.3 software.

The findings show a significant difference of NHI between inner- and outer-suburban neighborhoods and regional variation of ES school performance across suburban neighborhoods of the BMA. The value of NHI was spatially distributed with a pattern of regional variation across this study area, clustering in the inner-suburban neighborhoods that border the inner city of Buffalo. The relationship between school performance and its predictors was non-stationary across the BMA, with the coefficient of significant predictors varied across the study area.

This study warrants that there was a discrepancy in the allocation of block groups to a particular SAB as SAB delineation does not always coincide with block-group boundaries. In this study, block-groups with centroids fall within a SAB of a particular school were associated with that school. For further recommendation, as data becomes more available in future years, it will be interesting to study the dynamic process of suburban neighborhood change and linked it with suburban school performance change using longitudinal analyses.

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Key Words: Suburban decline, Geographically Weighted Regression, Regional variation, Neighborhood hardship, School performance

USING CITIZEN-GENERATED CROWDSOURCED DATA TO EVALUATE THE EFFECTIVENESS OF CONSERVATION PLANNING

Abstract ID: 116

Individual Paper Submission

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Crowdsourcing data can provide valuable information to help conservation planners to understand the nature-human interaction and thus improve our conservation planning decision-making. But Traditional approaches for evaluating the value of ecosystem services rely on surveys or interviews. Social media provides a new type of crowdsourcing data to examine the relationships between aesthetic value of ecosystem services and citizens' activities. The main goal of this paper was to evaluate aesthetic value of ecosystem services by using citizen-reported geo-tagged photographs posted on two social media sites - Panoramio and Flickr. The study used the Application Programming Interface (API) from Panoramio and Flickr to obtain the latitude and longitude of the geo-tagged photographs, and then used ArcGIS spatial statistical tools to examine spatial patterns with areas of aesthetic value in Nebraska. The outcomes identified the clusters of pictures with the locations of ecosystem service provisioning areas of aesthetic value, identified new areas with aesthetic value, and drew comparisons with local and regional population distribution. This study provided an innovative approach to using crowdsourcing data to verify the value of ecosystem services and confirm the effectiveness of conservation planning.

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Key Words: Conservation Planning, Crowdsourcing data , Social Media

ASPIRATIONS AND REALITIES OF POLYCENTRIC DEVELOPMENT: INSIGHTS FROM MULTI-SOURCE DATA INTO THE EMERGING URBAN FORM OF GREATER SHANGHAI

Abstract ID: 245

Individual Paper Submission

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Urban morphology has been extending its cultural, historical and geographical investigations and incorporating economic forces (Moudon, 1997). The physicality of the built environment in turn shapes transactions and flows (Alexander, 1964; Jiang and Ren, 2018). In particular, the polycentric urban form has long been considered a recipe for relieving overcrowding in historic cores and spreading prosperity to peri-urban areas. This polycentric idea has recently been reinvigorated in many rapidly urbanising countries, especially China. Over 130 new municipal level centres (which are known as municipal 'sub-centres') have been promoted in those Chinese cities

with a population over 5 million. However, there has been little official data, let alone assessment on the extent to which the polycentric policies are shaping the cities.

There has been a long tradition in developed countries in examining this question (Alonso, 1970; Arribas-Bel and Schmidt, 2013; UN-Habitat, 2012). Anas et al. (1998) and Fujita and Thisse (2013), among others, have made the case that the fundamental economic drivers of market growth under polycentric development remain a supply-demand relationship in production, residence and land development. Numerous attempts have also been made to trace and predict human choices and property markets using empirical data, statistical models, and computer simulation (Ahlfeldt and Wendland, 2013; Batty, 2013; Kretschmer et al., 2015). Nevertheless, the paucity of data in developing countries has so far made it next to impossible to make progress there.

This paper presents a new method for developing countries with good online publication of land sales transactions and traffic flow speeds to measure the evolution of urban form, particularly polycentricity. The land sales and traffic speeds represent two fundamental market outcomes in a dynamic spatial equilibrium process (Jin et al., 2013). Such data are increasingly made public among large cities as part of the open government initiative (e.g. the land sales) or to improve urban living (e.g. traffic speeds). While it fills important gaps in knowledge and measurement in developing countries, the data sources on their own cannot be directly used for investigating urban form. Our recent work in Chinese cities (Wan et al., 2018; Wan and Jin, 2017) shows that through combining the online sources with other data including transport networks (including online map services), business surveys and company registrations, population and employment censuses and social media presence, it is possible to cross-validate and carry out data infills, and thus make effective use of all the sources in studying land use, built form and travel.

In this paper we use a dynamic spatial equilibrium model we have developed for Greater Shanghai to carry out this data fusion and cross-validation exercise in order to measure the evolution of polycentricity over the last decade. The model can also support regular monitoring of progress going forward. The Greater Shanghai Region includes Shanghai Municipality and its hinterland in Jiangsu and Zhejiang provinces, which has become an amorphous city region thanks to vigorous expansion of infrastructure networks and trade. Shanghai Municipality and adjoining cities have been making persistent investments in creating more than a dozen new subcentres across the city region of more than 30 million people. However, there is currently little evidence available regarding the progress in polycentricity. This paper will present the first measurements for the Greater Shanghai Region, and a method that is cogent to a large number of developing country cities in Asia, Latin America and Africa where there is reasonable access to online data sources.

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Key Words: polycentric development, multi-source data, dynamic spatial equilibrium, land markets

A LAND-USE AND CAPITAL-INVESTMENT ALLOCATION OPTIMIZATION APPROACH TO FOSTERING COMMUNITY OPPORTUNITY: CASE STUDY OF COLUMBUS, OHIO

Abstract ID: 276

Individual Paper Submission

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Land-use planning and capital investments have been increasingly recognized as important measures to mitigate or offset social inequality (Wang and Chen, 2017). The socioeconomic outcomes of a residential community, which is defined as community opportunity in this study, are influenced by socially-interactional and institutional mechanisms embedded in a city (Sampson et al, 2002). Particularly, institutional resources and routine activities, often overlooked in the past research, account for the spatial variation in community opportunity of a city (Sampson et al, 2002). Institutional resources refer to the quality, quantity and diversity of capital investments (e.g., schools, libraries, and hospitals), while routine activities measure the types of land uses (e.g., residential, commercial, and industrial units) at the community level (Smith et al, 2000; Sampson et al, 2002). Therefore, community opportunity can be formulated as a function of land uses, capital investments, and socio-demographical characteristics.

Community opportunity index (COI), comprised of a set of physical and socioeconomic factors, has been created to visualize the distribution of community opportunity and vulnerability in American cities (Reece and Gambhir, 2008; Wang and Chen, 2017). The idea is based on the concept of “neighborhood effect”, which originates from a longstanding argument in sociology that where an individual lives could support or hinder the individual’s socioeconomic outcomes (Acevedo-Garcia et al, 2004). Geographical mapping of the computed COI can help address how the neighborhood context influences individuals’ future opportunities in terms of employment, education, health and safety, housing affordability, mobility, and accessibility. Nevertheless, to develop a fair community framework, it is necessary to understand and model the local relationships between community opportunity and the built-environment features of a city, which is shaped by the allocation of land uses, transportation infrastructure, and public facilities.

With this goal in mind, mathematically-explicit local relationships can be estimated by a geographical weighted regression (GWR) model, relating the computed COI to land uses, capital investments, and socio-demographical characteristics. A COI was computed for Columbus, Ohio, using the aggregated scores of a set of socioeconomic factors. A GWR was also estimated, accounting for the local built-environmental effects on community opportunity. The purpose of this study is to embed the statistically-estimated local relationships between inputs and outputs in a land-use and capital-investment mode that would maximize the total community opportunity by an optimal allocation of future land uses and capital investments, or minimize the total difference in community opportunity between a community and one another, subject to future growth targets and land availability constraints. Solving this optimization model for various policy scenarios would provide planning insights into the allocation problems of future land uses and capital investments for developing a fair community framework.

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Key Words: Spatial statistics, Optimization, Land-use and transportation planning, Community opportunity, Social Equity

THE FUTURE OF CANADIAN SMART CITIES: EARLY SIGNALS FROM SIDEWALK LABS AND SMART CITY CHALLENGE

Abstract ID: 326

Individual Paper Submission

In the 2017 Federal budget the Government of Canada declared its intent to spark urban innovation with an eleven year, \$300 million investment in the new Smart Cities Challenge (SCC—Government of Canada, 2017). Submissions are due in April 2018 and at least fifty Canadian communities have projects under development. This competition and the Alphabet (Google) Sidewalk Labs investment of \$50 million (USD) in the planning of the Quayside project on Toronto's waterfront are significant and early investments in smart city efforts in Canadian cities. What kind of smart city do the federal government, Canadian municipalities and Alphabet imagine?

By the end of summer 2018, Sidewalk Labs will be half-way through its year-long planning process and the Government of Canada will have selected its short list of cities to proceed toward adjudication of the full funding round. This timeframe presents an opportunity for a critical early check-in on the progress of smart city planning in Canada. In innovation challenges like the federal government's Smart City Challenge, most of the attention will be paid to the winners. However, there is value in examining the wider range of submissions to gain theoretical and practical insight into the full range of smart city activities (Robinson and Gore, 2015).

This paper will respond to the following questions. First, what forms are smart cities taking in Canada? Through an analysis of the first round of submissions to the Smart City Challenge, this paper will map and evaluate the types of smart city projects imagined, the issues Canadian municipal governments hope smart cities will address and the kinds of technologies proposed to be used. Next, what shape is the Alphabet/Google Sidewalk Labs project taking on the Toronto Waterfront? Through an analysis of the substantive elements of the first six months of public consultation process, this paper will begin to frame how the Quayside project is beginning to unfold. And, how does Quayside compare to other Canadian smart city projects? The early discussions about this project position it as groundbreaking and precedent setting. The country-wide Smart City Challenge will provide a series of comparative projects from which to draw comparisons. Project elements for comparison include: vision, goals, types of technology proposed, the extent to which the data will be open or closed for further use, and the role of public and private sector partners

As smart city momentum begins to move from plan to implementation, this early evaluation of proposed Canadian projects is important. Research on smart city implementation is "in its infancy, fragmented along disciplinary lines and often based on single city case studies." (Luque-Ayala & Marvin 2015, 1). Worldwide we are seeing smart cities take myriad forms and Toronto, Canada is home to Sidewalk Lab's first large-scale planning foray. The analysis of these projects will show common threads and proposed innovations across Canadian projects and will allow for exploring points of connection with the broader smart city movement emerging worldwide. This paper will conclude with reflections for planners about what challenges and opportunities these projects present for our practice in North American cities.

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Key Words: smart cities, Canada, Sidewalk Labs

UNDERSTANDING SUPER COMMUTERS BEHAVIORS IN THE TEXAS TRIANGLE

Abstract ID: 337

Individual Paper Submission

Unfortunately for many of us, John Maynard Keynes' 1930 prediction that his grandchildren's generation would only work 15 hours a week as a result of continued advances in technology did not come true (Elliot, 2008). Not only has the average American work week stayed at around 35-40 hours a week, but the percentage of workers commuting long distances to get to work has continued to grow. While the national mean travel time to work in 2016 was only 26.1 minutes, an estimated 8.7% of all commuters traveled 60 minutes or more to work and 2.7% of all commuters in the U.S. traveled more than 90 minutes (U.S. Census Bureau, 2016). This is up from 8% and 2.5% of 2010 commuters, respectively. While the overall percentage of long distance commuters among all U.S. commuters is still relatively small, it appears to be on the rise.

In response to this growing trend, travel behavior and transportation researchers are beginning to study the growing trend of "super-commuters", also known as "mega-commuters" (Moss and Qing, 2012; Zhang and Chen, 2011; Rapino and Fields, 2013). This project analyzes the commuting patterns of "super-commuters" in the Texas Triangle mega-region, which is one of the fastest growing areas in the country. We define "Super-commuters" as commuters who typically work within the boundaries of one metropolitan area but live outside of its boundaries, and are defined as traveling either 90 minutes or more and 50 miles or more one-way. Understanding where super-commuters commute to and from can provide insight into housing, job, and transportation issues.

This project uses Census Transportation Planning Products (CTPP) commuter flow data to map the 2010 American Community Survey 5-year estimates for commuter residence and workplace locations. Building upon methods previously established in the relevant literature (Rae, 2015), flow lines are created in ArcMap using the population centroid for each residence (origin) and workplace (destination) census tracts to visualize the number of commuters. In addition, two separate hot spot analyses were conducted, one on all origin points at the county level and the other by all destination points at the county level. For the origin hot spot analysis, eight hot spot counties and five cold spot counties were identified at the 90% confidence level. For the destination hot spot analysis, six hot spot counties and no cold spot counties were identified. All of the hot spot origin and destination counties were either in or bordering the Dallas-Fort Worth-Arlington Metropolitan Statistical Area (MSA).

Knowing where super-commuters are traveling helps in guiding where transit funding should be prioritized and helps define our understanding of the mega-region and MSA boundaries. This research shows that DFW and Houston area have the highest percentage of super commuter travel within the Texas Triangle. The majority of the super-commuters that traveled to these areas lived outside of the MSA boundaries, which may reflect a future expansion of the MSA area. Further, many of them live far from Interstate highways and must rely on state and local roads instead, which may put a significant strain on the transportation infrastructure in the region. We believe that continued study of super-commuting and megaregional travel patterns could help guide processes to integrate transportation planning, funding, and services to better function at the megaregional scale.

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Key Words: Super Commuter, Megaregion, Metropolitan Statistical Area, GIS

NEW GLOBAL HUMAN SETTLEMENT DATA AND ITS APPLICABILITY TO PLANNING RESEARCH

Abstract ID: 357

Individual Paper Submission

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The Global Human Settlements (GHS) data set, publicly released in 2016 by the European Commission's Joint Research Center, maps and tabulates the growth of all urban centers across the world between 1975 and 2015, using a standardized definition of 'urban'. The data set includes data on population and built-up area for over 13,000 urban centers, at four different points in time. What are the strengths and weaknesses of this data set, and in what ways can it be useful to urban planners?

So far, global comparison of urban growth has relied mostly on United Nations data derived from national census reports, which vary widely in the definitions they use to define what is 'urban'. In addition, data are typically associated with administrative boundaries, which rarely match urban extents. For these reasons, urban data derived from census records are inconsistent both between and within countries. Other studies have measured urbanization using comparable definitions across countries, but their data have been limited to certain geographic regions, samples of cities, or single time points. Until the release of GHS, no data set allowed a globally comprehensive measurement of changes in consistently-defined urban areas across time.

This paper explains the construction of the GHS data set from a combination of gridded population data and a global built-up area layer derived from remote sensing. It discusses the data set's definition of 'urban centers' (contiguous 1 sq. km. cells with a population density of at least 1,500 inhabitants per sq. km., or a density of built-up land greater than 50% of the cell, such that the total population of the cluster as a whole has a minimum of 50,000 inhabitants). The subsequent section provides a summary of basic global metrics for all urban centers between 1990 and 2015, using a cleaned version of the data set. These metrics include changes in population size and density, analyzed by region, income group, and city size, along with a brief discussion of rank-size distribution for the world as a whole and for four large countries (Brazil, China, India, USA).

This is followed by a discussion of the utility of the GHS data set for urban planners and policymakers. The GHS dataset allows planners and policymakers to compare their urban area or country of interest to a similar group over a 25-year period. This can help identify aspects of the growth of that city that deviate from the norm for a group, and in doing so help the planner understand and respond to changes in the city better. Similarly, a policymaker at the national level can compare the size distribution of urban areas in that country with that of similar countries, which can help formulate national urban policies. The GHS data can also help researchers estimate the impacts of planning interventions, for example by analyzing growth trajectories in cities in which a particular intervention has been implemented, and comparing them statistically against those in which it has not, with appropriate controls. Adding variables from other national or global data sets, e.g. carbon emissions, poverty rates, housing prices, or others, can expand the applicability of the GHS data to research on the impacts of planning.

The paper discusses some limitations of the data set, including potential errors in the population data, and precautions related to assumptions in the definition of 'urban centers'. Despite these limitations and precautions, the paper concludes that, as the first data set to provide a consistently-defined, globally comprehensive, longitudinal database of the population and built-up area of all urban areas, the GHS data set offers many benefits to planners and planning researchers.

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Key Words: GIS, remote sensing, data, global, population density

RESEARCH ON INFORMAL URBAN SHAPE EVOLUTION AND VITALITY REVIVAL BASED ON DIGITAL TECHNOLOGY - A CASE STUDY OF XIGU BLOCK, TIANJIN CITY, CHINA

Abstract ID: 361

Individual Paper Submission

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With the acceleration of the current global urban integration process, the world-wide urban revival has entered a new phase. The emergence of informal urban environments, in particular, has led to the evolution of urban forms more than at any time in history. At the same time, the urban renewal also shows a trend of diversification. There is a direct relationship between urban form and urban vitality. The vitality rejuvenation of informal urban space is an important type of optimization of urban stock space. Under the effect of improving people's livelihood and developing economic dual factors, it has also been increasingly concerned by the government and industry.

In order to create a sustainable block shape to improve the informal urban space, activate the vitality of the city and achieve urban renewal, this article starts from the perspective of factor analysis, integrates fractal theory and spatial syntax, and systematically analyzes the influence of informal urban space. Various factors of morphological evolution and the mechanism of action of various factors. Then, from the perspective of non-formal factors such as political, economic, social, cultural, environmental, locational traffic, administrative boundaries of neighborhoods, neighborhood planning, neighborhood residents, and the attractiveness of neighboring neighborhoods, we will build a space suitable for all informal urban spaces. Morphological evolution model. Taking into account the differences between neighborhoods, the article proposes regional, comprehensive and regular principles for the selection of model parameters. To avoid the subjectivity of the research results, this paper uses statistical quantification methods and elements on the basis of the evolutionary model parameter index system. Cellular automata expresses the analysis results in the form of neural networks, revealing the evolution of the spatial form of informal cities. Then use social network data to analyze urban vitality hotspots, superimpose and analyze the correlation between urban form and urban vitality.

Finally, take Tianjin as an example to clarify the influencing factors of Tianjin's informal urban spatial form, build Tianjin's informal urban spatial morphology evolution model, and use numerical methods to express and analyze results. Aiming at the development needs of typical blocks, a specific update strategy was proposed in order to provide a reference for the organic renewal of similar informal blocks in China. The latest developments in the application of multidimensional data information and related analysis methods can promote the deepening research of urban vitality revival.

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Key Words: Informal Urban Shape, Digital Technology, Evolution Model, Vitality Revival, Tianjin Xigu Block

USE OF ELECTROENCEPHALOGRAPHY (EEG) FOR THE ANALYSIS OF EMOTIONAL PERCEPTION AND FEAR TO NIGHTSCAPES

Abstract ID: 367

Individual Paper Submission

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As the necessity for safety and aesthetic of nightscape have arisen, the importance of nightscapes (i.e., nighttime landscape) planning has garnered the attention of mainstream consciousness. Research on nightscape has been carried out in various disciplines. However, the preceding studies mostly have focused on a particular structure to conduct a field survey rather than on empirical data. Experimental data of nightscape is significant for human health as excessive lighting can cause fatigue and serious illness. Therefore, it is important to study psychological aspects of the effects of lighting on the human body, such as concentration, nervousness, and fear.

The purpose of this study to validate the relationship between nighttime environments and fear as one of the effective response to nightscape. Furthermore, we verify the EEG method as a tool for landscape evaluation. We use survey methods to capture participants' subjective emotions to help interpret EEG data based on existing research, using Mobile EEGs in a real-world setting. While EEG output provides a real-time psychophysiological measurement of response to changing environments, self-reporting of fear provides a context and understanding of these changes. We examine participants' report levels of fear directly corresponded to the interaction of lighting positions and the presence of specific physical elements in the landscape. The specific landscape elements in this study are buildings, low, free-standing walls, tall and short trees, and shrubs. Additionally, we investigate the effects of the presence of a human figure in a nightscape, because the presence of a stranger in a nighttime landscape is suspected to elicit fear. The landscape elements above could increase or decrease the level of fear.

Based on the purposes as stated above, the following three assumptions examined in this paper: (1) the research subject's EEG responses over nightscape images would differ depending on the types of environmental setting that is depicted; (2) if the other landscape elements are constant, it affects the EEG response and fear experienced by the research subject depending on the presence of an adult figure in the nightscape; and (3) the research subjects' EEG response parameters would correlate with their reported level of fear when viewing the nightscape images.

In order to verify these assumptions, twelve digital photographs were used to conduct surveys at the same time as the EEG experiments. Each set has two photos, one with a person and another one without a person. The six sets of photos go as the following: (1) the first set depicts an enclosed setting close to stairs; (2) the second set depicts an open setting; (3) the third set depicts an enclosed setting surrounded by buildings; (4) the fourth set depicts an enclosed setting surrounded by trees; (5) the fifth set depicts a crooked path setting; and (6) the sixth set depicts an enclosed setting surrounded by architectural features. As research subjects view each image, they were asked to rate the level of fear elicited by the nightscape on a 7-point Likert-type scale (where 1 = very fearful, and 7 = very safe).

While viewing the photos of nightscape, the research subjects experienced varying levels of "excitement," "engagement," and "frustration" (interpreted as proprietary in the EEG software). Our findings indicate the corresponding measures of fear vary according to the environmental settings. Based on our physiological EEG experiment, we provide a new analytic view of the nightscape. The approach we utilized enables a deeper understanding of emotional perception and fear among human subjects by identifying the physical environment which impacts how they experience nightscapes.

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Key Words: Electroencephalography (EEG) , Nightscape, Fear, Perception

"CITIZEN'S AFFECT" ASSESSMENT FOR I-85 BRIDGE COLLAPSE EVENT USING SOCIAL MEDIA MINING

Abstract ID: 375

Individual Paper Submission

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Increasingly, researchers are using social media posts to cognize emergency events and the impact of these events in the day-to-day activities of people[1][2]. This paper examines the emergency event of the interstate I-85 bridge collapse in Atlanta, Georgia due to a massive fire incident under the bridge, using Twitter data. The study outlines how the bridge collapse event altered the traffic incidents and commutes of people in Atlanta as well as its adjacent areas (within 200 miles radius). The research advances the urban-event analysis method using historical, non-geocoded Tweets. A semi-supervised statistical modeling[3] technique is applied for social media opinion mining, to inform key-decision makers in the city. The aim is to equip the key city agencies to handle emergency events in the future with prowess. The research focuses on historical Tweet classification and sentiment analysis method to mine citizen's opinion from large-scale social media data (1.2 million Tweets). Further, the study explains time-series analysis of tweets to explore 'citizen's affect'[4].

The findings of the paper show traffic in Atlanta, as well as traffic in areas outside the Atlanta metropolitan area, experienced disruption during I-85 bridge collapse. The disruption is measured by adverse traffic incidents such as accidents, car crashes, fire, and congestion-related Tweets. Results of Tweet analysis before, during, and after the incident on an hourly basis, show a significant increase in urban-congestion related stress in the study areas during the period of I-85 collapse. The findings emphasize the necessity of alternative infrastructure to efficiently reroute traffic in Atlanta and its adjacent areas when the major interstate is dysfunctional in an emergency event. The analysis also captures people's perception and preference for mode choices during the incident. Analysis showed that people appreciated the presence of MARTA's (Atlanta's public Transit) subway system and other alternate modes such as biking. Several Tweets indicate that people took Marta to commute who otherwise would have driven to their destinations. Although specificities in commute route of users cannot be gauged solely through Tweeter data analysis, the pattern of increased traffic incidents reported on interstates I-20 or I-65 during the time of the event is discovered. Identification of such patterns is the stepping-stone for further investigation of the causality.

The use case highlighted explains techniques of retrieving and analyzing social media data such that it is useful for key decision makers and stakeholders. The findings of the research aim to prepare the city agencies to combat future emergency events [5]. There can be other use cases of the same system. For example, in a natural calamity like, hurricane, the method of historical Tweet mining could be used by the local planning agencies to understand what worked and what did not, when remedy efforts are being implemented.

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Key Words: sentiment analysis , situational awareness, public safety, I-85 bridge collapse , Historical Tweets

LEVERAGING MACHINE LEARNING AND TWITTER, TO IDENTIFY RESCUE NEEDS DURING HURRICANE HARVEY

Abstract ID: 429

Individual Paper Submission

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The timely understanding of flood extent is critical information for emergency managers during disaster response. Search and rescue operations require a boundary to reduce fruitless efforts and to prioritize critical or limited resources. However, high-resolution aerial imagery is often unavailable or lacks the necessary geographic extent, making it difficult to obtain a real-time information on where flooding is occurring. Volunteered geographic information (VGI) is a subset of crowdsourcing and can be used to disseminate spatially relevant information or request help (Goodchild and Glennon, 2010). VGI allows for real-time updates during a hazard event and can provide a rapid understanding of the spatial implications of the event. In this paper, we present a novel approach to map the extent of urban flooding in Harris County, TX during Hurricane Harvey (August 25-31, 2017) and identify where people were most likely to need immediate emergency assistance based on a subset of SOS requests. Using the machine learning software Maximum Entropy (MaxEnt), we predict the spatial extent of flooding based on several physical and socio-economic characteristics coupled with crowdsourced data. We compare the results against two alternative flood datasets available after Hurricane Harvey (i.e., Copernicus satellite imagery and fluvial flood depths estimated by FEMA), and we validate the performance of the model using a 15% subset of the rescue requests, Houston 311 flood calls, and inundated roadways. We find that the model predicts a much larger area of flooding than was shown by either Copernicus or FEMA when compared against the locations of rescue requests, and that it performs well using both a subset of rescue requests (AUC 0.917) and 311 calls (AUC 0.929) but is less sensitive for inundated roads (AUC 0.721). This study is an initial proof of concept for using machine learning as a real-time regional scale flood warning system. This approach overcomes the limitations of conventional approaches to disaster management. Implementation of this application has the potential to identify areas in need of rescues with as few as five calls (Hernandez et al., 2006).

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Key Words: Machine Learning, Floods, Crowdsourcing, Volunteered Geographic Information (VGI), Hurricane Harvey

NEIGHBORHOOD CHARACTERISTICS AND ACTIVITY SPACE: A NEW APPLICATION OF SOCIAL MEDIA DATA

Abstract ID: 431

Individual Paper Submission

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This research investigates how socioeconomic and spatial characteristics of neighborhoods affect residents' activities spaces, which are defined by using social media data. The research is at the intersection of two fast-evolving research fields: one is the application of big data and the other one is spatial equity. On the one hand, information from big data can be used to build smart and connected communities (Sun et al. 2016), but little research has investigated how big data can be used to understand and address inequality. On the other hand, the spatial inequality in activity spaces has gained increasing interests. Activity spaces are defined as where people conduct daily activities and interact with others outside home (Horton and Reynolds 1971). Existing activity space research tends to rely on travel diary data (Farber et al. 2015) and activity diary surveys (Jones and Pebley 2014, Wang and Li 2016), which generally have small sample sizes. Big data could better reflect the population than conventional survey data.

The research contributes to the literature in two ways: First, we explore the applicability of using social media data to describe activity spaces. Second, we examine the neighborhood-level determinants of activity space. The research can enrich the growing empirical literature on activity spaces and provide a proof of concept that big data can be used to investigate spatial inequality.

The study area is the Los Angeles metropolitan area, which is chosen because of its fragmented urban spaces and demographic diversity. The two characteristics combined allow heterogeneous activity spaces across space and across population groups. The Census tracts are the spatial unit of analysis.

We rely on 2015 Twitter data to describe activity spaces. After the data processing and cleaning, 87,063 unique users with valid geo-information are selected. To describe activity space, we first define the home census tract of a Twitter user as the tract where the user sent most tweets during the night time (9pm-5am) in the study period. We then estimate the activity spaces of all Twitter users residing in the same home census tract. We adopt two quantitative measures of activity spaces—1. the average distance between the home tract and the locations where the Twitter users tweeted out of the home tract; 2. the average spatial area formed by the location of the tweets from all Twitter users residing in the home tract.

To answer our research question how neighborhood characteristics affect activity spaces, we apply ordinary least squares (OLS) regressions. The two activity space measures are the dependent variables. The independent variables include socioeconomic characteristics (i.e. race/ethnicity, education, poverty level, employment status, and vehicle ownership) and spatial characteristics (i.e. the distance to the Central Business District, population density, and activity density). Data of neighborhood characteristics come from the 2011-2015 American Community Survey (ACS) and the 2015 Longitudinal Employer-Household Dynamics (LEHD).

Preliminary results suggest that in the study area, spatial disadvantages of minorities with respect to their activity spaces are apparent: the share of racial/ethnic minorities is negatively associated with the size of activity spaces. Spatial characteristics have expected effects: Higher density is associated with smaller activity spaces, and the census tracts that are farther away from the CBD have a longer average distance to activities.

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Key Words: Big data, Activity space, Spatial inequality

UNDERSTANDING THE ASSOCIATION BETWEEN SURFACE AND ATMOSPHERIC UHIS BY GEOSPATIAL ANALYSIS: AN APPLICATION FOR THE CITY OF HOUSTON, TEXAS

Abstract ID: 524

Individual Paper Submission

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In recent decades, the increase in extreme heat events has decreased human thermal comfort levels. In particular, densely built areas are disproportionately affected by heat waves because of the urban heat island (UHI) effect, the phenomenon by which urban areas are warmer than surrounding rural areas (Oke, 1981). Several strategies have been developed to mitigate the UHI, such as installing green roofs and planting trees (Raji, et al. 2015). However, there is still much debate surrounding the type of temperature, land surface temperature (LST) or air temperature (AT), to investigate the UHI (Schwarz, et al., 2012). A lack of understanding the basic interaction between LST and AT is a critical barrier to the decision-making process in urban heat management. Research has yet to investigate how urban characteristics influence the levels of both LST and AT in UHI formation. Therefore, we explore the contribution of urban characteristics to affecting both LST and AT and the spatial relationship between these temperature measures in the city of Houston.

Houston's rapid development challenges an already dwindling urban canopy, potentially resulting in more intense UHIs in the inner city. The imbalance between the built and natural environments exposes more of the populace to extreme temperatures and increases the number of heat-related illnesses, particularly in those populations who are considered most vulnerable to high temperatures. This study accounts for the two- and three- dimensional urban determinants of LST and AT, using diverse geospatial data obtained by passive and active optical remote sensing technology, such as Moderate Resolution Imaging Spectroradiometer (MODIS), Color Infrared aerial photos (CIR), and Light Detection and Ranging (LiDAR). Our approach consists of (a) observing land surface temperatures and air temperatures, (b) analyzing the spatial patterns of these temperature measures, (c) extracting physical urban characteristics, (d) investigating impacts of these characteristics on UHIs, and (e) recommending policies to properly reduce UHIs derived by LST and AT.

This study will provide an applicable foundation for addressing Houston's energy demand and heat-related health concerns. These findings can guide development of sustainable solutions that can be implemented as a formal part of urban design, thereby contributing to the health and welfare of the general public and its environs.

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Key Words: Urban Heat Islands, Geospatial Analysis, Land Surface Temperatures, Air Temperatures

A HYBRID LAND-USE CHANGE MODEL WITH AUTOMATED LAND PARTITIONING AND CONSOLIDATION

Abstract ID: 527

Individual Paper Submission

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Modeling land-use changes is a difficult task due to challenges in methodology and computation. Different approaches for modeling land-use changes at various geographical scales have been proposed over the last two decades by a diverse group of researchers. There are mainly two different approaches: (1) statistical methods used to discover transition rules, and (2) simulation-based methods predicting future land-use changes based on predefined transition rules. There is no doubt that finding the actual transition rules is the main goal. Therefore, statistical methods offer better performances in terms of obtaining robust land-use change models. However, such a robust land-use change model requires a high level of complexity that brings methodological and computational challenges.

Dynamic land-use change models incorporating spatial and temporal land dynamics are required to obtain robust transition rules. Ferdous and Bhat (2013) introduce a spatial panel ordered-response probit model that incorporates both spatial interactions and temporal dynamics. Wang et al. (2012) present a multinomial probit model that incorporates spatial and temporal dependencies to investigate parcel-level land-use changes in Austin over 8 years (2000-2007). Although these studies introduce new methodologies for dynamic land-use change modeling, they recognize the computational infeasibility of considering spatial dependencies across all parcels. Small geographical scales, such as the parcel, can provide a wealth of information due to spatial heterogeneity, but such data increases the number of observations in the dataset. Tepe and Guldman (2017) adapt the Spatio-Temporal Autologistic Regression Model (STARM) to estimate the probability of a parcel changing its status from vacant to developed, using a large dataset related to 70,000+ parcels.

Parcel-level dynamic models incorporating spatial and temporal dependencies are based on the assumption of parcels with fixed shapes and boundaries over time. However, land partitioning and consolidation also play an important role in land dynamics (Demetriou et al., 2013). Both land development and partitioning/consolidation can be viewed as closely-linked decisions. Simulation-based modeling approaches can be used to expand the dynamic land-use change models by incorporating land partitioning/consolidation. Alternative approaches can also be considered, such as cellular automata simulation models combined with automated land partitioning algorithms, as proposed by Yao et.al (2017).

In this study, a hybrid land-use model is formulated, integrating a vector-based cellular automata model with an automated multi-objective optimization land partitioning and consolidation algorithm, where STARM is used for transition rules. The proposed model framework is tested on land development in Washington D.C. The dataset contains detailed information over several years about each parcel and building in Washington D.C., such as size, land-use, and construction date, and historical records of land subdivisions are also available. Preliminary results point to a promising advance in land-use change modeling. Accurate land-use change models can be used for predicting future land-use changes and testing the effects of proposed plans and policies, particularly in the context of climate change and environmental protection.

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Key Words: Land-use change, Land fragmentation, Cellular automata, Spatio-temporal autologistic regression, Big data

USING MULTI-SENSORY IMMERSIVE VIRTUAL REALITY IN PARTICIPATORY PLANNING

Abstract ID: 604

Individual Paper Submission

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In recent decades, a range of planning practices has embraced digital technologies to enhance traditional public participation processes and to support different forms of e-governments (Mandarano, Meenar, & Steins, 2010). The use of "participatory" geographic information systems (GIS) in measuring multidimensional socioeconomic problems—tied to the built environment—may produce more comprehensive results compared to other commonly used methods (Meenar, 2007). Smarter instruments, such as the immersive virtual reality (IVR), can simulate social interactions and complex environments. Modern multisensory IVR technologies can better predict the impact of future scenarios on communities and their complex environment, and can enhance the participatory planning process. A few researchers are incorporating complex multisensory variables of the environment, such as acoustic and visual parameters, to enhance the IVR technology (Maffei et al., 2016; Ruotolo et al., 2012). Smell is one of the most primal and influential forms of environmental sensing, but it has remained an underdeveloped dimension of how we experience and design urban environments because of the complexity of our olfactory system and difficulty in quantifying and capturing scents (Henshaw, 2013). Recently, however, a growing demand to understand the social and spatial role of olfaction in urban environments has emerged out of a broader movement to design sustainable cities for the full human sensorium. The influential, yet understudied, dimension of olfaction in human decision-making can be relevant to the community planning process. It remains to be seen whether multisensory IVR experience could benefit from olfactory cues.

This paper is based on a research study with the following questions: Does IVR technology coupled with multisensorial parameters (i) increase the level of public participation and (ii) promote a better understanding of a simulated urban environment? Does this technology have an advantage over other commonly used methods and tools used in the participatory planning process? Can we measure these benefits?

The project team formed four focus groups—with 10 participants in each group—exploring future development scenarios of a proposed Arts and Entertainment District in Glassboro, New Jersey. Group 1 experimented with 3D GIS visualization outputs without any IVR technology, Group 2 experimented with IVR technology, Group 3 experimented with IVR technology—coupled with sensorial experiences such as sound and smell, and Group 4 was the control group, which experimented with all of the above. The qualitative analysis and discussions of this paper are based on pre- and post-event survey results and focus group conversations.

This paper concludes that innovative combinations of participatory planning tools, IVR, and geospatial technologies can play an effective role in a community decision-making exercise. It expands our understanding of the effective engagement of community residents and stakeholders in spatial planning process.

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Key Words: immersive virtual reality, smell, public participation, visualization, scenarios

THE RELATIONSHIP BETWEEN OBESITY AND RESIDENTIAL PROPERTY VALUES IN GPS-MEASURED ACTIVITY SPACES

Abstract ID: 611

Individual Paper Submission

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Objective—This paper presents a GPS-defined measure of activity space that captures changes in exposure as participants move through their environments.

Background—Global Position System (GPS) technology allows researchers to study environmental exposures at a level of scale and detail never before possible. The challenge has been to create measures that capture the richness of GPS data. Many studies use Hagerstrom's concept of the activity space as a starting point for this work. However, often the methods used to construct the activity space from GPS data do not lend themselves to the measurement of exposure.

Previous research has found a connection between residential property values and health. Moudon et al (2011) distinguished between personal wealth (the property value on participants' home parcels) and neighborhood wealth (the average property value of all residential parcels within 833 meters, about a ten-minute walk, of participants' home parcels) and found both were significantly associated with self-reported health. We build on of this research by introducing exposed wealth, a measure of the average residential property values of participants' GPS-defined daily activity spaces.

The relationship between socioeconomic status and obesity has been widely recorded and a steadily increasing body of literature is demonstrating that residents of high-SES neighborhoods have lower obesity rates than residents of low-SES neighborhoods. We use exposed wealth as a measure of the SES of the activity space experienced by individuals as they perform their daily activities. As such, exposed wealth may represent a social contagion effect on obesity—similar to that identified by Christakis and Fowler (2007)—in which exposed wealth serves as a proxy measure of contact between individuals of differing SES and obesity statuses.

Methods—Data for this study came from the Seattle Obesity Study II (SOS2). An NIH-funded research project comprising a sample 390 residents living within the urban growth boundary of King County, Washington. Recruited using an address-based sampling method, participants wore GPS receivers that recorded their locations at intervals of 30 seconds over 7 consecutive days and completed a computer-assisted questionnaire. Using GIS, parcel-level residential property values (land + improvements) from King County tax assessor data were smoothed into a continuous surface of 30-by-30-foot cells, each measuring the mean residential property value per unit within 833m of cell centroids. For each participant, the property value of the location of each GPS record was then obtained. Three measures of wealth exposure were then created. Exposed wealth was created by averaging the GPS-obtained property values over the course of a day and then averaging across days. Exposed difference was the participant exposed wealth minus home neighborhood wealth, the property value per residential unit within 833m of participants' homes. The percentage of time spent in areas with the population above-median exposed wealth values was also calculated.

Results—We found that being white, college-educated, living in a household with < 2 cars, and being non-obese were associated significantly higher mean exposed wealth values. Exposed wealth was associated with a decreased odds of being obese (OR=0.62, 95%CI 0.39–1, p=0.046) after controlling for neighborhood wealth, SES, and demographics. Neither percent of time nor exposed difference were significantly associated with the odds of being obese after controlling for SES and demographics.

Conclusions—This paper attempts to demonstrate the potential for future research in linking activity space to built environment exposures using the methods used to measure of exposed wealth. Though our results were mixed, we

believe this method may be very useful in capturing changes in exposure to other built environment characteristics such as density, green infrastructure, or proximity to specific land uses.

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Key Words: GPS, GIS, Activity Space, Obesity, SES

SLOPE, LAYERS, AND WALKABILITY: ESTIMATING THE LINK BETWEEN PEDESTRIAN ACCESSIBILITY AND LAND VALUES IN THE MORPHOLOGY OF HIGH DENSITY CITIES

Abstract ID: 623

Individual Paper Submission

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Traditional urban economic models of the city postulate that the price and development intensity of land is a function of its accessibility (Alonso, 1964; Mills, 1972; Muth, 1969). In the field of economic and transportation geography, the concept of accessibility can be defined as the ease with which one can travel between origins and destinations of value (Páez, Scott, & Morency, 2012). With finite amounts of land, transportation infrastructure, and opportunities for interaction within a city, locations that are more accessible should command higher economic rent and greater development densities, all else being equal.

More often than not, such research has found a positive association between accessibility and land prices, for example around rapid transit stations (Higgins & Kanaroglou, 2016). However, in practice, this concept of accessibility and its link to urban form outcomes is often operationalized in two dimensions, with existing approaches derived from, and most suitable for analyzing low- to medium-density cities.

In contrast, higher-density “volumetric” cities require new methods and techniques for estimating accessibility and its link to urban form. Per Shelton et al. (2011), volumetric cities feature multiple modes of movement and stacked layers of activities above and below ground with particular emphasis on pedestrian networks. Moreover, topographical variation in these layers of activities and their relationship with the ground presents additional complexity when considering pedestrian connectivity and the ease of movement. Quite simply, existing approaches to measuring access are not appropriate for capturing the dynamics of high-density, volumetric, and topographically-varied cities.

In response, using a case study of Hong Kong Island, the present paper proposes a new approach to measuring pedestrian accessibility in volumetric cities, and estimates its link to land prices. The methods employed to estimate this relationship include creating a three-dimensional, slope-aware walking environment, and using it to estimate accessibility. Moreover, spatio-temporal hedonic regressions are utilized to estimate the link between accessibility and property prices. Preliminary results suggest that topography and layered connections have a significant impact on walkability and access. Furthermore, econometric models suggest a link between

connectivity and willingness to pay among households.

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Key Words: accessibility, walkability, land value, volumetric

UNDERSTANDING PATTERNS OF TOPICS AND TRENDS IN URBAN PLANNING: A TEXT-MINING APPROACH TO ANALYZING INTERVIEWS OF U.S. PLANNING SCHOLARS BETWEEN 2001 AND 2017

Abstract ID: 631

Individual Paper Submission

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As a basic communication tool, texts in urban planning reflect not only the way planners think about urban planning but also its challenges in the future. Since the 21st century, advanced information and data management technologies allow planners to produce a large number of texts about a variety of planning topics and accumulate them as a potential data source for examining dynamics of planning topics and trends. In the recent literature, a few studies collected texts from social media to understand public feedback related to planning issues (Evans-Cowley and Griffin 2010; Schweitzer 2014) or used keywords of journal articles to identify a change in planning trends (Gobster 2014). These studies suggest that use of texts as a data source and its quantitative approach can be applied to other forms of planning document texts.

As a pilot study on text mining in urban planning, this study focuses on analyzing texts in interviews of U.S. planning scholars and identifying how planning topics or trends have changed since the beginning of the 21st century. To achieve this goal, this study collects texts of U.S. planning scholar interviews conducted by Korea Research Institute for Human Settlement (KRIHS)—a governmental planning research institute in South Korea. Interviews have been conducted to randomly selected planning scholars throughout the world, and interview articles have been published in KRIHS's monthly magazine "Planning and Policy" every month since July 2001. Currently, 192 interviews have been published, and 102 interviews have been implemented to 102 U.S. planning scholars so far. All interview articles of U.S. planning scholars are written in English, and an unstructured interview is applied to get interviewees' responses to various planning topics like a comfortable conversation. Preprocessing of texts is done both automatically and manually to extract frequencies of planning terms. To identify a significant change in planning trends and topics under the U.S. planning contexts, the 102 interviews are divided according to two influential events occurred during the interview period—Great Recession in 2008 and 2010 and recognition of big data as a science in 2008. To understand changes in planning themes, interviews are classified according to interviewees' research interests and subjects of an interview.

Based on preprocessed texts, this study conducts three text mining techniques to identify dynamics of trends in urban planning—exploratory text analysis, topic modeling, and sentiment analysis. In the exploratory text data analysis, word clouds, word frequency graphs, and cluster analysis confirms shifts to data-driven quantitative research and analyses of multidimensional planning phenomena such as urban sprawl, planning equity, sustainable development, and so on. In probabilistic topic modeling, 17 different topics are identified from interview texts, and most of the topics except for two topics related to data-driven assessment systems and prediction modeling are traditional planning topics. Topics on data-driven and evidence-based approaches to multidimensional planning phenomena tend to become evident after Great Recession and emergence of big data. In the sentiment analysis, U.S. planning scholars tend to become more confident in measuring multidimensional

planning phenomena by using microdata and finding solutions through identifying causal paths in planning problems. However, at the same time, these micro-level data modeling and analysis also reveals needs to explore environmental impacts of the built environment on natural disasters and global climate change as well as urban sociological issues such as public safety, equity, the housing crisis, transportation equity, and so on. From these results, this study contributes to expanding the further discussion on changing trends in urban planning by analyzing a large number of texts at a time through an integrated text mining approach.

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Key Words: Text mining, Interview, Planning trends, Exploratory data analysis

EXAMINING URBAN SPATIAL FORM THROUGH MICROBLOG HOTSPOTS DISTRIBUTION: A CASE STUDY OF SHANGHAI

Abstract ID: 635

Individual Paper Submission

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With the rapid development of information technology, the interaction between the virtual world and the real space has become a hot topic in urban planning and architecture field, especially big data mining and applications. Microblogging, a means of broadcasting information about one's activities, opinions, and status, has been embraced worldwide. Since the combination of microblogging and geolocation, geo-tagged microblog has become a valuable source for the study of human dynamics and geography entity. Its analysis is shedding new light not only on understanding human behavior but also on modeling the way people live and interact in their urban environments. From the perspective of microblogging, a very popular social networking media tool, this paper attempts to test the implement effect of the urban planning program and the consistency degree between urban spatial form and microblog hotspots distributions.

Although academic studies published on this topic are increasing, the research is still one cutting-edge topic and in a very early stage. Hughes and Palen (2009) estimate that nearly 70% of public tweets are or could be georeferenced. Some early works have graphed and animated heat map of Twitter, proving Twitter users can be considered citizen-sensor of real-world events (Sakaki, Okazaki and Matsuo 2010). Beyond events reacting, several studies investigated characteristic patterns in urban areas such as populated areas from the movement histories of mass mobile micro-bloggers (Nagarajan et al. 2009; Ruiz and Hristidis 2013). One initial qualitative study efforts by Martinez et al. (2012) develop technique to automatically determine land uses in a specific urban area based on tweeting patterns, and to identify urban points of interest as places with high activity of tweets. However, we still lack an in-depth understanding about the sociological meanings of microblog distribution and the helps to urban planning.

Specifically, this article tries to study and answer the following questions: Where people microblog? How microblog hotspots move as time goes on? What spatial features the hotspots have? Whether the hotspots distribution corresponds with the urban spatial form brought about by the city planning program? How to explain this phenomenon?

To this end, this paper takes SINA Weibo (China's most popular microblog tool) as research platform and takes Shanghai central city region as research area, carrying out the study by five steps: (1) collecting, cleaning and visualizing the original microblog data; (2) distinguishing microblog hotspots spatial distribution pattern; (3) drawing and analyzing microblog heat maps; (4) typing microblog hotspots by urban functions; (5) comparing and verifying the interrelation between microblog hotspots distributions and urban spatial form.

By analyzing mass geo-tagged and time-stamped microblogs, we can find when and where micro-bloggers like staying, what characteristics these places have, what real urban spatial form produced by people's daily activities looks like and what differences between it and the early planning programs.

The results show that: (1) the microblog distribution in macro space dimension coincides with urban structure (including commercial center distribution, population density distribution and rail transit networks); (2) most microblog hotspots cluster at circles with the radius of 4 km and 9 km away from the city center, where commercial complex, universities and techno park are located; (3) the spatial-temporal movement of microblog hotspots brings out the residential communities, offices, universities and industrial parks, complementally proving that microblog distribution in the macro space diminution is urban-function-related.

Through visual analyzing microblog spatio-temporal distribution in the urban space, this paper studies the living-working location features and social attributes of microbloggers, who represent the most active, expressive and innovative groups. The outcomes provides a useful reference basis for understanding urban spatial form, reviewing and rethinking urban planning program and implementation.

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Key Words: Urban Spatial Form, Microblog, Shanghai, Sina Weibo

INCLUSIVE RESILIENCE PLANNING: THE CASE OF JAKARTA RIVER FLOODING

Abstract ID: 651

Individual Paper Submission

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Urbanization and climate change are two global trends facing our cities. Cities grow through the collaboration that has been built through businesses and real estate. This process cannot be separated from globalization, the flows of finance and trade, and the patterns of production and consumption. The accelerating growth in economies is, however, at the expense of other important aspects of a community such as the equity and environmental aspects (Campbell, 1992a, 1996).

Cities become home to many small and large communities. Some are resilient to disturbances such as climate change, economic crises or social/political unrest, but others are not. City resilience relies on the plans, policies, and institutional arrangement that incorporate more adaptive components (Holling, 1973; Berkes and Folke, 1998; Berkes et.al, 2003). Resilience does not describe ecology and socio-economy of a city as two separate systems. It reflects the efforts of all stakeholders to produce immediate action as well as a long-term solution, in response to the disturbances. Rural migrants, especially those who squatting, are often overlooked in the process. They are not

immune to the disturbances, such as climate change impact of flooding, but most vulnerable amongst all. Moreover, the scarcity of urban space in cities is one of the many reasons for the migrants to locate their settlements informally. Consequently, they are often excluded from the city's formal real property markets and are overlooked by the city's improvement programs (Douglass and Jones, 2008).

This explains why urban squatters have more experience with flooding given the risk is known. The squatters, whom the city considers participating in the informal economies, organize among themselves to reduce flood-risks rather than instead of relying on support from the city government. How they adapt to flooding and how their adaptive behaviors differ from any other urban residents become the main interest of this study (Adger 2010; Leichenko, 2011).

By looking at the case study of Jakarta, this study examines the communities' adaptive behaviors towards climate change phenomena, river flooding, and interaction with other stakeholders, such as local leaders and the city government. Located adjacent to Java sea, Jakarta is particularly vulnerable to flood risk. To understand the dynamics of both informal and formal housings, this study also explores the historical trend of housing formation and flood adaptation. Thus, the study is embedded in the following two research hypotheses. The first is the smallholders often do not have a choice to locate their homes away from flood risk. The increasingly high rent in Jakarta has forced them to locate their homes in the most vulnerable regions of the city. They are often willing to pay the damage costs resulted from flooding. Secondly, community-wide risk reduction efforts are more prevalent among smallholders rather than those in formal housing. Smallholder communities rely on their communities in reducing flood risks while communities in formal housing enjoy the luxury of public infrastructure and services provided by developers and the city government.

My research analysis, by using grounded research and an agent-based modeling techniques, finds that the same income growth rate for both communities of formal and informal housing increase the rate of upward mobility of residents in looking for future housing. In terms of adaptation strategies, the findings suggest a more community effort and evacuation among the slum communities are more prevalent than the rest of urban residents during flooding. The squatters also tend to not return to their original location after the flood damaged or destroyed their homes.

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Key Words: river flooding, climate change adaptation and resilience, slums, grounded research, agent-based modeling

USING BIG DATA AND MACHINE LEARNING TO UNDERSTAND NEIGHBORHOOD DYNAMICS

Abstract ID: 663

Individual Paper Submission

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Planners need for accurate, timely and reliable data on neighborhood conditions. For many years, the decennial census was the only easily accessible data at the neighborhood level that met these standards. Being released only once every 10 years, however, limited the usefulness of census data in terms of timeliness. Also, at smaller

geographies, such as the census block, sampling methods create substantial margin of errors in the estimates, further constraining its usefulness at small areal units. Beginning in the early 2000s, increasing amounts data from nontraditional sources have become available at the neighborhood level. Moreover, the Census Bureau began releasing the American Community Survey, which is updated on an annual basis. Through open data initiatives, municipalities started making data related to city services (e.g. property sales, crime locations, etc.) accessible publicly and on a regular basis. In what might be considered a third wave of data accessibility, spawned by the rise of big data, the ubiquity of smart phones, and the popularity of social media, new types of data with the potential to help us understand neighborhood level conditions and trends are increasingly becoming available. Scholars have used social media to study sentiment towards public transit (Schweitzer 2014), online listings to analyze rental housing market dynamics (Boeing and Waddell 2017), Wifi connection data to measure real-time populations (Kontokosta and Johnson 2017), 311 data to estimate socioeconomic characteristics of place (Wang et al. 2017), and twitter to examine traffic incidents (Gu, Qian, and Chen 2016). These studies suggest the new types of data in the form of social media and/or big data have utility for planning purposes.

For the practitioner with need for data at the neighborhood level, however, it is not clear what types of data might provide the most useful information to understand neighborhood dynamics. The urban planning community has yet to systematically explore the potential for these new sources of data to help us understand neighborhood level conditions. This paper is an early attempt to document these novel data sources and describe how they might be used by local residents, community development practitioners and urban planners.

In this paper, we survey some of these novel sources of data – including social media, smart phone locational data, credit card transactions, city records, and Wifi data - that appear most promising for documenting neighborhood level conditions with a focus on the data's practical utility in terms of accessibility, accuracy and reliability. We also present results from a pilot study utilizing geotagged data from Twitter and sentiment analysis as a measure of neighborhood change, and comparing and validating our results with data from the American Community Survey .

The results of this paper will be of interest to planning academicians and practitioners who rely on neighborhood level data in their work.

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Key Words: Big Data, Urban analytics, Neighborhood conditions

EVALUATION AND ANALYSIS OF URBAN RESILIENCE MITIGATION ABILITY BASED ON ADAPTATION—VULNERABILITY

Abstract ID: 693

Individual Paper Submission

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Abstract: this article aims to establish the evaluation index system and evaluation model of coastal cities' resilience mitigation abilities based on adaptation—vulnerability. Based on taking Tianjin, Chinese coastal city, as example, unit as the spatial unit, and the adaptation of disaster inducing environment and vulnerability of hazard-affected body as criterion layer, 24 indexes are proposed and the score of Tianjin's resilience mitigation ability is obtained via principal component analysis. Besides, cluster analysis, space autocorrelation analysis, LISA agglomeration analysis and hotspot analysis etc. are applied to know the spatial distribution of resilience mitigation ability and its correlation with spatial unit, which are verified by Geoda. The analysis results indicate that there is no regularity in the spatial distribution of resilience mitigation ability in downtown Tianjin, and it is not closely related to the core area layout structure of Tianjin's overall plan. In specific, no high-adaptation and low-vulnerability area emerged in downtown Tianjin, and as a geometric center with high visitors flow rate and frequent economic activities, the appearance of unstable aggregation with high adaptability and vulnerability appeared Heping District, which means that there is a large room for improvement in Tianjin both in development and resilience mitigation. High-fragility areas are distributed in Heping District, so the implementation of resilience mitigation strategies can properly reduce sensitive populations in exposure to high-risk areas such as heat island, and improve the mitigation standard of older buildings or structures and enhance the resilience mitigation ability of high vulnerability regions by perfecting the green infrastructure within the district. Low-adaptation areas are more concentrated distributed along the outer ring, where the infrastructures are level and the per capita or land assets are relatively less with obvious vulnerabilities in resisting floods and other natural disasters. Besides, medical facilities and other public facilities are relatively insufficient with low density of commercial networks, so there is a clear gap with Heping District in material reserves. By improving the uniform spatial distribution of public facilities, the depth of infrastructure construction and the density of commercial networks with medium and short-term mitigation material reserves can effectively increase the level of resilience mitigation.

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Key Words: adaptation, vulnerability, urban mitigation, urban resilience, analysis

SPATIAL MEASUREMENT OF THE ELDERLY'S COMMUNITY LIFE CIRCLE—A CASE STUDY OF YANGPU DISTRICT IN SHANGHAI, CHINA

Abstract ID: 756

Individual Paper Submission

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Nowadays, the aging of population has become an international issue, and also the fundamental realities of China. Shanghai has entered the “super aging” society since 2016, so the construction of elderly-friendly community and the relevant community planning idea of “life circle” are developing continuously. Under this background, based on individual behavior research method, this paper attempts to conduct visual analysis of the elder's daily travel activities, the result of which lays foundation for the follow-up study of defining the geographical boundary of the elderly's “community life circle” and measuring its spatial characteristics, so as to provide a theoretical basis and

data support for the construction of elderly-friendly community. Both questionnaire survey and GPS data analysis are used in this study, combining subjective and objective research method together. GPS data with daily travel positioning record for 7 days comes from 70 elderly participants from 7 neighborhood committees in Yangpu District of Shanghai. In the first part of the paper, questionnaire and GPS data are linked to analyze the elderly's daily travel behavior. With comprehensive understanding of the temporal and spatial behavior characteristics of the old people, the paper then regards travel mode and spatiotemporal density or frequency as indicators to identify life circle boundaries. At last, we choose walking, biking and highly-frequent bus GPS data to define the elderly's community life circle. On basis of ArcGIS's spatial analysis function, the boundary contour of each committee's "community life circle" is extracted and then overlaid. Meanwhile, the paper tries to establish the spatial system of elderly's community life circle and further measure its spatial characteristics. The result of this study shows that daily travel of the old people is of high frequency and short duration with an average frequency of 4.61 per day and 20 minutes per time. The daily activity space is mainly concentrated in the range of 1000m around the residence. The elderly's community life circle presents a spatial feature of correlation, overlapping and nestification, which could be defined as a two-level spatial system of self-contained circle and sharing circle. Additionally, the scope of the "community life circle" exceeds the administrative divisions, which is actually the true portrayal of the elderly's daily activities in space, and is of greater benefit to the effective allocation of community public facilities and the organization of community activities. Through the bottom-up perspective, this empirical study hopes to extend the applicability of "life circle" theory in the aging background of China through in-depth analysis of individual space-time behavior, and to provide reference for planning, construction and building of the elderly-friendly communities.

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Key Words: the elderly, community life circle, GPS data, spatial measurement

EXPLORING DYNAMIC SPATIAL STRUCTURE OF HUMAN MOBILITY WITH CELL PHONE DATA: A CASE STUDY IN SHANGHAI

Abstract ID: 796

Individual Paper Submission

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With the development of traffic information technology and acceleration of life and work rhythm, in modern metropolises like Shanghai, the high frequency mobility of massive population has caused huge influence on urban internal structure. How to measure human mobility and explain its dynamic structure in the city is of great significance to understand the law of intra-urban population flow. Previous research has mainly focused on human mobility patterns. In this paper, we aim to go one step further from exploring how the whole structure look like when individuals' mobility are aggregated into spatial analysis units using relatively high-precision and large-scale cell phone data. Shanghai as a typical metropolis of China is selected for research. To address such question, we divide Shanghai into 5432 census tracts and calculate basic population in every spatial unit by identifying every user's stable location during 4:00 p.m. to 6:00 p.m. when human mobility is the lowest. Then we compare basic population with daily visit frequency to calculate the amount and the ratio of human flow in each spatial unit. Finally, we combine the strength of human flow with the influential range, the composition, and the temporal law of human flow to extract a dynamic structure of urban space in Shanghai. The result shows that People's

Square enjoys the highest amount of human flow, approaching 2.95 million visitors passing by per square kilometer, which is more than 10 times of its residents, while in suburban areas the average level of human flow is just 4.80 thousand visitors per square kilometer. Additionally, the dynamic structure of human mobility extracted from four dimensions of index is composed of four kinds of features: dynamic surface, from city center to subarea, shows the strength level of daily human mobility; dynamic center, including five center and eleven sub center, becomes the most influential areas in the flowing network; dynamic cluster, can be divided into seven groups according to the composition and temporal law of human flow; dynamic corridor, strongly related to metro lines, highways, and Huangpu River, provides transportation supports for urban population. The findings of the paper help to illustrate a dynamic structure caused by human flow upon the static material spatial structure. The relationship between human mobility and urban structure can also be considered as a key issue which is continue focused on in housing, community development, and transportation field.

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Key Words: Human Mobility, Spatial Structure, Cell Phone Data, Shanghai

MODELLING COMMUTER FLOWS USING MOBILE PHONE SIGNALING DATA: A CASE STUDY OF SHANGHAI, CHINA

Abstract ID: 806

Individual Paper Submission

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Abstract: The estimation and prediction of human mobility such as commuter flows is a fundamental aspect of urban spatial structure. Various human mobility and trip distribution models have been proposed in order to describe the commuting flow patterns of people. Here we use a spatially weighted interaction model (SWIM), which combines spatial interaction model and geographically weighted method to reconstruct the “empirical” commuting OD matrix inferred from mobile phone signaling data of Shanghai. The database contains approximately 16 to 18 million anonymous users and 0.7 billion records per day in a two-weeks period. Using an algorithm mainly based on user’s location at night and daytime, we recognize 13.7 million users who have relatively stable residences and workplaces, then we aggregate the 13.7 million commuters to 5432 census areas. Finally, using the number of population and jobs of each census area and the time costs between census areas, we construct an origin-specific spatial weighted interaction model for each unit to estimate commuter flows from one unit to another. The results show that the fit goodness of each model largely lies in an interval between 0.6 and 0.8, and the parameters of each variables vary from ones to ones. The job attractiveness parameters decrease from central city to suburb, especially from major job centers to the peripheral area, which means the way through planning more jobs to reduce commute time in central city maybe more effective than other regions. The distance- or time- decay parameters of census areas in the north and west region is larger than the others, the highest distance-decay ones located in the end of metro lines, which means people in these regions are less sensitive to commute distance or time and are willing to endure long distance commuting. The public transportation parameters in the west and east region of the suburb are larger than other regions, which means the improvement of public transportation in these regions maybe more effective. This work explored a path to model commuter flows using big data, which can inform many applications related to it, ranging from the prediction and simulation

of traffic flows, through the performance evaluation of urban policies related to job centers layout and public transportation construction.

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Key Words: commuter flows, spatially weighted interaction model, mobile phone signaling data, Shanghai

USING CROWDSOURCING, MACHINE LEARNING, AND REMOTE SENSING TO CLASSIFY URBAN FORM INTO LOCAL CLIMATE ZONES AND ASSOCIATIONS WITH URBAN AIR QUALITY

Abstract ID: 850

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Urban air quality is a component of planning for sustainable and healthy cities (Campbell, 1996; Northridge et al., 2003). A small number of studies have explored how urban expansion or urban form is correlated with air quality (e.g., Stone, 2008). These studies typically rely on variables collected by the US Census (e.g., population density, mixing of jobs) but do not include urban morphological information (e.g., building height, form).

Stewart and Oke (2012) defined urban form typologies called Local Climate Zones (LCZs) that classify built and natural environments into 17 categories. LCZs have been widely applied in temperature and climate studies (Middel et al., 2014). However, LCZs are typically developed only for specific study areas, and methods for classification vary by study. In this study, we describe (1) an approach for mapping LCZs across the contiguous US using satellite imagery and machine learning models and (2) an example application of LCZ classifications to explain variation in urban NO₂ concentrations.

Our approach to mapping LCZs is based on a three-step process: (1) develop a training dataset by crowdsourcing classification of satellite imagery of various urban environments, (2) build machine learning models based on the training dataset, and (3) predict LCZs for all urban areas by applying the best trained model to national satellite imagery. The approach allows for consistent measurement and prediction of urban form (LCZs) for the contiguous U.S.

We first developed the training dataset using a crowdsourcing platform called Amazon Mechanical Turk (MTurk). Briefly, we enabled MTurk Workers to simultaneously view satellite imagery and corresponding Google Street View imagery to classify locations of interest. Since our primary interest is urban air quality, we obtained responses for all NO₂ monitoring locations administered by the US EPA (n = 426). We received 10 responses (from unique individuals) for each location; location LCZ type was determined if more than 5 responses voted for the same LCZ. The MTurk responses combined with the corresponding satellite imagery comprised the training dataset. Then, we developed machine learning models (e.g., random forest, gradient boosting) to test the feasibility of predicting LCZs at locations without an EPA monitor. Based on preliminary

machine learning model estimates for a single urban area (Chicago) we estimate the accuracy of LCZ prediction to be 70-90% depending on the LCZ-type.

To explore the correlation between LCZ-type and NO₂ concentrations, we tabulated EPA monitor-based annual-average concentrations and satellite NO₂ measurements (2010-2015). Then, we developed multiple linear regression models at ~330 locations where concentration data was available. Our NO₂ models had reasonable goodness-of-fit (R^2 : ~0.6). Among LCZ types, compact mid-rise areas were associated with higher concentrations; sparsely built areas were negatively correlated with NO₂ concentrations. Our preliminary models indicate that higher concentration areas are typically in more compact neighborhoods which primarily located in central cities (a consistent finding in the literature). However, once we have completed the LCZ machine learning models (to predict LCZ classes across the U.S.), we will also test whether metropolitan areas that have more compact development across the region are associated with improved air quality (mixed findings in the literature owing to difficulty in measuring urban expansion).

To our knowledge, our work is the first study to use crowdsourcing and machine learning methods to obtain LCZ classifications for the contiguous US. As such, our approach could be used to develop a consistent measure of urban form and urban expansion over time for planners. Our preliminary NO₂ models indicate that high concentrations are associated with compact urban form that is located near central cities; future analyses will explore whether metropolitan areas with more compact development are associated with improved regional air quality.

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Key Words: Built environment, urban development, machine learning, environmental planning, public health

INVESTIGATING THE CAUSAL RELATIONSHIP BETWEEN REAL ESTATE ONLINE NEWS AND HOUSING SALES PRICES: AN APPROACH TO THE SENTIMENT ANALYSIS USING BIG DATA OF SEOUL, KOREA

Abstract ID: 857

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The housing price measures play an important role in comprehending both economic and social trends. Previous studies investigating how the housing prices are determined have employed conventional analytical methods, such as linear and nonlinear regression models and time-series models (Sun et al., 2016). However, they commonly fail to consider human behavioral factors which are found to be significant to explain the housing prices. In addition, little is known about the impact of human sentiments revealed from online news articles on housing sales prices. In the era of big data, the sentiments are becoming a more important outcome of both human behavior and social interaction (Li et al., 2016).

The recent advances in the Internet technologies and social media have produced unstructured big data involving textual data. These data can help understand the behavior of individuals and conduct advanced research activities by capturing factors measured as perception or feeling response (Houlihan & Creamer, 2017; Yang & Seng, 2017). In this study, we focus on the textual data from online news articles and attempt to analyze how the information of the textual news relates housing market trends in Seoul, Korea. This study introduces sentiment analysis as a helpful big data analysis method, in order to make sense the relevant information of online news articles. It also intends to identify the causal connections between the sentiment measures and housing prices and forecast housing price trends using them.

The data source is based on the online news release from six major daily newspapers, which is provided online from January 2010 through December 2017 in Korea. The study area is Seoul metropolitan area (SMA), the hottest housing market in Korea. We also pay attention to five sub-regions (core central business district (CBD) area, Northwestern area, Northeastern area, Southwestern area and Southeastern area) to look into the different causal relationships between the sentiment measures and housing prices across the sub-regions. To quantify the textual data, we used the sentiment analysis, which can allow us to extract the sentiment index reflecting positive or negative tone about the housing market. We conduct the Granger causality analysis to examine whether and how the sentiments of the news articles causally affect the housing market trends. In addition, the ARIMAX (multivariate autoregressive integrated moving average) model is employed to quantify how well the sentiment variables forecast housing prices in the regions.

In the preliminary results, the extracted sentiment series are shown to be significantly correlated with housing sales prices in the study areas. The results also shows that the sentiment variables are causally connected with housing prices in most sub-regions and SMA as a whole. It is also helpful to forecast housing prices in the areas. While we found that the sentiments relevant to more positive contents significantly affects housing price index, more in-depth analyses are needed in the future study.

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Key Words: Sentiment analysis, Granger causality, Housing price, Big data, Text mining

URBAN MODELING WITHOUT ZONES: A METROPOLITAN GRAPH-BASED MICROSIMULATION OF REAL ESTATE MARKETS AND TRANSPORTATION

Abstract ID: 885

Individual Paper Submission

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Integrated urban models have a long history but their use in planning practice has a checkered past. Lee (1973) criticized early urban models for committing seven deadly sins, among them being too data hungry. In the intervening years much has changed, including our conceptions of big data and the planning challenges that models are tasked to address. Reduction of greenhouse gas emissions and vehicle miles travelled are critical objectives for metropolitan planning in California and elsewhere, but these objectives increasingly need to be balanced with housing affordability and environmental justice objectives, among others. The policy and planning landscape has also become more diverse and sophisticated, with complex variations of traditional zoning, form-based codes, inclusionary zoning, parking requirements, density bonuses, community benefits, impact fees and subsidies, and various others now influencing development patterns at multiple scales - with considerable emphasis on the site and walking scale.

In this paper and corresponding talk, we address these evolving needs by presenting a new zone-less microsimulation model system based on UrbanSim (Waddell et al, 2007; Waddell, 2011) that uses parcels and local street (Boeing, 2017) and transit networks, along with representations of individual persons, households, jobs, and business establishments to model the dynamic evolution and daily travel patterns of the San Francisco Bay Area. We associate households with individual residential units that have characteristics such as tenure, square footage, bedrooms, and bathrooms. The units are associated with buildings, which are located on parcels, and are linked to the local street network. We analyze accessibility on local street networks, transit networks, and driving networks, and simulate traffic patterns and congestion using a traffic microsimulation model that uses multi-core graphics cards to parallelize processing (Garcia-Dorado et al, 2014).

This system - to our knowledge the first of its kind - enables high-resolution modeling at a sufficient level of performance to support analysis of local and complex land use policies in conjunction with transportation modeling that enables full treatment of walking, biking, and transit on the same basis as driving. Prior models have traditionally privileged driving over other modes by relying on coarse-grained network representations and travel zones that cannot realistically represent walking, biking, and transit options.

The project is funded by the Department of Energy and is part of a larger Smart Mobility project intended to anticipate the impacts of Transportation Network Companies (TNCs) and the rapidly evolving technology for autonomous vehicles (AVs), the potential impacts of which remain poorly understood. Our modeling platform provides a flexible framework to extend as data emerge on the adoption of TNC and AV technologies, and to examine their impacts on urban development, travel patterns, energy consumption, and unintended social and environmental consequences.

In this paper and talk, we describe the architecture of the platform, the tools and data developed to implement it, and initial results from model implementation in the San Francisco Bay Area. We also address its limitations and outline the coming steps and research to bring it into broad practical use.

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Key Words: microsimulation, modeling, land use, regional planning, transportation

AGENT BASED MODELING OF INDIVIDUAL BEHAVIOR DYNAMICS ON FLOOD DISASTER RISK ASSESSMENT, A CASE STUDY IN MIAMI BEACH

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Coastal communities, including households, businesses, and government entities, are now fully exposed to flooding risk from hurricane and king tights due to climate change and sea level rises. Although individual behavior before, during and after the natural hazards could dramatically reduce the impacts of the disaster, the spatial and economic inequality of individuals on flooding risk results disparate attitudes and behaviors towards flooding risk. Since the behavior of the individual in response to flooding risk does not comply with traditional utility theory of economics, the factors and behaviors that influence individuals' decision on flood risk mitigation needs to be understood. Based on existing literature on behavior economics and flooding management, this paper proposed a general analytical agent-based framework that allows for revealing interactions between individual's rational behavior and coastal flooding management. The preferences and decisions of households on coastal natural hazards are updated through perception of the flooding risk, which are according to the vulnerability of each agent.

Several agents are considered in this study: homeowners for different races, insurer, and government. Each Homeowner can choose whether to adopt a flood protection measures on its house. Homeowners start with an initial attitude of flooding risk based on their house locations, their income, and the knowledge on expected damage of their house from flooding. The perception on flooding risk is updated in each year of simulation based on the economical behaviors of agents and the external impact of hurricane attack. A homeowner has the following protection measures to choose to reduce the risk of flooding: buy insurance on the house, invest in flood defenses, including elevate their house or install pumps, which are a set of discrete options with different economic costs and different level of protection. A single insurer agent was adopted to calculate the insurance costs and coverage for each individual household. Moreover, the government has the role of implementing the overall flood management plans and policies, such as building hazards mitigation infrastructures to reduce the risk of damage in the area.

Miami Beach area was selected as the study area due to its inherent vulnerabilities to tropical cyclone and flooding. Historic climate change data indicates that the sea level have risen about four inches in the last 50 years and will continue rise by 6 to 8 inches by 2030, which means Miami has a higher vulnerability in front of natural hazards. Our model results show that, generally, households' behavior is sensitive to historical flooding events. However, when no flooding happened in the previous year, the flooding protection measures of the community would decrease significantly due to the underestimate of the risk. Based on the simulation results, high risk areas and groups of individuals can be identified, and corresponding planning considerations can be taken into account. Moreover, compared to previous studies in vulnerability assessment of natural hazards, the proposed model provides a scenario analysis tool for studying individual behaviors and responses to flooding mitigation and planning in coastal cities in front of climate change.

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Key Words: Agent-based model, flooding mitigation

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Drawing on previous literature on urban spatial equilibrium (Lucas and Rossi-Hansberg, 2002) and complex urban systems (Batty, 2008), this research explores how the spatiotemporal evolution of land use structure in Chicago (down to the 30x30-meter resolution) is shaped by connectivity to population and job centers, amenities, and transportation infrastructure. Our three major hypotheses are: 1) in large and complex urban systems, urban structure unfolds around network-based systems; 2) commercial and residential land-uses are determined by factors including but not limited to surrounding firms and labor; and 3) new urban growth patterns are different from existing agglomeration patterns.

In this paper, we examine urban land-use data from the Chicago Metropolitan Statistical Area (MSA) to argue for a theoretical shift from a “distance to CBD” based prototype to one that considers the complexity inherent in urban systems structure. We use a Stochastic Greedy Algorithm to quantify connectivity and attractions to every cell in a landscape (30x30 meters) to existing population and employment centers, Points of Interests (POIs), and highway and major roads. We measure the frequency of commercial and resident land-uses relative to these found attraction levels and develop algorithms that help explain the relations.

Using these methods we find that connectivity to city centers need to be established through actual city networks rather than using Euclidean distances. This is consistent with theories of complex urban system science (Batty, 2008). We also find that proximity to amenities (also using actual network accessibility measures) is an important attractor for residential location choices. This offers a theoretical departure from Lucas and Rossi-Hansberg’s (2002) CBD model of urban structure. Proximity to labor and other establishments on the other hand, are important factors for commercial location choices. Finally, newer urban growth patterns differ pointedly from existing agglomeration patterns with network accessibility now the most important variable for new residential and commercial development patterns.

Our proposed perspective on urban spatial structure and land-use provides an alternative to urban economic policies with spatially explicit implications, such as congestion and geographical knowledge spillover. Our methodology also offers a new, policy driven, calibration methodology for the improvement of urban land-use change models and connected planning support systems.

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Key Words: Complex Urban System, Land-use modeling, Scale-free Network, Greedy Algorithm, Agglomeration

AUTONOMOUS VEHICLES: A POTENTIAL THREAT TO ACTIVE TRAVEL?

Abstract ID: 1056
Individual Paper Submission

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Background:

Autonomous vehicles (AV) are getting much attention in media for their potential to improve quality of life. Many studies have examined how AVs will change vehicle ownership and people's travel behavior (Harper et al., 2016; Lavieri et al., 2017; Zhang et al., forthcoming). Consensus has been reached that both Privately owned AVs (PAVs) and Shared AVs (SAVs) will both result in an increase in vehicle miles traveled (VMT) and reduced vehicle ownership. However, little understanding has been gained regarding how AVs will influence active travel. Most literature has emphasized on ethical issues regarding how AVs should react when encountering pedestrians and bikers. AVs by providing convenient point-to-point mobility may result in significant reduction in walking and cycling (Rojas-Rueda et al., 2017). To fill this research gap, this study examines how PAVs and SAVs, especially the costs of trips, will influence active travel behaviors.

Methods:

We used household, individual, and short trips (<1 mile) data from the 2009 National Household Travel Survey (NHTS) to examine whether AVs can be a potential threat to active travel for short distance trips. We first used machine learning models, including ridge regression, support vector machine, random forest, gradient boosting, and tree-based models, to predict active travel mode, using individual, household, and trip characteristics, especially travel costs including time costs and vehicle operational costs (further divided into in-vehicle costs and out of vehicle costs). Based on previous literature, the travel costs in the era of PAVs and SAVs are then updated for various scenarios, including (1) mile-based costs, ranging from \$0.15 to \$0.40 for SAV and \$0.30 - \$0.50 for PAVs; (2) anticipated waiting time for SAVs from 2 to 10 minutes; and (3) discount for in-vehicle travel time cost ranging from 10% to 50%. Best trained machine learning model is then applied to determine mode split between active travel and vehicle travel.

Results:

The preliminary results from the updated model run show that PAVs will not significantly reduce active travel mode (only replacing less than 10% (weighted) of active travel trips), especially when PAVs are expensive and the discount for in-vehicle travel time cost is small. Compared with PAVs, SAVs are more disruptive because the travel option is more affordable and vehicle ownership is not a prerequisite. If SAVs can operate at \$0.15/mile, show up in around 2 minutes, and provide 50% discount in in-vehicle travel time costs, they are likely to replace 42.3% (weighted) of active travel to auto travel. The results also suggest that out of vehicle waiting time is critical for travelers to choose between SAVs and active travel. AVs can potentially replace a larger share of active travel if active travelers become more concerned about road safety issues with autonomous vehicles.

Significance:

Results will inform policy makers about potential implications of AVs on active travel mode share. This study offers insights to urban planners to proactively adjust land use regulation and zoning ordinance to mitigate the negative impact of AVs on active travel. The results from this study suggest that without policy interventions, the AVs will reduce the share of walking and cycling. To encourage active travel, centralized drop-off zones and pedestrian and biker friendly roadways may be planned (using some of the current parking lots and on-street parking spaces) to encourage active travel behavior. Moreover, curbside drop-off fees may also be considered to promote active travel and reduce congestion in the future.

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Key Words: Autonomous vehicles, Active travel, Short trips, Machine learning, Supervised learning

BUILDING LOCATION HISTORY WITH GPS DATA FOR OLDER ADULTS

Abstract ID: 1064

Individual Paper Submission

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Background

Location history data are necessary to measure the full range of spatial exposure (Chaix et al., 2013). Self-reported location diary has been widely used; however, they are inaccurate (Bowling, 2005) due to proxy reporting and potential recall bias, especially for older adults. Recent studies began to use location-aware technologies such as GPS data to objectively measure location history. When we have the raw GPS data, there are still needs to reduce the fine-grain location data into visited locations (e.g., clusters) to build individual-level location history data (Thierry, Chaix, & Kestens, 2013). Existing methods using GPS data such as rule-based models, a density-based algorithm, or fuzzy classification and scale-adaptive clustering method have limitations of validity or operational challenges involving complex data processing (Thierry et al., 2013; Wan, Kan, & Wilson, 2017).

Objective

The current study aimed to develop a simplified method to automatically build location history data (where individuals visited) using GPS data. We also compared our objective location history data to participants' subjective location data.

Methods

Data were collected from 31 older adults living independently in Buffalo-Niagara Falls Metropolitan area from March to September in 2016. They were asked to wear a GPS unit (QSTARZ BT-Q1000XT) and an activity monitor (ActiGraph wGT3X-BT) for 7 consecutive days and to record perception of visited locations and mobility using the Life Space Assessment (LSA) instrument (Peel et al., 2005).

From the collected data, we made ground truth data by manually classifying the GPS data using ArcMap (ArcGIS 10.3.1). In the manual classification, continuous GPS data were clustered sequentially into time intervals using a ground-rule (a change in a speed value from/to 10km/h to/from 2km/h or increase in VM counts to 1000). Next, we established a Random Forest (RF) model to predict whether a GPS location forms a cluster (stay) or not (moving) for all non-home GPS locations. Activity counts, speed, inclinometer, and location characteristics were entered in the model.

We compared our results with participants' subjective perceptions of their visited locations. The GPS-determined location history was translated into LSA measures and the values were compared to subjective LSA measures.

Results

A total of 80,462 GPS observations were included after removing invalid data. A RF model was constructed using a training sample of 10,000 observations. The mean square error of RF cluster prediction was 0.0682. The variable importance was ranked from average speed in 2.5 min, average speed in 4.5 min, speed, average vector magnitude counts in 4.5 min, average vector magnitude counts in 2.5 min, and etc., indicating a great importance of speed in determining the cluster. A total of 594 clusters were detected from the true dataset and 671 clusters were detected using a prediction dataset with staying time greater than 2 min. When the results were compared to subjective LSA measures, our objective data covered larger areas than subjective data, suggesting that subjective data may be biased with underreported locations.

Conclusion

The proposed automated location history method using GPS data showed accurate results when compared to the ground truth sample. Perceptions of visited locations (LSA measures) were inaccurate, compared to objective GPS data.

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Key Words: Location history, activity space, GPS, Random Forest

BENCHMARK: OPEN SOURCING THE MEASUREMENT OF PUBLIC LIFE

Abstract ID: 1082

Individual Paper Submission

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Developing robust and effective methods of studying public spaces that result in more informed decision making has been a challenge for urban designers. Kevin Lynch (1984) and William Whyte (1980) both developed notable methods to quantify and interpret urban spaces using detailed data analytics. Sensor networks, such as cell phones and the Internet of Things (IoT) have created big data sets that have radically changed our ability to measure the urban environment both in time and space. However this new data can often be hard to obtain, and when analyzed it usually does not evaluate smaller public areas such as parks or tactical urbanism projects. To address this issue, our research team developed a downloadable toolkit which measures the quality of urban space using a set of sensors embedded into a bench. Recognizing that the public realm functions differently across countries, cultures, and even cities, the team developed data collection and analysis methods that anyone around the world can augment, iterate, and customize. The furniture, sensors, and software are all Do-it-Yourself (DIY), allowing anyone to replicate. Benchmark toolkit measures “Public Life,” a term often referenced in Jan Gehl’s work (2013) that refers to citizens’ daily interactions with others within the built environment. The Gehl methodology records the “human scale of people’s activities and interactions” using in-person observations. Benchmark tested whether these measurements could be automated to create an open source tool to measure the quality of public space. Software developed for Benchmark uses machine learning techniques to analyze the data which is then transformed into visualizations for decision making. Results of three field tests showed that 1) applying machine learning techniques on images acquired from the benches proved to have the best results for measuring public life over other sensors embedded in the bench. 2) Benchmark was easy for others to replicate but could use some design refinements to make it easier for users to build themselves. 3) Users could analyze the data themselves if provided with the proper tools. The machine learning algorithms and the design of the benches could be improved, but the first release of Benchmark proved that it is possible to create an open source data measurement tool to build data sets to quantify human interaction and social cohesion within our public spaces.

The research paper will start with a literature review detailing the ways Urban Designers have attempted to measure public space. Including Lynch (1984) and Whyte (1980), to more recent technology focused methods, including in Hillier’s space syntax (1983, 1998, 2008) and Ratti et al. (2011). The paper will also review Do-it-Yourself (DIY) sensors, most of which have been developed in the field of environmental sensing. Then we will also discuss at other attempts of embedding sensors into street furniture. The literature will help frame the need for measuring urban space and show Benchmark is a Do-it-Yourself innovation - which can be used for pop-up

spaces and tactical urbanism projects. The literature framing will be followed by a presentation of the results from three field test of Benchmark, including one performed in collaboration with Build a Better Block. Data analytics and visualization results will be presented evaluated along with a discussion of machine learning techniques for measuring urban space. Improvements can be made both to the bench design and algorithms, and future directions of the research will be discussed.

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Key Words: Big Data, Machine Learning, Public Space, Urban Design, Sensors

THE PURSUIT OF HAPPINESS: ASSESSING THE UTILITY OF GEO-SOCIAL MEDIA DATA AND GIS IN MEASURING NEIGHBORHOOD LIFE SATISFACTION IN TURIN, ITALY.

Abstract ID: 1118

Individual Paper Submission

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Central theme

Assessing life satisfaction at the neighborhood scale has long been a focus area for researchers (Jokela, Bleidorn, Lamb, Gosling, & Rentfrow, 2015). The major weaknesses of previous studies have been the use of untimely and aggregated data that is tangentially linked to mental health, which could be in part attributed to standard data collection methods, such as survey instruments (Mitchell, Frank, Harris, Dodds, & Danforth, 2013). The advent of geosocial-media (GSM) data however, has opened-up new channels of exploring the link between life satisfaction and place (Frank, Mitchell, Dodds, & Danforth, 2013). The data contains three attributes which sets it apart from other data: a timestamp, location, and syntax. These can collectively reveal previously unknown psychosocial relations to one's environment. Our main goal was to harness this information and answer the question: can we measure and understand the influence of neighborhood composition, environment, transportation, and time on life satisfaction using GSM?

Approach and methods

The GSM data was obtained from the Twitter open-source API. The database was filtered and used to derive a valance (i.e. sentiment) index. Compositional and contextual information for each statistical zone were then collected from government sources and then linked to the Twitter database using GIS. The zonal indicators included in this research consisted of: public health, infrastructure, travel safety, incivilities, accessibility, socioeconomic standing, and density. Exploratory spatial data analysis (ESDA), GIS, and spatial regression modeling were implemented to investigate the spatial patterning of sentiments, and highlight important explanatory factors associated with increased or decreased values.

Results

The ESDA results showed that the spatial patterning of Tweets clustered near the central portion of the city. Unsurprisingly, it was also found that sentiment values differed depending on time-indicating the importance of temporality on life satisfaction when neighborhood effects are controlled for. The regression model's diagnostics were marginal ($R^2 = .03$) though revealed statistically significant relations ($p\text{-value} < .05$) to sentiments. Most notably, urban density, mortality rates, and disturbances negatively affected values, while pedestrian infrastructure had the opposite influence. The results validate a growing body of work on how urban stressors affect life satisfaction spatially and within neighborhoods.

Conclusions

The research has provided valuable evidence on the nuanced relationships among mental health, neighborhood, time, and space. Our results show how GSM may potentially be used to estimate neighborhood life satisfaction, when neighborhood effects are controlled for. We expect the results of this research to be valuable for practitioners and researchers on two fronts. First, the models' displayed several noteworthy coefficients indicating the importance of time, space, and neighborhood effects on life satisfaction. Second, we showed that the combination of GSM data and GIS is valid approach that could be used to examine mental health in neighborhoods in other cities.

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Key Words: Sentiment analysis, life satisfaction, GIS, Geo-social media, neighborhood planning

HAS OPEN DATA TRANSFORMED CITIES AND THEIR INTERACTIONS WITH CITIZENS?

Abstract ID: 1201

Individual Paper Submission

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Municipal governments have increasingly made open data a mission critical part of their public services. Large amounts of data are generated by municipalities (e.g., roads, parks, water/sewer, facilities, services, and demographic profiles), which are provided through open data portals to be used by the private sector, researchers, other levels of government, and importantly, residents. Open data is defined as the freedom to use and repurpose with few to no legal restrictions (Open Knowledge Foundation, nd). The motivation for opening up data is multiply determined. It is promoted as a method of ensuring a transparent and accountable government. Open data is seen as a source of potential economic development. In Canada, open data has been called the natural resource of the 21st century (Clement 2014). Open data also has potential for intra-jurisdictional data sharing (e.g., for business intelligence) and inter-jurisdictional collaboration (Sieber and Johnson 2015). The promises of open data often are hyperbolic—open data will revolutionize citizen participation!—even as open data provisioning is established as a routine practice for cities. Hyperbole is problematic considering that assessing any transformational potential of open data is quite difficult.

This paper reports on the ways in which open data has altered the dynamic between local governments and its constituents. It attempts to answer the question whether open data has transformed city-citizen interactions to any significant degree. The paper draws on a five-year project on the publishing and use of open data in cities. It utilizes case study research conducted in eight major cities in Canada to render an assessment. The findings from this research include the following.

First, opening up data is conditioned by the underlying motivations for its release, which can conflict with each other (e.g., transparency and economic development). Indeed, there is a magic concept quality (Pollitt and Hupe

2011) to the drivers of open data. Open data, like other magic concepts appear broad in scope, possess normative attractiveness and imply consensus among the numerous stakeholders in its provisioning.

Second, conflicting motivations complicate determination of success of open data. Because open data provision by design is agnostic as to who is downloading the data and how it is used, there are few mechanisms to ascertain how the data is being valued external to the municipality.

Third, uncertainty exists about the role of planners in the supply side of open data. Planners are a primary source in the collection of open data, but this paper finds few are involved in publishing open data or crafting open data standards. Planners rarely lead open data initiatives.

Lastly, there is significant need for information intermediaries to “interpret” the raw data to the citizenry. This counters a dominant discourse in open data provision that the act of publishing alone leads inexorably to value, for example in government accountability. These infomediaries include organizations like community nonprofits, activities such as hackathons, and applications like geovisualizations.

It is hoped that this work improves planning praxis by expanding the understanding of why municipalities are currently motivated to open up data, what values are attained, and whether a transformative potential is realized.

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Key Words: open data, citizen participation

UNDERSTANDING HUMAN RESPONSES TO HURRICANE MATTHEW: A BIG-DATA APPROACH

Abstract ID: 1242

Individual Paper Submission

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Impacts of hurricanes are complicated and diverse to measure especially for mental health (Galea et al., 2007). Post-disaster stress is one major issue induced by hurricanes, and the recovery is difficult and uncertain (Abramson & Redlener, 2013; Kessler et al., 2008; Neria & Shultz, 2012; Reardon, 2015). To reduce the risk of people having post-disaster stress, proactive interventions are the most efficient approach compared with passive approaches (Reardon, 2015). However, the proactive investigation of human response to hurricanes is difficult and not feasible by traditional paper-based surveys, and short-term thinking plays more important role than long-term strategic planning when facing with such extreme conditions. To measure the human responses to hurricanes in real-time and further provide insights for real-time urban management, Big Data provides an unprecedented opportunity for this target with powerful analysis tools and large scale of real-time data. Thus, this study collected Twitter data during hurricane season in Tampa Bay Area in 2016. During this period, the impacts of Hurricane Matthew on Tampa Bay Area is witnessed. To develop real-time urban analytics regarding local human responses under Hurricane Matthew, this study employs natural language processing, knowledge graph and

network modeling methods on Twitter data to detect public sentiments and concerns for people in Tampa Bay Area under Hurricane Matthew. By combining sentiment analysis and relation extraction, this study can detect how Hurricane Matthew affects people's sentiments and what people are concerned with in real-time. This study shows the spatiotemporal distribution of negative sentiments in Tampa Bay Area under Hurricane Matthew and examined the influential factors affecting people's responses to Hurricane Matthew. The public concerns including traffic congestion, visualization of potential damage, and future protection can be derived from people's tweets in real-time, which can be further developed into a knowledge graph to examine the relationship among these concerns. There are three primary findings. First, the detected negative sentiments could indicate the possibility of post-disaster stress geographically. Geo-tagged tweets could indicate the geographic location of users, which shows how potentially stressed users distribute in Tampa Bay Area. Second, public concerns induced by Hurricane Matthew can be understood such as the evacuation routes. During different phases under Hurricane Matthew, public concerns dynamically change and mainly focus on transportation. Third, the people who are vulnerable to post-disaster stress tend to be from low-income and minority neighborhoods. Our repeatable research provides real-time urban analytics to detect potential post-disaster stress and understand public concerns, which can facilitate the proactive intervention for reducing post-disaster stress and improve the understanding of indirect impacts of hurricanes on local communities. This study also improves the short-term thinking of urbanists including planners and scholars about urban management, which becomes increasingly important in urban planning because of growing complexity of urban system (Batty, 2013).

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Key Words: Big Data, Public Health, Hurricane , Real-time analysis

PUBLIC & PRIVATE PARTICIPATION GEOGRAPHIC INFORMATION SYSTEMS: INTRODUCING P3GIS

Abstract ID: 1258

Individual Paper Submission

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Through every swipe of a credit card, information is gathered on what is being purchased, who is doing the purchasing, and how much they are spending. After the swipe, market analysts then use this information— called “market segmentation data,” or MSD— to predict future purchase behavior, which helps organizations make business and policy decisions. How this information is used has far-reaching impacts and can expand or inhibit regional economic development, neighborhood growth, and the individual quality of life for those living in areas affected by this. If the MSD for a particular area does not include all potential purchases by a comprehensive demographic, there is an inherent limit on the products and resources made available to that market. This is common amongst marginalized, disinvested and/or redlined communities, where there is limited proximity to financial services such as banks. Using market segmentation data may then be a false predictor when estimating the spending behaviors of this community, because it does not actually represent their full purchasing power.

Instead of banks, communities like this are more likely to see an increase of alternative financial services (e.g. payday loan shops and check cashers). These alternatives, while convenient, have extremely high transaction costs and do not support long-term individual or community wealth.

Public Participation Geographic Information Systems (PPGIS), is a bottom-up model of which has been used to evaluate neighborhood health, wealth, and quality of life by using a top down/bottom up model to integrate community, university, and municipal information.

This “public” or neighborhood knowledge is critically important, but cannot be easily integrated with federal or state level consumer data. The difficulty of integration lies particularly in the scale of the information; federal census data is available at the block level, US Housing & Urban Development data at the household and neighborhood level, and community-based service data at the individual and/or household level. Due to the form and scale of the information, datasets cannot be easily combined and used in municipal planning or public policy action plans.

The final missing piece to this puzzle is often inaccessible to community advocates and governments alike: private transaction data. Private consumer data is typically closely guarded by financial companies, but this information could help integrate all the above sources into a new model for predicting the behavior of market segments, which is used to understand resident wealth and consumer demand. By having a “middle data” solution, citizen scientists (community planners with expertise in converting neighborhood knowledge into spatially-referenced data) can expand the use and understanding of transaction data, so as to better evaluate the purchasing power of at-risk communities.

In the p3GIS model, ‘public’ will include community voices, municipal data, and national data that provides a composite neighborhood profile. Private data sources that are customized and reference real-time transactions that can be used to evaluate consumer preference, demands, and wealth will also be included.

Results from this study helps to identify and address barriers to financial access, point to new needs and types of financial services, and provide innovative data streams to sufficiently predict spending behaviors. Using big data to identify trends then conducting validation using small data may encourage providers to explore new products, innovative policies, and financial services in marginalized communities. The lack of adequate data sources that fill the void created by cash sales will improve representation of underserved markets that have substantial wealth and market potential. We hope that this demonstration project will be a starting point for other innovative programs to initiate projects using a model that puts the community first.

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Key Words: geographic information systems, citizen science, financial market, market segmentation, community development

EXPLORING GEODESIGN: USING THREE-DIMENSIONAL PARAMETRIC MODELING TECHNIQUES IN CONJUNCTION WITH TWO-DIMENSIONAL LAND USE MODELS TO BETTER VISUALIZE FUTURE GROWTH

Abstract ID: 1278

Individual Paper Submission

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Problem: Increasing evidence suggests that population increase is related to various challenges human character; for instance, there has been approved to be a tight relationship between population growth and environmental issues, resources allocation challenges, economic status of the region, etc. (Ehrlich & Holdren, 1971) Responding to this issue, various urban allocation models have been proposed to assist with better decision making. However, there lacked an effort to identify proper allocation sites considering both physical suitable land, and quality of life improvement. Also, existing land-use and population allocation models typically allocate future employment and residential population in two-dimensions (2D), missing the opportunity to provide three-dimensional (3D) buildings for employment and residential use. While population and employment projections inform planners about the future growth of the city, planners still need to make decisions about where and to what extent the future growth will be allocated. A more comprehensive yet flexible method is needed to provide support for planning decision making in three dimensions, and to provide greater flexibility for 3D visualization.

Research Objective: This research aims to detect potential land-use development opportunities based on a quality of life index and land use suitability analysis. Additionally, a workflow is created to automatically visualize and simulate future land-use and population allocations in 3D. Furthermore, this research also explores the potential of creating allocation scenarios driven by 3D models. The results from this research can be used to perform impact analysis for different future growth scenarios, such as transportation analysis, noise analysis, air pollution analysis, and the impact analysis to ecosystem.

Existing Research: The existing work in this area is mainly focused in examining the development opportunity based on land use suitability. While there are efforts to perform land use analysis to indicate future allocation, there is barely research to examine whether the land use analysis results fit people's anticipation of a high-quality life. Besides, the majority of existing research mainly focused in allocating population in two dimensions.

Methodology: Built environment related quality of life is examined from three aspects: urban design criteria, public transportation accessibility, and socioeconomic status. Land-Use Conflict Identification Strategy (LUCIS) was used to perform land use suitability analysis. Quality of life results are integrated with LUCIS results to better inform allocation site selections and allocation process. Procedural modeling techniques was used to generate 3D models representing allocation scenarios, in corporation of urban design guidelines. City of Tampa, Florida is used as the case study for this research.

Results & Contributions: Trend scenario, in which allocation process only considers land use suitability results, is compared to urban-form-oriented allocation scenario, in which both quality of life and land use suitability results are considered to visualize allocation results in 3D models. Socioeconomic outcomes are analyzed and compared from both scenarios. This research forms a methodology for decision makers to easily visualize and compare different urban future growth outcomes.

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Key Words: 3D modeling, land use suitability, quality of life, geodesign, allocation

PENCILER: AN AFFORDABLE HOUSING DEVELOPMENT FEASIBILITY ANALYSIS PLATFORM

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Analyses of the feasibility of affordable housing development are rare (Walker, 2010; Rowley et al, 2012; Whitehead, 2007). Penciler is a web-based, site-level multifamily housing development feasibility tool developed for the Mayor's Office of Housing and Community Development in San Francisco to use during the acquisition phase of the multifamily housing development process. Penciler gives the user a quick picture of the feasibility of a site from a building program, development cost and financial perspective. Drawing on local site data, planning codes, and building codes, the user can quickly generate many different building iterations on the same site and compare costs and sources of funds for each iteration, helping to better inform site acquisition and site redevelopment decisions.

For each potential development site the user navigates between three interconnected tools: Buildings, Development Costs, and Financial Feasibility. Penciler is connected to the San Francisco Property Information Map, which provides information on parcel geometry, parcel zoning and allowable building height based on either an address or parcel ID entered by the user.

The core of Penciler is an algorithm that geometrically optimizes unit count on a site given the zoning constraints of the site and the building program requirements of the user. The algorithm optimizes building typology and unit count given all the requirements of the user including non-residential spaces and commercial spaces. The building layouts generated are not intended to replace an architectural floorplan but rather to give the user a sense of what unit count and mix would be possible on the site during a site feasibility analysis.

While many of the zoning constraints are auto-populated from a database of the physical constraints in the planning code, the user can edit any of the above variables in order to understand the feasibility impacts of different program decisions. The user can save custom zonings to account for typical zoning modifications. For example, if a city regularly allows for parking modifications for C-3 zoning in a particular area, this can be saved as its own zoning type so that the user doesn't have to make the same modification every time. These custom zonings can also be found in the zoning drop-down menu on the building iterations form.

The work to develop this tool for San Francisco is now being generalized for adaptation to other cities, initially Vancouver, BC. There are of course many cities facing similar housing affordability crises that could benefit from a rapid assessment of the feasibility of affordable housing development, including the estimation of the maximum building program that is feasible on a site. Future work includes adaptation to district and city-wide analysis of housing policies such as inclusionary zoning.

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Key Words: Affordable housing, Pro forma model, Decision support

HOW DOES LAND USE MIX CHANGES IN THE U.S? - ANALYSIS OF LAND USE MIX DYNAMICS USING LODS CENSUS BLOCK LEVEL DATA FROM 2002 TO 2015.

Abstract ID: 1295
Individual Paper Submission

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Since Jane Jacobs(1961), the land use mix has always been one of the central value in the urban planning field. Still several engrained attitudes about city planning during that period undermined attempts to create more active and culturally confident cities (Montgomery, 1998). However, since the start of the millennium, the redevelopment of central cities in the United States has been reported in many metropolitan areas across the country, especially after the end of the Great Recession. Although preference for a suburban life has not faded in the West, particularly in North America, many groups have been considering land use mix as a more desirable way of built environment pattern. Therefore it would be very interesting to examine the dynamic of land use changes in the last decades to see how does this trend turns out.

The land use data in this article is using the LODES (LEHD Origin-Destination Employment Statistics) data provided by U.S Census Bureau, which has been used as a valid source for measuring land use mix in many other studies (Ramsey and Bell, 2014). There have been many metrics created to describe the land use mix quantitatively (Song et al., 2013). However, few of them are ready to be applied at the extremely small spatial unit like census block. Therefore we renovated the traditional Shannon entropy equation to improve its performance. Finally, a dataset of land use mix change trajectories for 247,2261 census block in continent U.S from 2002 to 2015 will be created. Then we will apply the unsupervised machine learning k-means classification to identify the major typologies of these trajectories as land use mix change dynamics based on their main statistical parameters. Their character and spatial distributions patterns will be further summarized and compared among different U.S administrative divisions.

This study will use big data analytics to summarize the recent trend of land use mix developments quantitatively, therefore, offer discussion and recommendations for the future urban planning scholar and practitioners.

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Key Words Big data analytics, Land use mix, Built environment measure, GIS, U.S, Placemaking

FROM BITS TO MILES: MINING SMARTPHONE DATA TO RE-EXAMINE THE LAND USE AND TRANSPORTATION LINKAGE

Abstract ID: 1306

Individual Paper Submission

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The relationship between land use and transportation (LUT) has long been examined by urban economists and planners using various approaches and numerous case studies worldwide. The majority of previous studies depend on travel surveys with limited sample sizes and short observation period (Ewing and Cervero, 2010). With the advancement of information and communication technology, high penetration of smart devices in our daily lives, and massively open GIS data on the built environment and transport networks, it introduces possibilities for planers to re-examine this old yet critical topic with new lenses.

Recent studies have made progress in studying urban mobility using cellphone call detail record (CDR) data collected by mobile network operators for billing purposes (e.g., Alexander, et al., 2015; Jiang et al. 2016). However, such CDR data are often limited in their sizeable spatial uncertainty (due to the wireless technology and fixed distribution of the cellular towers). With the advancement in mobile location-based service (LBS) for GPS-enabled smartphones, it is now possible to passively mark the devices' whereabouts in higher spatial resolution (from 10 to 100 meter) and ping frequency, which allows us to relate them with land use types more accurately.

In this study, we analyze an anonymous set of large-scale GPS-enabled smartphone data representing activities of more than 200,000 anonymous smart devices over one month in the Boston metropolitan area, collected by a popular LBS company. By mining their digital footprints, we first derive the anonymous smartphone users' activity anchor locations and individual daily mobility networks by trip purpose. We then aggregate the individual travel to population-level mobility demand using the estimated phone users' sample weights at the census tract level. To validate our estimation, we compare the travel demand (origin-destination matrix) with Boston MPO estimated model results and regional travel surveys. Finally, by combining point-of-interest (POI), land use data, and the estimated travel demand, we re-examine the relationship between land use and travel at the metropolitan level. Disruptive mobility technology (employed by TNCs) has made today's urban travel more diverse and rapidly changing than ever before. This study provides a robust and replicable approach for cities to re-examine the linkage between land use and travel in the new information age.

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Key Words: Land Use and Transportation, Smartphone Data, Urban Mobility, Travel Demand

DEVELOPING SCENARIO-BASED HYDROLOGICAL GIS MODELING FRAMEWORK TO REDUCE HUMAN HEALTH RISKS FROM WATERBORNE CONCENTRATED ANIMAL FEEDING OPERATIONS (CAFOS) IN NORTH CAROLINA

Abstract ID: 1378

Individual Paper Submission

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Although CAFOs (Concentrated Animal Feeding Operations) are strong drivers in creating local jobs and community investment opportunities in many states, they are also major producers of waterborne contaminants that increase the health risks of local communities in upstream and downstream of a river basin (Burkholder et al, 2007). The health consequences of community exposure to CAFO-linked waterborne contaminants have been poorly understood because the dispersion of contaminants, pathways to human exposure and susceptibility of exposed individuals were difficult to trace before (Cole et al, 2000). These limitations hindered planners' ability to contemplate planning strategies to reduce the exposure impact of water pollution to local communities. Nonetheless, since GIS technology and geographic data are widely used in practice, planners can access richer topographic ground surface models and spatial data of human health than before to identify major contributors (CAFO densities, impermeable landcover, flooding), or alleviators (riparian buffer strips, vegetative buffers) to downstream health risk (Rothenberger, 2009).

In this study, we develop a Scenario-based Geographic Information System (GIS) simulation modeling framework using Python Script to examine the direct effects of upstream CAFOs on local water quality and the direct effects of local water quality on downstream community health outcomes. The major objective of this study is to develop a customizable hydrological GIS modeling framework by combining ArcGIS ModelBuilders geoprocessing tools (ESRI,2011) and Python scripts so that planners can easily visualize health risk outcomes in downstream communities under different natural investment (ecological alteration) or public infrastructure investment scenarios. Although various hydrological and hydraulic models are discussed in the literature, many

models are still computationally intensive in processing and are not suitable to analyze the behavior of hydrologic flow with multiple alternative scenarios encompassing larger than multiple counties or a basin scale.

For study case, we chose eastern North Carolina's Cape Fear River Basin boundary with six counties including Duplin and Sampson, which are the nation's leading swine producers with 4.4 million hog capacity and 1,600 waste lagoons, and with more than 1,000 swine-based CAFOs.

We use a high-resolution void-filled digital elevation model (DEM) and aerial photo-geometric imagery for terrain processing. The product of the topographic/hydrological analysis is a set of all parcels and corresponding CAFO operations located within their respective catchments. The modeling framework constructs a unique pour point capturing the residence-specific catchment at the parcel's point of maximum flow accumulation and estimated water contamination level (exposure variables) for more than 373,000 parcels that also stores the health outcome variables. This modeling framework also identifies health-vulnerability hotspots and natural capital (i.e., riparian buffer strips, impermeable soils, vegetative buffers, and shelterbelts) hotspots, located within our six study area counties, based on temporal and atemporal stressors. This GIS simulation framework allows users to test the effectiveness of different implementation strategies to diminish health risks to downstream communities.

In this study, we conclude that our scenario-based GIS modeling framework can enrich the discussion of community-led mitigation effort to reduce human health risks. We also conclude that GIS modeling framework discussed in this study can provide informative visualization outcomes that would promote targeted investments into public infrastructure and natural capital to expand the flows of public services and ecosystem services to at-risk households.

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Key Words: Hydrological GIS Modeling, CAFOs, Human Health Risk, Water Quality, Natural Capital Investments

SPATIAL DEVELOPMENT AND ENERGY CONSUMPTION PATTERNS: INVESTIGATING THE RELATIONSHIP BETWEEN URBAN DENSITY AND BUILDING ENERGY USE

Abstract ID: 1384

Individual Paper Submission

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The Integrated Urban Metabolism Analysis Tool (IUMAT) is a bottom-up quantitative framework for the assessment of resource consumption patterns and environmental impacts associated with different development scenarios at urban scales (Mostafavi, Farzinmoghdam & Hoque, 2017). In this work, within IUMAT, we study the impact of urban density on building energy consumption profiles for six different metropolitan areas in the United States. Neighborhood characteristics can influence the choices made by urban actors as well as natural urban energy flows. First, we introduce a method to classify 30x30 m cells into five categories of settlement density (high, medium and low density, suburbs, and urban fringes), using US Geological Survey's National Land Cover Data-set (NLCD), US Census, and Census Block data (Heris, 2017). In the next step, generalized linear model (GLM) techniques are applied to energy data from Boston, Philadelphia, Austin, Denver, New York City

and Los Angeles metropolitan areas to explain the links between urban density -as a major indicator of urban form- and building energy performance (Ewing & Rong, 2008; Fitcher & Mills, 2013; Yamagata and Seya, 2013). By exploring the Census data from 1990 to 2010, we elaborate on the changes in the metropolitan structure (sprawl and growth rate) of the areas of interest, and provide projections about future development scenarios and their impact on energy consumption patterns in relation to settlement density and growth trends. Creating a universal urban density classification method enables us to compare the spatial structure of the six metropolitan areas and the impacts on energy use patterns. Our results show that urban density is highly correlated with energy use, but its impact is not similar across different metropolitan areas. We also discuss the challenges of improving urban density indicators to allow integrated population, physical environment, and traffic assessment applications.

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Key Words: urban metabolism, urban energy modeling, metropolitan spatial structure, urban density, density profiles

EXPLORING THE SPATIOTEMPORAL RELATIONSHIP BETWEEN CHICAGO'S LARGE LOT PROGRAM AND NEIGHBORHOOD RATES OF CRIME

Abstract ID: 536

Poster

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While crime rates nationally are lower than at any point in recent American history, criminal activity remains a challenge for cities across the country. It is particularly true in the city of Chicago, Illinois where gun violence and homicides have reached record levels this decade where the South Side neighborhoods accounted for 45% of the increased homicides across the city (University of Chicago Crime Lab, 2017). Yet as violence has increased this decade, in some South Side neighborhoods where city launched Large Lot program, some differences were observed. Established in 2014, Chicago's Large Lot program, which sells city-owned vacant parcels to nearby homeowners for \$1 each, was a city of Chicago neighborhood stabilization initiative to help property owners, block curbs, and non-profit groups in selected Chicago neighborhoods. As of late November 2017, shootings were down 44% and homicides were down 45% over 2016 (Sweeney, 2017).

Numerous recent empirical studies have found a statistically significant relationship between the remediation of vacant lots and decreasing incidents of crime in the local area (e.g., Philadelphia, PA (Branas et al., 2012; Branass et al., 2016); Youngstown, OH (Kondo et al., 2016); Flint, MI (Sadler et al., 2017)). Those studies all considered the remediation of blighted city lots as the transforming these lots into green space for community and/or private reuse. To the best of our knowledge, however, there is a limited study that has examined whether the transfer and remediation of vacant lots from absent, public ownership into local, private ownership, without consideration of the lots' post-sale land uses, in and of itself has a statistically-significant impact on local crime. This paper tried to fill this gap.

This study examines the impact of the city of Chicago's Large Lot Program to the incidents of local crime. This study uses two spatial-statistical approaches, emerging and optimized hot spot analysis, to analyze the impact of the program on incidents of crime within 500 feet of lots sold in the program's first year. Using the location of 440 parcels sold in 2014 and crime data reported between the year 2013 and 2017, optimized hot spot analysis and emerging hot spot analysis tools were applied to test the impact of the Large Lot Program on local incidences of crime. As emerging hot spot analysis examines clustering of crime reports over time, this analysis method was used to investigate the changing trends in crime patterns from 2013, a year before the program launched, to 2017, the last full year with available crime data. On the other hand, optimized hot spot analysis tool examines the clustering of points in total and does not distinguish between different points in time. This analysis was able to show test crime incidents within each of the five years studied so that it could be apparent in how the crime was changing between the year 2013 and 2017. The result of this study shows a statistically significant reduction in property and drug crimes within 500 feet of sold 2014 Large Lots but not for violent crime. This result is encouraging in terms of the policy implication. A detailed discussion regarding the positive correlation between blight remediation and changes in crime rate and the policy implication of this phenomenon will be provided in detail.

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Key Words: vacant lot, broken windows theory, large lot program, emerging hot spot analysis, optimized hot spot analysis

EFFECTS OF EARTHQUAKES ON LANDSLIDE RISK MAP IN SOUTH KOREA

Abstract ID: 729

Poster

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Central theme: Could the Landslide Risk Map in South Korea be more trustful if the earthquakes are considered in the risk analyses as an affecting factor? The landslide risk map in South Korea has been used to conduct reasonable landslide prevention projects. The factors affecting landslides are very diverse, however current landslide risk map is just based on topographical map, forest map, and geology, but earthquake loads associated with detailed soil physical properties have not been considered in the classification of landslide risk grades. The objective of this study is to evaluate the effects of earthquakes in the areas having relatively low risk grades, and develop the design methodology to mitigate potential risk induced by seismic events.

Approach and methodology: Analytical studies are executed using a general purpose finite element software, GTS NX, and Riks method (arc-length method) is adopted to evaluate highly nonlinear effects for both geometry and material of soils. Comparative studies for slope stability would be done using two analytical methods: 1) strength reduction method, and 2) stress analysis method. The 2D plane strain elements are used for soils and Mohr Coulomb, Drucker Prager and Modified Mohr Coulomb models are considered for soil material models.

Findings: The primary findings of this study are as follows:

- Evaluate the effects of earthquakes associated with detailed soil physical properties for landslides in South Korea
- Recommend the revision of Landslide Risk Map in South Korea
- Recommend the design methodology to mitigate the elevated risk of landslides due to earthquakes

Relevance of the work: This work is related to our research projects for landslide risk management in urban metabolism.

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Key Words: landslide, earthquakes, finite element

LEVERAGING GEOREFERENCED SOCIAL MEDIA INFORMATION TO ANALYZE HUMAN ACTIVITIES AND CARRYING CAPACITY IN ECOTOURISM DEVELOPMENT AND PLANNING

Abstract ID: 1232

Poster

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Social media information is gaining increased interests of researchers and planners because it complement data sources provided by traditional approach and statistics normally used, deals with a research gap, and provides useful information for practical planning and policy. By analyzing geotagged social media data, researchers can obtain information to identify trends of phenomena.

Ecotourism is an important planning field in which social media information plays a significant role. Many local governments are actively engaging in ecotourism development as an effective strategy to protect natural environment and create economic benefits for local residents. Therefore ecotourism has received lots of attention from environmental planners and economic development policy makers. In designing, managing and marketing ecotourism sites, the role of social media information is increasingly valuable.

The paper identifies attractive ecotourism sites in mid-west region; and analyze tourist activities and carrying capacity using geotagged photo data. We examines the selected ecotourism sites from spatial, temporal, and thematic perspectives. The study area includes Nebraska, Kansas and South Dakota. User generated photos with location based information are obtained from the Flickr and other social media sites. Our analysis explores geographic patterns, intensity, and spatial clusters of data as well as place based characteristics of locations, using spatial statistical methods with GIS. We also analyzes tourist behavior patterns and movement. The paper attempts to shed light on the assessment of carrying capacity and its importance as a management tool in tourism planning and development. Compared with traditional opinion survey, data from geotagged social media provide different ways of analysis with valuable volunteered information. This approach also lowers time, effort and cost. Various studies have used information from photo-sharing services to analyze tourist movements and assess tourism sites. However while the interest in geotagged photo data is increasing, relatively less attention was given to spatial statistical techniques to analyze location patterns. This study provides a novel approach in spatial

planning. It also contributes to the knowledge of ecotourism planning and management, and the advancement of methodology.

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Key Words: Volunteered geographic information, Geotagged social media data, Ecotourism planning, Environmental management

TRACK 2 - ECONOMIC DEVELOPMENT

ROUNDTABLE: BUFFALO'S EMERGING INNOVATION ECONOMY

Abstract ID: 104

Roundtable

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ORSI, Christina [University at Buffalo] cporsi@buffalo.edu

For well over 100 years, Buffalo, New York was part of the thriving manufacturing belt in the Great Lakes-Midwestern region of the U.S. However, the regional economy has suffered with the long-term decline of the manufacturing sector. The City of Buffalo, which grew beyond 500K in the 1930-50 period, currently has the population it had in 1890 of about 256K. Like other large cities in the region, the Buffalo economy is restructuring in an attempt to become part of the knowledge economy.

This panel will provide fine-grained insights about the evolution that is taking place in Buffalo and the lead role the University at Buffalo is playing in this evolution. In order to promote entrepreneurship, talent development and business engagement, the University at Buffalo is completing the planning process to create Innovation Districts (IDs) across their campuses.

The panelist will address the following points to inform and engage the audience:

- How the IDs will foster faculty and student engagement with anchor companies as well as promising startups;
- The plan to create vibrant places to foster networking among students, faculty, business people and leaders; and
- The provision of space for this networking and places with housing and urban amenities.

The panelists will also provide contextual information from both the historical and comparative perspectives.

Citations

- The University of Buffalo's Innovation District Plan
- Brookings Innovation District Study
- Klaus Schwab, The Fourth Industrial Revolution

Key Words: Economic development, Innovation District, Knowledge economy

ROUNDTABLE: RETOOLING OUR PEDAGOGY AND PRACTICE IN ECONOMIC DEVELOPMENT PLANNING

Abstract ID: 805

Roundtable

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As with other planning subfields, economic development is not immune from the challenge of how best to prepare future practitioners. We have moved from a popular discourse of “urban crisis” to one of “urban triumphalism,” yet uneven development and inequality are as prevalent as ever, and the pace of economic disruption and

restructuring are only increasing. New data sources and analysis tools are continually coming online, yet shift-share analysis and input-output models remain the state of the art. And despite enthusiasm for the “equity turn” in planning, the economic development field of practice remains stubbornly stuck in a world of deal-making and neoliberal consensus, and in many places, planners endure direct attacks on government, public sector learning and adaptive planning. We aspire to show our students that planning matters and better community outcomes are possible, yet our cupboard of instructive case studies is woefully bare.

Simply put, how can we, as economic development planning educators, more effectively use our pedagogy and practice to inspire emerging planners to focus their energies toward more just, equitable and sustainable economies? What works well, what doesn’t and what needs to change?

This panel pulls together economic development educators from various institutions and with varying levels of teaching experience to address these questions.

Panelists will share ideas and resources in support of revitalized pedagogy and practice. Topics include

- Evolving/reframing economic development theory and debate to be more relevant to how local economies are changing;
- Elevating equity and sustainability goals within the field;
- Making the case for good government and public investment;
- Deploying innovative methods or using old methods in innovative ways to analyze local economies;
- Training emerging planners how to use economic development tools most effectively to build power and achieve community goals;
- Using case studies in the classroom, including international case comparisons; and
- Expanding beyond “hard skills” to focus on improved communication and critical, thoughtful public writing.

Citations

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Key Words: economic development, pedagogy, sustainability, social equity, methods

ROUNDTABLE: THE FUTURE OF (INFORMAL) WORK: DIGITIZATION AND INFORMALIZATION OF URBAN LABOR MARKETS

Abstract ID: 1141

Roundtable

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Informal labor markets are typically associated with the Global South. Understood as ‘backward’ features of a ‘lagging’ economy and characterized by “non-compliant, non-enforced and deregulated” dynamics (Durst and Wegmann 2017:1), they are conceptualized as the antithesis of technology-intensive production in the developed world. However, with the rise of the On-Demand Economy urban labor markets in the developed world are increasingly mirroring informal labor market practices. Indeed, the fact that the ‘gig economy’ work is organized by large-scale, well-capitalized firms headquartered in the Global North is unsettling taken-for-granted distinctions between formal and informal markets and firms. A contemporaneous trend is the heightened

interaction between ‘modern’ technology-enabled platforms and informal enterprises, whether through labor sourcing platforms which encourage piecemeal wage work, ride hailing apps like Uber that retrofit informal auto-rickshaws and motorbike taxis, or digital payment mechanisms that do away with cash. ‘Formal’ and ‘informal’ organizations are deeply intertwined. The global rise of casualization coupled with the fusion of informal labor markets with new technologies thus necessitates renewed scrutiny of the binaries of informal-formal, South-North, traditional-modern and backward-advanced.

This roundtable will reflect on how the rise of new technologies is reshaping ideas and practices of 'informality'. The discussion is organized around three main questions: First, how do new technologies interact with informal labor market practices? Second, what are the distributional implications of these technological developments for different classes of informal market workers in urban spaces? Third, what are the imperatives for policy-relevant research on urban informality in this period of radical technological development and urban transformation?

While the “Future of Work” features substantially in contemporary discourse, these conversations have largely centred on formal industrial labor contexts. Even though the vast majority of the globe is employed in non-standard or informal occupations, we know little about the implication of new technologies for these types of work. Will they be tools of empowerment, rescuing workers from an ‘exploitative’ unregulated economy or simply ensconce workers in deeper relations of domination? Have these breakthrough technologies increased livelihood generation possibilities or simply increased precarity for labor? The participants of this roundtable bring together their variegated perspectives on urban informality, labour markets and urban political economy to define a new research agenda on emerging technologies and the future of (informal) work.

Citations

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Key Words: Informality, Technology, Labor , Development, Gig Economy

PRE-ORGANIZED SESSION SUMMARY

THE FUTURE OF NEIGHBORHOOD RETAIL: PROBLEMS AND PROSPECTS IN THE AGE OF AMAZON

Summary ID: 11

Abstract ID: 102

Abstract ID: 1006

Abstract ID: 1279

While small, independent neighborhood retailers provide a host of benefits for local communities – including serving as social hubs and third places, adding to the vitality and activity of the street life, and reducing revenue leakages – they have struggled in recent years, first with the growth of big box retailers, and now with the rise of e-commerce. The purpose of this session is to investigate and discuss the problems and prospects for neighborhood retail in the face of continued technological change. Where are neighborhood retailers surviving or (potentially) thriving, and what about their neighborhood environments are most important? How do design and preservation influence neighborhood retail success? What regulatory or political frameworks can be used to support these types of businesses? Given the interconnected nature of these questions, papers from a variety of perspectives are encouraged, from urban design and preservation to public policy, economic development, and land use planning.

Objectives:

- Better understand problems and prospects for neighborhood retail in the face of continued technological change.

NEIGHBORHOOD RETAIL IN THE AGE OF AMAZON: TRENDS AND CHARACTERISTICS FOR SUCCESS

Abstract ID: 102

CREDIT, Kevin [Michigan State university] creditke@msu.edu, presenting author

Over the past few years, the rise of e-commerce retailers like Amazon have begun to radically change the dynamics of local retail businesses. These changes have significant implications for local economic development and planning, for several reasons: 1) many municipalities rely on commercial sales tax revenues which may or may not be fully recouped through e-commerce activities, 2) communities have often invested large sums for infrastructure and redevelopment around large regional shopping centers and big box stores that may now be at risk for failure, 3) e-commerce inherently exports a significant share of retail revenue out of the local economy.

Given these issues, it is important for planners to understand the extent to which local neighborhood retail is struggling and to examine the characteristics of neighborhoods where retail business creation is still going strong. To do this, this paper analyzes business license data from the City of Chicago's Open Data Portal to ascertain overall trends in new retail business creation from 2002-2016. This data is then joined to block group-level data to better understand the important characteristics of neighborhoods that contain significant hot spots of new retail business activity from 2013-2016, the time period over which all new retail activity in the city dropped significantly (and, perhaps not coincidentally, when Amazon Prime began to reach a critical mass of users).

The results of a multinomial logit model suggest that, among traditional demographic and financial characteristics that predict new business growth, higher access to certain kinds of walkable amenities significantly relates to location in hot spots of new retail business creation. This finding corroborates previous work that suggests urban, walkable amenities are important to business activity (Florida, 2002; Jacobs, 1961; Leinberger and Alfonzo, 2012), and suggests to planners that one potential solution to the struggles of neighborhood retailers is to foster the development of more appealing, walkable environments.

Citations

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Key Words: Retail, Neighborhood, Open data, E-commerce

THE ROLE OF URBAN PLANNING RESEARCH IN THE RETAIL REVOLUTION

Abstract ID: 1006

Group Submission: The future of neighborhood retail: problems and prospects in the age of Amazon

KICKERT, Conrad [University of Cincinnati] conrad.kickert@uc.edu, presenting author

This paper presentation connects urban planning and design scholarship to the dynamic field of retail by surveying research and trends in planning and related academic fields, private analysis and consultancy best practice. While retail is a key element of the urban experience (Coleman, 2006; Zukin, 2004), urban planning research suffers from significant knowledge gaps on how the accelerating retail transformation will affect cities. Part of this knowledge gap is attributable to the rapid pace of change in retail, eclipsing the inertia of academic research reliant on research funding acquisitions, rigorous data analysis and peer-reviewed research publications. Furthermore, planning scholarship often relies on longitudinal data sets that are by nature retrospective, clashing with the speculative nature of most retail analytics. Thirdly, much research on retail is situated in fields that urban

planning scholars rarely relate with, like behavioral sciences, distribution and information technology. Finally, a significant amount of retail research is conducted internally by retailers, analytical firms and consultancies, preventing outcomes from entering the public domain.

This disconnect between planning scholarship and retail reality is highly detrimental to the efficacy of future planning interventions in the accelerating transformation of the retail landscape. After decades of moving out of cities, retailers are increasingly moving out of physical locations altogether. As a result, news outlets and real estate analysts are keen to predict an upcoming “retail apocalypse”, extrapolating a revolutionary shift from high-profile retail closures and stock price warnings (Townsend, Surane, Orr, & Cannon, 2017). Indeed, stores are closing at a record pace, with an estimated 147 million square feet of store space shuttered in 2017 alone (Buss, Shuler, Bakshi, & Lee, 2017). As retail rents fall and retailers close, mall operators are facing an uphill battle to remain solvent, accelerating the decline of the American shopping mall that was heralded a decade ago. Online shopping is commonly seen as the culprit of the demise of physical retailers, with the rise of Amazon in the United States and Europe and Alibaba in China increasingly seen as a threat to the current physical retail landscape (Zhang, Zhu, & Ye, 2016). On the other hand, retail is re-urbanizing in the experience economy, with planning and economic development interventions at the forefront of successful retail districts. By surveying the academic and professional status quo and trends in retail, this paper provides planning research directions that inform policies and design interventions to reinvigorate urban retail districts and guide the retail revolution toward more equitable and sustainable cities.

Citations

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Key Words: Retail, Neighborhood business, Urban experience, E-commerce

THE DEATH AND LIFE OF MOM AND POP: AN ANALYSIS OF SMALL SCALE RETAIL IN SAN FRANCISCO, CHICAGO AND NEW YORK

Abstract ID: 1279

Group Submission: The future of neighborhood retail: problems and prospects in the age of Amazon

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For decades, small-scale, independently owned, neighborhood-serving retail – affectionately termed the “mom and pop” store – has battled for survival against changes in consumer preferences, e-commerce, corporate retailing, and commercial gentrification. Amidst a significant decline in mom and pop retailing, urban planners have sought ways to support them, arguing that there are social, economic, and environmental benefits associated with businesses that are neighborhood-serving, local, and independently-run. Based on these normative ideals, our research seeks to better understand the correlates of mom and pop retail. Our primary research questions are: where do independently owned, neighborhood-serving retailers exist, how stable are they, and what are the predictors of their ability to succeed or fail?

We begin by framing the various ways in which mom and pop retail is valued. One common theme is that the employment generated by small, independently-operated main street businesses is particularly valuable because it provides a role for those left out of the urbanized knowledge economy. Further, independently run neighborhood-

serving businesses provide a measure of sustainability, as owners are thought to be more likely to spend their profits locally, such that resources are recycled in the local economy. Mom and pop stores are believed to be especially responsive to local need. This fosters economic inter-dependence, social interaction and neighborhood stability. Some authors have explored the social and cultural values of neighborhood-based businesses.

Against this framing, we undertake a rigorous empirical investigation of mom and pop retail. Using a large-scale database of retailers in three major cities, we conduct a detailed, space-time analysis of the location and economic activity of four mom and pop neighborhood-serving businesses – small, independently owned grocery stores, bakeries, bookstores and hardware stores. We use the National Establishment Time-Series (NETS) database, which is a longitudinal database of business and non-profit establishments throughout the U.S. that includes data on type of establishment, employment, years active, and industry classification, among other variable. We filter the NETS data by our four neighborhood-serving businesses, and differentiate between ownership type (standalone, branch, or headquarters) and number of employees to determine independent status. We then look for correlates of the stability (or lack of stability) of our four neighborhood-serving businesses in three major metropolitan regions: San Francisco, Chicago, and New York. The explanatory variables we analyze include geographic location, built environment, and social characteristics. Geographic location includes regional location, access to public transit, and distance from downtown. Built environment characteristics pertain to the character of the neighborhood in which the business is located in terms of unit type, vacancies, building age, land use mix and density. Our socio-economic correlates include tenure, family type, poverty rate, social diversity, and race and ethnicity.

Through this analysis we are able to show what the correlates of small scale retailing are, giving planners a better understanding of the various drivers underlying the death and life of mom and pop retail.

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Key Words: retail, small business, mom and pop store, main street

PRE-ORGANIZED SESSION SUMMARY

EXPLORING THE IMPACTS OF ROBOTS AND URBAN AUTOMATION ON LOCAL ECONOMIC DEVELOPMENT

Summary ID: 35

Abstract ID: 499

Abstract ID: 500

Abstract ID: 509

Robots and urban automation have the potential to be significant disruptive technologies that change the way cities and their economies will develop in the future, along with opportunities for work, and for improving standards of living and quality of life. In the end, the experience of each city and local economy will be unique and shaped by its initial conditions, and, its response to the diffusion of robots and urban automation. At a minimum, robots and urban automation will affect workforce, land-use, infrastructure, and industrial organization and location. The papers in this session explore a range of economic development issues from employment,

industry, and spatial restructuring, needs for theorizing structural change, and consequences for inequality, stemming from the diffusion of robots and urban automation.

Objectives:

- Identifying robotic and urban automation trends
- Identifying planning implications from disruptive technologies of urban automation
- Identifying theory and research methods with which to study robotics and urban automation impacts

EXPLORING GEOGRAPHIC VARIATIONS IN EDUCATION AND WAGE PREMIUMS RELATED TO ROBOTICS SKILL DEMAND

Abstract ID: 499

Group Submission: Exploring the Impacts of Robots and Urban Automation on Local Economic Development

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It has been suggested anecdotally that robots are increasing skill and education requirements for manufacturing workers (Brynjolfsson & McAfee, 2014). However, it has been difficult to determine this empirically because employment data are not disaggregated to a sufficient level to identify robots or robot-related skills. We address this data deficiency by using online job posting data to create a measure that determines the degree to which job advertisements require robotics-related manufacturing skills (Leigh, Kraft, & Lee, 2018). The measure will then be used to estimate whether jobs with different required levels of robotics competency also demonstrate differences in other educational requirements and wages. Finally, because the robotics industry and robotics use has a distinct geography (Leigh & Kraft, 2017), we test whether there are geographic variations to education and wage premiums related to robotics skill demand.

Citations

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Key Words: robotic diffusion, skill and education, wage premiums, geographic variation, manufacturing

REGIONAL ECONOMIC POLARIZATION AND THE AI-ECONOMY

Abstract ID: 500

Group Submission: Exploring the Impacts of Robots and Urban Automation on Local Economic Development

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There has been growing concern that artificial intelligence will soon advance to the point where machines and algorithms could displace a considerable portion of the labor force. Some predict that as many as 40 to 50 percent of present-day jobs are at a serious risk of automation in the foreseeable future (Frey and Osborne 2017, Manyika, Lund et al. 2017). Others offer a more cautious interpretation, emphasizing the limitations of computers in solving unstructured problems, working with new information, and in performing non-routine manual tasks (Levy and Murnane 2013).

There has been little discussion, thus far, of whether and how the anticipated automation of work will have differential impacts in different types of cities. Technological change has long had a variable impact on cities, largely conditioned by regional industrial specializations. However, the impacts of automation and computerization are anticipated to be far more widespread—impacting entire job categories across a wide spectrum of skill sets and industries, as opposed to being contained within a limited number of product markets.

This paper examines the possible spatial ramifications of the anticipated computerization of work among U.S. cities and regions. It matches occupations that are most and least “susceptible” to automation with regional data on occupational employment to measure the possible impact across different cities. I find that the jobs that are most at risk tend to be relatively spatially ubiquitous. That is, they are common to many metropolitan areas where they exist in roughly the same proportion. By contrast, the types of jobs that are least vulnerable to replacement by automation are heavily concentrated. These “safe” jobs tend to locate in places with a strong University presence or in large MSAs that are already leaders in the knowledge economy, such as Boston, Silicon Valley, and Austin.

If current predictions are accurate, the concentration of “AI-safe” jobs coupled with widespread decline in “AI-threatened” jobs will likely lead to the further spatial polarization of the U.S. economy between leading and lagging regions. The paper concludes by discussing the prospects for a renewed role for the federal government in addressing the anticipated growth in regional economic disparities.

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Key Words: Innovation, Artificial Intelligence, Workforce Development, Technological Change, Forecasting

DRIVING UP STANDARDS OF LIVING? URBAN AUTOMATION AND THE ILLUSIVE PROMISE OF JOB QUALITY

Abstract ID: 509

Group Submission: Exploring the Impacts of Robots and Urban Automation on Local Economic Development

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Technology offers the potential to improve human life, public safety and protect the environment. But could it simultaneously enhance job quality and thus improve standards of living? Uber—a leading proponent and developer of autonomous vehicle technology—has recently staked its global reputation on this provocative claim. Its ‘good jobs’ thesis pushes against a tide of media pessimism, including predictions that close to 4 million American-based workers that currently drive for a living could permanently lose their jobs. Uber’s counterclaim is that advances in technology will instead free drivers from mundane, arduous and unsafe aspects for their daily work life, allowing them to reclaim wasted hours spent driving to focus on higher-value added activities. For urban taxi, transit and delivery drivers, there is the potential to now use lost driving time to take on greater responsibility for logistics, product care and customer service—and for their employers or clients, there is the corresponding expectation that a reduction in driving-related distractions and accidents will improve product delivery times and produce more consistent and reliable delivery service.

Admittedly, Uber’s claim could be easily dismissed as a simple marketing ploy designed to distract from recent company problems, including evidence of sexual harassment, worker mistreatment and regulatory evasion. But this bold proclamation creates an opportunity for urban planners, practitioners and labor advocates to not only hold them to their word, but intervene in ways that pushes this as the dominant urban technology standard.

This paper advances this claim by asking how and under what conditions can urban automation, starting with the introduction of autonomous vehicles, improve job quality? And related to this, what kinds of institutional interventions might be needed to ensure advances in urban technologies continue to promote job quality standards and also increase access to quality job opportunities?

This paper combines historical cases of industrial automation with recent writings on the development of autonomous vehicles and related ‘disruptive’ technologies to outline three reinforcing steps. First, is the opportunity to increase public awareness that even within this narrow technological space, there are dramatically divergent business models in play. Admittedly some technology entrepreneurs are advancing solutions that will exacerbate widespread job loss and worker displacement. But others treat incumbent worker participation and knowledge sharing as an essential and enduring resource for technology innovation and in the process, they place ‘blue collar’ workers—including those with limited formal education—on par with highly educated technology specialists. Second and related, are institutional interventions that get out in front of technological development, pushing solutions that integrate human and machine power in ways that advance economic opportunities for frontline workers. Third, is a broad ideological reframing of urban innovation, such that technology and labor market solutions are tightly interwoven and jointly advanced and where institutional actors—including labor unions, research universities or mission-driven investors—push for public investments in innovative technologies to generate high rates of public return. By anchoring each of these steps to illustrative examples, the goal of this paper is to inspire urban and regional planners to mediate the process of technology development through strategies in support of inclusive innovation.

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Key Words: urban automation, job quality, labor market institutions , driverless vehicles, economic development

THE ECONOMIC GROWTH AND DEVELOPMENT OUTCOMES RELATED TO VIBRANCY: AN EMPIRICAL ANALYSIS OF MAJOR EMPLOYMENT CENTERS IN LARGE U.S. CITIES

Abstract ID: 65

Individual Paper Submission

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This paper explores the features of vibrancy in detail and presents the typology used to categorize 90 major employment centers across the U.S. Each center receives a vibrancy score based on urban form-related measures of density/compactness, diversity, connectivity and walkable urban design. Measures of employment, investment, income and poverty indicate the economic outcomes of these centers. The empirical analysis relates vibrancy measured in 2010 to subsequent growth and development usually for the 2010-15 timeframe. The basic hypothesis is that higher levels of vibrancy will lead to stronger subsequent economic outcomes *ceteris paribus*.

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Key Words: vibrant centers, economic growth, economic development, urban place making

HANGING BY A THREAD: THE POST-RECESSION RESILIENCE OF LEGACY REGIONS

Abstract ID: 97

Individual Paper Submission

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Regional labor and housing markets are not all created equal. Some are equipped with the assets to resist economic shocks, while others are challenged in ways that lead to structural decline. In a forthcoming paper, we applied the “legacy city” conceptual framework to the geography of U.S. metropolitan areas, dubbing them legacy regions. In this study, we analyze the impact of the Great Recession on the economic health of various clusters of legacy regions. These regions—defined by their possession of both industrial era assets and post-industrial era challenges—greatly differed in their level of resilience following the close of the recession. We model the impact of legacy regions’ pre-recession industrial structure on their post-recession resilience outcomes, paying special attention to the incidence of what we call ‘path-dependent decline,’ which occurred in regions already experiencing job and/or productivity shrinkage in the years leading up to 2007. Finally, we offer several conclusions regarding structural decline in legacy regions (as opposed to cyclical decline) and the geographic heterogeneity of post-recession regional economic recovery.

Citations

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Key Words: resilience, region, recession, decline

WHO SHARES? A NATION-WIDE PROFILE OF PARTICIPATION IN CARSHARING, BIKESHARING, AND OTHER SHARING ECONOMY APPLICATIONS.

Abstract ID: 166

Individual Paper Submission

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The term ‘sharing economy’ encompasses a range of phenomena, several of which have attracted the attention of urban scholars because they upend conventional producer/consumer relationships, and signal possibilities for addressing economic and environmental issues related to hyper-consumption. Botsman and Rogers (2010, 67–96) identify three categories of collaborative consumption including: 1) product service systems (PSS) that create flexible opportunities for short-term access to products traditionally owned by households to the exclusion of others; 2) redistribution markets that encourage the circulation of otherwise underutilized products among a network of users; and 3) collaborative lifestyles, in which networks of individuals share intangible assets like space, time, and skills, often at the local scale. Other authors offer variations on these categories (e.g. Agyeman et al 2013; Demailly and Novel 2014). Optimistically, the sharing economy could represent a blossoming of social connections severed by neoliberal policies of the past half-century; Multiple authors, however, approach the sharing economy critically, observing that the innovations associated with sharing may serve to exacerbate hyper-consumption and the inequities of global capitalism (Richardson 2015; C. J. Martin 2016, Netter 2016, Jarvis 2017).

Our study asks which demographic, attitudinal, and environmental characteristics best predict participation in

different types of sharing economy applications? Distinguishing which types of individuals subscribe to which types of sharing economy applications may help scholars transcend debates about the relative merits of sharing writ-large, identify the stimuli behind the growth or stagnation of certain types of sharing, and help policy makers tailor their efforts to particular populations. To date, a variety of studies examine the characteristics of sharing economy participants, although most either focus on one type of application, a small number of research subjects, or examine participants of a narrow geographic scope. This study takes advantage of the 2016 Cooperative Congressional Election Study (CCES), which offers a nation-wide representative sample of 1,000 American adults.

We collected data in October 2016, asking respondents whether they had ever used any of the following services (with detailed descriptions of each category): carsharing, bikesharing, couchsurfing, community clothing swaps, community supported agriculture (CSAs), and neighborhood-based household goods sharing (e.g. Neighborgoods). Use of any of these applications is extremely rare nationwide (less than 10 percent affirmative responses, in any category). We regress each of these variables on characteristics like population density of the respondent's ZIP code, respondent age, household income, self-assessed altruism, self-assessed extraversion, presence of children in the household, and homeownership. Using a logit model, we find (provisionally) that different types of characteristics are associated with different types of sharing economy applications. For example, living in a higher density ZIP code is associated significantly and positively with carsharing, bikesharing, couchsurfing, but not significantly with CSAs, neighborgoods, or community clothing swaps. Almost all applications, except CSAs, are associated significantly with younger age, and having children in the household reduces the odds of several applications, but not all. Extraversion appears to be an important predictor for car sharing, clothing swaps, and neighborgoods, but not bikesharing, CSAs, and (surprisingly) couchsurfing. Home ownership seems to have no significant effect on using of sharing economy applications.

The results suggest that different sharing economy applications reach different constituencies, either because of disparities in interest or disparities in accessibility, casting doubt on scholarship that attempts to frame the sharing economy as a singular phenomenon. Certain applications of the 'sharing economy' appear more often in relatively high-density places; whereas population density appears to have no influence on other applications. Certain applications seem to be spurred by extraverted users. Relatively few applications appear to have any association with altruism, despite hypotheses to the contrary.

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Key Words: sharing economy, collaborative consumption, carsharing, bikesharing, survey methods

THE IMPACTS OF ECONOMIC DEVELOPMENT INCENTIVES IN THE MIDWEST

Abstract ID: 177

Individual Paper Submission

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Offering incentives to businesses is one of the oldest and most dominant activities within the practice of economic development. It is also one of the most controversial (LeRoy 2005). The specific circumstances under which incentives contribute positively to the economic well-being of local communities are not well understood (Hicks and LaFaive 2011). This research assesses the impacts of local business incentives used by municipalities within the largest metropolitan areas of three states in the U.S. Midwest.

Our work extends knowledge of the effects of economic development incentives in two ways. First, by building upon previous research conducted by two of the authors (Craft, Drucker, and Weber 2017), we include the influence of municipal fiscal and economic development policy “regimes.” The variation evident in the use of incentives across jurisdictions and types of local governments implies different policymaking decision calculi or assessments of the driving motivations for offering incentives (Calcagno and Hefner 2018); these distinctions are identified or indicated and incorporated into the empirical analyses. Through including this key set of factors that influences the municipal decision to offer incentives (and which also may impact economic outcomes directly), we resolve an important potential omitted variable problem afflicting nearly all previous comparable studies.

Second, we add to the so-far limited empirical evidence that has been generated concerning the impacts of local incentives in the post-Great Recession period. The variation across jurisdictions in the use of incentives in the 2010s reflects not only local decision-making but also differing fiscal capacities and situations of adaptation to the economic conditions brought about by the Great Recession, with some governments pulling back on their use of economic development incentives and others initiating new approaches or instruments to attempt to retain or lure businesses (Warner and Zheng 2013). Similarly, business reactions to local incentives may depend on municipal, industry, or firm-specific circumstances. We construct and contrast distinct municipal-level outcome variables, including employment growth, establishment creation, and relocation, to evaluate the breadth of consequences of local incentive use.

We utilize a unique dataset assembled by combining information on selected incentive types (tax increment financing districts and tax abatements) with socio-economic, geographic, and fiscal characteristics for all municipalities in the several largest Metropolitan Statistical Areas located in Illinois, Wisconsin, and Michigan. These states share similar histories and settings (i.e., heavy manufacturing legacy, slowly growing populations, Republican gubernatorial administrations). We add measures of employment change, establishment formation, and relocation constructed from the establishment-level National Employment Time Series database.

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Key Words: economic development incentives, subsidies, municipal fiscal condition, business creation, relocation

BUSINESS VULNERABILITY IN THE FACE OF NATURAL DISASTERS: THE CASE OF HURRICANE SANDY AND NEW YORK CITY

Abstract ID: 205

Individual Paper Submission

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The density of urban areas is what makes them productive, but it is also what makes them particularly vulnerable in the face of natural disasters. This is all the more true as the threat of, and damage from, natural disasters becomes more severe, especially for coastal cities like New York. In this paper, we consider businesses, and small retail businesses in particular, and the nature of their risk and resilience in the context of Hurricane Sandy. Specifically, what share of businesses, and the economic activity that they represent, is vulnerable to extreme flooding? What are the characteristics of the businesses, and the nature of their economic activity, in the areas of highest projected risk, compared to those in areas of lower risk? And did Hurricane Sandy affect the economic activity of these businesses?

To answer these questions, we rely on a combination of several rich micro-datasets on business activity, employment, sales revenues and property characteristics in New York City for years leading up to and following the storm. We overlay these data with spatial information on locally determined evacuation zones to capture pre-storm risk, and then inundation zones that show us exactly where, and to what height, the floodwaters surged. We analyze the differences across these zones in business closures, employment and sales revenues before and immediately following Sandy in order to understand the pre-storm vulnerability of businesses and the very immediate repercussions from Hurricane Sandy.

We find that, before Sandy, more than 25,000 establishments were located in the highest risk evacuation zones and, of those, nearly half were providing critical services, like grocery and drug stores. In addition, a majority of buildings in the higher risk areas are of lower-scale construction, implying that most businesses were likely located on floors closer to ground level. Moreover, the buildings were mostly built prior to any resilient building code standards. As for impacts, we find that they differed depending on the nature of the business. While overall employment did not exhibit any significant declines after Sandy, the retail sector did suffer. And the losses were most acute in areas that experienced surge levels of three feet or more – places where flooding severely disrupted business operations. Looking at data from two years after the storm, we find a 40 percent reduction in retail employment (an average decline of about 8.5 jobs) for the typical neighborhood in these high-surge areas. We do not yet know whether these job losses were driven by business closures or contractions; but, it is likely that they were accompanied by interruptions in community services and in earnings for those formerly employed at the damaged establishments.

Our findings so far offer two important lessons for urban planning and policy. First, there are implications for the city's management of risk. The fact that there were significant job losses in areas designated for evacuation suggests that the actual evacuation response and storm preparation were inadequate in terms of achieving resiliency. Second, communities within the same municipality can suffer very different costs from natural disasters. These findings therefore indicate a need for neighborhood-based planning and localized responses in the face of extreme events.

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Key Words: Natural disasters, Businesses, Resiliency, Extreme events

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There have been a number of ways that state and local governments can promote economic development. Most traditionally, government can pursue the industrial recruitment strategy by providing subsidies, tax abatements, low-interest loans in order to influence business location choices (Lester et al. 2014). The 1980s witnessed a new era in which many governments promoted high-tech programs and the 'entrepreneurial' policy through export assistance, venture capitals, incubators and science parks (Eisinger 1988). Alternatively, government can build scientific capacity by educating STEM oriented workforce and extending university outreach to local industries (Feldman et al. 2014). The common theme in all these approaches is their focus on government 'programs.' This makes sense because programs are explicit forms of government actions with (usually) clear goals, which allows evaluation of them. Most economic development scholars in urban planning used programs and policy synonymously, or, to certain extent, assumed that there is no economic development policy if there is no program that is related to economic development.

In this paper, I propose that economic development policy has other different dimensions, which can be as important as programs, and use the case of entrepreneurship promotion efforts with examples from Kansas City MO-KS, Chattanooga TN, and Brookings ND. Recent literature emphasized the importance of experimental learning through peer entrepreneurs and mentorship through experienced entrepreneurs, and such experimental learning takes place most effectively at the local level (Feld 2012). This creates a fertile ground for local government to promote entrepreneurship because, while lacking financial resources and authorities compared to state government, local governments have natural advantages to this locally grounded networks and learning mechanism. Particularly, a mayor can be an important hub and promoter of such networks because, due to the nature of the election process, she is one of the best connected people in town, and she can, first, directly connect otherwise disconnected entrepreneurs to entrepreneurs' meetings and support organizations.

Local entrepreneurship support organizations play important roles to train and connect entrepreneurs (Motoyama and Knowlton 2016). While many of these organizations have their own connections to other support organizations, they are often non-profit and small, tend to be operating in their own small circles, occupied with the operation of their programs, and do not have a broader regional view of the entrepreneurship ecosystem. Thus, an alternative role by a mayor can be to coordinate local entrepreneurship support organizations.

Neither this connecting nor coordinating function falls into formal government programs, but they are the areas that key local government officials can act immediately and effectively. Though the evaluation of these connecting or coordinating functions will be challenging, economic development scholars should pay more attention to non-program functions and roles that local government and key officials can play.

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Key Words: Economic development policy, Entrepreneurship, Local government

UNPACKING LOGISTICS CLUSTERS

Abstract ID: 259

Individual Paper Submission

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Growing e-commerce firms and global value chains have dispersed transportation and warehousing functions from urban cores to hinterlands (Dablanc & Ross, 2012). While social and environmental costs exist, 'logistics cluster' related strategies endure as a popular focus of economic development (Sheffi, 2012). However, economic development officials' definitions of related industries that comprise clusters can be imprecise, contributing to information asymmetry between firms, economic development officials, and the public (Duranton, 2011). Similarly varied definitions of the industries that comprise the logistics cluster can contribute to confusion, muddling economic development officials' planning approaches and obscuring potential benefits and costs to their constituent communities. Herein, I examine how different definitions of logistics related industries, at varied geographic scales, can affect how economic development officials perceive changes in the growth and volatility of a logistics cluster.

For this research, I define historic trends in the concentration of logistics industries for Core Based Statistical Areas (CBSAs) in the continental United States from 1996 through 2015. Using establishment and employment data from the U.S. Census Bureau, and the Bureau of Labor Statistics, I test how different definitions of the logistics cluster affect the perceived presence of growth and volatility trends using a time-series analysis. My analysis compares industry definitions starting with the warehousing sector (Dablanc & Ross, 2012), broadening to the transportation and warehousing sectors (Rivera et al., 2014), and finally to extensive e-commerce related sectors (Delgado et al., 2016). The results suggest differences in the trajectory and volatility of change in CBSA location quotients when using different component industries to represent logistics clusters.

However, economic developers plan for industry at the local, regional, and national geographic scales. Using multivariate statistical techniques, I examine differences in establishment and employment concentration at the county level within CBSAs. My results suggest differences in industry and employment change and volatility within regions. In some CBSAs, change and volatility are more unevenly distributed among constituent counties. Additionally, I find differences in the volatility of change among constituent counties when compared to the overall CBSA trend. Taken together, the results suggest that localities may not always benefit evenly, nor steadily, from regional planning efforts and subsequent changes in industry concentration.

In this analysis, I describe systematic differences among definitions used to convey cluster based target policies at the regional level. In addition, I find inconsistency among measures of growth trends and volatility between CBSAs and their constituent counties. For planners, these findings demonstrate the importance of industry definition and scale when assessing the social, environmental, and economic benefits and costs of cluster-based economic development planning initiatives. If industry definitions and scales are inconsistent within and among regions, economic development officials' approaches to assessing benefits and costs may be flawed. Analyses using varied geographic scales and cluster definitions can mitigate against information asymmetry to help economic developers more thoughtfully assess potential investment strategies, as well as address concerns from the general public.

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Key Words: Economic Development, Freight, Cluster, Logistics

POLITICAL CULTURE AS A DEFINING FACTOR: THE LIMITS OF ECONOMIC PLANNING IN CHICAGO AND LONDON

Abstract ID: 281

Individual Paper Submission

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Nations and communities possess attributes which are a function of place, historical development, economic rationale and social composition. These attributes cause a political culture to form which is a major influence in any consideration of a wide range of alternatives – both alternative definitions of a perceived problem and alternative solutions once the problem has been defined. The process by which this takes place has been termed “nondecision making” by Bachrach and Baratz.^[i] They define it as “...the practice of limiting the scope of actual decision-making to ‘safe’ issues by manipulating the dominant community values, myths, and political institutions and procedures.”^[ii] Political systems and sub-systems develop a ‘mobilization of bias,’ a set of predominant values, beliefs, rituals and institutional procedures (“rules of the game”) that operate systematically and consistently to constrain the range of possible policy choices.^[iii]

The political culture reacts as a constraint by suffocating unacceptable policies before they are even voiced; or keeps them covert; or kills them before they gain acceptance, or, failing all of these things, maims or destroys them in the implementation stages of the policy making process. Any proposal conflicting with the dominant political culture runs the risk of being outside the ‘scope of legitimacy’ and may either “receive no serious attention or will be used to discredit the person or organization that proposes it.”^[iv]

Political culture, in other words, restricts the actions themselves, the way one goes about achieving a given ends, as well as the interpretation of the end itself. The main aspects of a political structure, as identified by McCallum,^[v] are attitudes toward authority, social stratification, society and change, and economic ideology.

During the 1980s, progressive planners in London and Chicago, as well in other cities in both countries, sought to redefine how their local governments would develop policies that benefitted local residents more than private capital^[vi] While each had similar overall goals, the policies and programs that were developed in each city differed, in part, because of different political cultures in England and the U.S. Simply put, the ideology of the Labour Party in England allowed the London planners more political space within which to frame and implement their policies.

^[ii] Ibid., pg. 18.

^[iii] Ibid.,pg. 44.

^[iv] Ibid., pg. 58.

^[v] McCallum, J. Douglas. Comparative Study in Planning: Explorations of the 'political culture' of Planning in Britain and the United States. University of Glasgow, Department of Town and Regional Planning, 1976.

^[vi] Clavel, Pierre and Robert Kraushaar. “On Being Unreasonable: Progressive Planning in Chicago and Sheffield,” International Planning Studies, vol. 3, no. 2, June 1998; Murray, Robin. “Benetton Britain: The New Economic Order,” Marxism Today, November 1985a, pp. 28-32.

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ASSESSING THE BLUE ECONOMY IN THE GREAT LAKES REGION: A CLUSTER APPROACH

Abstract ID: 434

Individual Paper Submission

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In recent years, many coastal areas have reassessed the value of marine and coastal industries, establishing strategies for development and conservation, and considering the ocean as a source of growth. Subsequently, several researchers have explored the ocean, maritime and more recently the Blue-generated economic activity in Europe (see e.g. Morrissey and O'Donaghue, 2012;), North America (e.g. Colgan et al. 2013, Doloreux et al., 2016) as well as in rising Asian economies (Ding et al., 2014).

In this study, we examine blue industrial clusters in the watershed region of the eight states across the Great Lakes in order to assess their level of economic activity in industries related to the marine environment and natural resources generated from the Lakes. We use a cluster approach, which focuses on collecting and presenting data for interconnected industries that are meaningful based on the definition of the Blue Economy clusters (Ketels and Protsiv, 2016). Our analysis includes not only traditional marine-related sectors such as maritime transportation and logistics, fishing, and tourism but also, energy generation, environmental services, mining, and manufacturing in sectors that make use of marine resources.

Our aim is to assess the current status of the clusters, opportunities that are emerging for them, and the role that these clusters could play towards a transition to a Blue Economy. For this reason, we present indicators such as employment, Gross Regional Product, Labor Productivity and Location Quotient, we highlight the regional averages and compare them to the averages at the national level. In a region as unique and with a lengthy inland coastline as the Great Lakes these indicators have significant impact on the welfare of localities and individuals, and identifying the strong comparative advantages of the region can further help inform regional planning decisions, whether in determining future land use, guiding future workforce specialization, or overall re-directing resources to the regional economy.

The findings to date suggest that the eight states present specific specializations with high differences in the GRP and the shares of employment across the eight states. This is especially true in the case of the city of Chicago in Illinois as well as in Michigan where the level of economic activity is supported by both vast metropolitan areas, which allows them a more uniform development across the different sectors and clusters. In terms of employment, most of the clusters had an increase in jobs in the last years. Potentially, and given the strategic role of this region and its resource base, there are several pathways for future development, particularly within the realm of renewable energy technologies and blue-biotechnology products. Understanding the Blue Economy can further assist on how to approach these pathways for future development.

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CLEANING OFF THE RUST IN THE RUSTBELT: RECLAIMING THE MANUFACTURING NEIGHBORHOOD

Abstract ID: 439

Individual Paper Submission

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Recent industrial land studies have provided constructive insights into urban manufacturing ecosystems and the infrastructure that supports them (Dempwolf 2010, Howland 2010, Leigh & Hoelzel 2012, Chapple 2014, Lester, Kaza et al. 2014). These analyses range from parcel inventories designed to assess patterns of land use change (Dempwolf 2010, Howland 2010, Leigh & Hoelzel 2012) to detailed statistical models of the relationship between industrial land conversion and neighborhood real estate market dynamics (Chapple 2014, Lester, Kaza et al. 2014) and have advanced the policy discussion in useful and important ways. A series of questions remain that explore potential policy solutions that further characterize current and future land uses as economic development strategies. First, what are the specific conditions related to industrial land redevelopment and how might that translate to potential firm displacement? Is there a varied response in vacant versus continuously-occupied industrial sites? Second, what might those implications be for locations with a large surplus of vacant industrial land? Is there the potential for re-introducing manufacturing on brownfield sites in urban core areas? Using a combined database of vacant and redeveloped industrial sites in St Louis Missouri, this paper will examine the relationship between neighborhood real estate dynamics and industrial redevelopment outcomes. By combining building permit and tax parcel data between 2008 and 2018, we will be able isolate industrial uses by level of investment (using permit data) and differentiate between the redevelopment of vacant versus occupied sites (using parcel data). With this analysis we will explore the factors leading to industrial redevelopment and whether redevelopment patterns suggest a re-emerging potential for manufacturing neighborhoods or whether we are witnessing an emerging pattern of industrial gentrification.

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Key Words: Industrial Land, Brownfields, Manufacturing, Vacant Property, Economic Development

SHRINKING LOCAL AUTONOMY: MONEY, POWER, AND THE ROLE OF THE SUBNATIONAL STATE

Abstract ID: 463

Individual Paper Submission

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Fiscal federalism argues for a decentralized governance system based on claims of efficiency and effectiveness wherein higher scales of government assume redistributive functions and lower scales assume development functions. However, since the Great Recession, research finds local governments increasingly assuming redistributive responsibilities that crowd out their developmental role (Xu and Warner 2016). Moreover, rising

levels of fiscal stress at the state level encourage states to engage in a process of scalar dumping that pushes down costs and blame to the local level (Peck 2014). Reflecting these recent changes, theories of state rescaling see a more dynamic process of movement in state power across scales that does not necessarily guarantee more efficiency or democracy. What does state rescaling look like in the post-Great Recession context of austerity (Hinkley 2017) and what is driving this process?

We use 2002, 2007, 2012 US Census of Government Finance data to track finance trends for the period immediately prior to and after the Great Recession. We use reports from the National Association of Counties (NACo), National League of Cities (NLC), National Conference of State Legislatures (NCSL), media reports, and three focus groups we held with local government associations to explore US state rescaling in revenue and policy authority and expenditure responsibilities.

We find expenditure responsibilities (especially for social welfare) are shifting to the state and local level, while local revenue tools and policy authority are being preempted. This decoupling of responsibility and power is cracking the foundations of fiscal federalism. We find evidence of a corporate-state legislator coalition (supported by the American Legislative Exchange Council) that is preempting local authority to make laws to promote economic justice (minimum wage, wage theft, paid leave), regulate the new economy (Uber, AirBnB), protect the environment (plastic bag bans), and protect human rights (Sanctuary cities and anti-discrimination bills). Cities' roles as economic development engines and spaces of progressive social movements (Doussard 2015) may be at risk. Political geographers have argued that local governments have become "austerity machines" (Peck 2014). We argue instead that the austerity coalition is found at the state level. Corporate interests more easily penetrate the state legislature, which is often part time, to make laws that would not pass at the national or local levels. While most local governments are using pragmatic municipalism to maintain their public roles (Kim and Warner 2016), we find limited potential for local pushback against the austerity coalition of corporate interests and state legislators.

Our findings have implications for planners who work on economic development and social justice. We argue scholars should give more attention to the subnational state, as this middle tier is the weak link and a critical fulcrum between national and local policy.

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Key Words: state rescaling, fiscal federalism, austerity, developmental state

EXCESS COMMUTING IN LOW-WAGE LABOR MARKETS: INVESTIGATING HOME-JOB PROXIMITY AMONG LOW-EARNING WORKERS IN FOUR METROPOLITAN REGIONS

Abstract ID: 478

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The LEHD Origin-Destination Employment Statistics (LODES) dataset, made available through a partnership between the Census Bureau and state governments, enables researchers to investigate journey-to-work

information on a much more granular level than was possible in the past. The new database, which combines commute flow information with data on both workers and the jobs they hold, presents the opportunity to explore long-standing theories about how the spatial structure of U.S. metro regions impacts employment access for low-earning workers.

For years, equity-focused planners worked from evidence developed by Kain (1992) and others which suggested that the decentralization of jobs had created a “spatial mismatch” between low-wage workers residing in central cities and appropriately skilled jobs. Subsequent to this research, however, regional employment patterns became more polycentric, with concentrations of jobs emerging outside of the “downtown/suburban” dichotomy. Population distribution within metro areas also changed, with more low-earning workers residing in suburban and exurban locations than in the past. While this might seem to bode well for increased access to close-to-home employment for low earners, there is evidence that increasing polycentricism is related to measurable increases in “excess commuting” – workers working in jobs far from where they live even when they reside in close proximity to concentrations of jobs that would require shorter commutes (Nelson, Wolf-Powers, & Fisch, 2015; Yang, 2008). [1] This finding problematizes the assumption that physical proximity to appropriate jobs conditions low-wage workers’ job-seeking behavior, and raises a number of policy-relevant questions about the relationship between residential location and job match for these workers.

This paper investigates the phenomenon of “excess commuting” in four regions: Albuquerque, NM; Atlanta, GA; New Orleans, LA; and Philadelphia, PA. The study regions were selected based upon Kneebone and Holmes’ (2015) examination of commute distances in the 96 largest metropolitan areas. One region was selected from each of the commute distance quartiles. Within each region, we utilize 2015 LEHD LODES data to identify and classify employment centers; calculate low-wage workers’ distances and commute times to their jobs in these employment centers; and determine levels of excess commuting. We address three questions:

- How do the commute distances of low-, middle- and high-wage earners differ from region to region, and to what factors might we attribute these differences?
- How do low-wage employment centers differ in terms of industry mix, commuting flows and proximity to public transportation networks and affordable housing options, as compared with employment centers containing more high-wage jobs?
- What are the potential policy implications of excess commuting, if it exists, for practitioners whose goal is to improve the economic conditions and social mobility of low-wage earners?

As commute distances increase for all workers (Kneebone & Holmes, 2015), placing low-cost housing in proximity to places where demand for less skilled workers is high continues to be a significant anti-poverty strategy. Planners have long sought to promote the construction of affordable housing near urban and suburban job centers. (Cervero, 1989). The concept of a jobs-housing balance or, more recently, ‘jobs-housing fit’ describes the extent to which the character and affordability of housing units in an area are well matched to the quality of locally available jobs. But the phenomenon of excess commuting suggests that different interventions may be called for. This investigation, by evaluating the prevalence of excess commuting, sets the stage for a qualitative study that attempts to understand factors other than physical proximity that may condition low-wage workers’ job-seeking behavior, and to develop interventions based on that understanding.

[1] Excess commuting is measured/defined as the difference between the observed amount of commuting and a theoretical minimum amount of commuting suggested by the job–housing relationship.

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Key Words: low-wage labor markets, excess commuting, journey to work, jobs-housing fit, job centers

FROM HUMAN CAPITAL TO HUMAN CAPABILITIES: PLACING PEOPLE AT THE CENTER OF ECONOMIC DEVELOPMENT

Abstract ID: 479

Individual Paper Submission

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In principle, the idea of human capital supplies a much-needed alternative to the limited conceptual repertoire of economic base theory (Mathur 1999). Non-finite and non-rival human capital should offer cities a means of escape from the desultory competition for scarce manufacturing investment. In practice, however, human capital-focused economic development suffers from the same practical limitations and restraints as development programs rooted in economic base theory (Feldman et al. 2016). Rather than change the practice of inter-urban competition, today's cities leave the practice of zero-sum competition minimally changed – they simply compete for a limited supply of mobile professionals rather than manufacturing facilities.

These limitations result from the constraints of human capital theory itself. Robert Lucas originally devised the human capital metaphor to argue that human skill could function as a market commodity (Lucas 1988). The resulting emphasis on cities “buying” the market commodity of skill, rather than “making” their own by investing in education and social services results from Lucas's strategically limited definition of human skill. As an alternative, my paper explores the application of human development theory to both the practice of economic development and to the signature challenges today's urban economies face. Rooted in the work of Amartya Sen (1999), human capital theory focuses on individuals' drive to improve their skills, expand the resources available to their households, and plan for the long-term. Sen usefully ties this theory to the accounting mechanism of capabilities – skills, resources and relationships that allow humans to maximize their potential over the long-term.

I provide two illustrations of human development theory's potential contributions to economic development thought and practice. First, I show the human development ideas figure centrally in successful campaigns for municipal economic policy reforms, such as \$15 minimum wages, fair scheduling ordinances, earned sick time legislation, free or reduced-cost community college, and universal pre-kindergarten care (Doussard and Lesniewski 2017). These once-unthinkable policy measures all advance on the back of arguments that reframe economic redistribution as support to individuals' efforts to invest in their own futures. Second, I explore the application of human development theory to explain the growth of Fort Collins, Colorado and Asheville, North Carolina -- urban areas that draw substantial in-migration and feature buoyant growth despite the absence of conventional propulsive industries. These regions, and dozens of others like them, compensate for the absence of traditional exporting industries by offering affordable housing, local consumption opportunities, public anchor institutions and natural amenities (Markusen and Schrock 2009). Charting these features in terms of capabilities recasts the growth of Asheville, Fort Collins and similar places as a systematic response to changes in economy and society, rather than confusing exceptions to economic rules. The paper concludes by identifying other issues – including the gig economy, the maker movement, fiscal austerity and financialization – human development theory can help to illuminate.

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Key Words: Human development, Economic base theory, Consumption-driven development, Economic policy

TARGETED HIRE POLICIES IN US CITIES: WHO IS ADOPTING THEM, HOW AND WHY?

Abstract ID: 482

Individual Paper Submission

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In recent years there has been a re-engagement of local governments in the United States with policies designed to promote equitable and inclusive development. One of these areas is “Targeted Hire” policies, which obligate private-sector employers receiving public contracts or development incentives to take affirmative steps intended to increase employment opportunities for disadvantaged populations, particularly workers of color. These take a variety of forms, including “first source” or “local hire” requirements, and apply across a range of job-creating activities from construction to retail. These progressive policies have waxed and waned over the years (Schrock 2015) as elected officials have negotiated political and legal opposition from business and suburban interests on one side, and pressure from activists and community organizations on the other.

Although there is a small but growing literature documenting this latest wave of policies (Douthat and Leigh 2017), there is no comprehensive inventory of which U.S. cities are adopting Targeted Hire policies, and how and why they are doing so. This paper presents results from a scan and survey of the 100 largest U.S. cities, which shows a patchwork of different approaches adopted by cities. In some cities these policies exist “in name only,” meaning that government agencies expend little energy and few resources ensuring employer compliance; while a much smaller number have dedicated staff and resources to their programs. Also variable across cities is the degree of transparency and external accountability to community stakeholders over process and result, and alignment with existing local workforce development infrastructure. In general, Targeted Hire policies are more common in cities experiencing new development activity (i.e., strong market conditions), and those with high levels of racial disparity in employment outcomes. A small number of cities – especially in the South – have pursued such programs in the past, only to see state governments pre-empt their authority to do so.

In addition to these survey results, this paper compares the experience of three U.S. cities that recently adopted or strengthened their Targeted Hire programs: Baltimore, Denver, and New Orleans. In particular, it assesses the role of external actors in motivating adoption and impacting implementation of the policies. In each case, non-governmental actors were important, but in varied ways. In Denver, activist coalitions were critical in pressuring local officials to strengthen existing policies that were considered weak and ineffectual; in Baltimore and New Orleans, foundations played a critical role in providing resources and legitimacy to actors promoting targeted hire policies. In cities robustly adopting Targeted Hire policies, however, external and internal actors play complementary roles in ensuring that local elected officials remain committed to the program.

These findings reinforce the idea that credible commitments to more just and equitable planning and development are unlikely to occur without a push from outside actors (Clavel 2010; Schrock, Bassett, and Green 2015; Doussard 2015). But especially with programs like Targeted Hire that require robust implementation in order to succeed, supportive planners and agency officials are necessary to the process as well.

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Key Words: equity planning, workforce development, local economic development, community benefits

URBAN NEIGHBORHOOD UPGRADING AND BUSINESS DYNAMICS: RECENT EVIDENCE FROM LOS ANGELES

Abstract ID: 497

Individual Paper Submission

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Urban neighborhood upgrading has taken place at an increasing rate almost everywhere: from London to New York, from Los Angeles to Shanghai, and decades of research has focused on its (possible) impacts on local residents, particularly those who are vulnerable to soaring housing costs. With much attention being paid to residential displacement (as a consequence of contemporary neighborhood upgrading), the dynamics of businesses are not as much involved in this scholarly conversation. Consequently, little is known about how the business landscape in urban areas is reshaped by recent neighborhood upgrading or the so-called gentrification.

This study provides an empirical investigation of the changing patterns of retail stores in the City of Los Angeles from 2000 to 2010 in relation to urban neighborhood upgrading. Unlike previous studies that have focused primarily on one side of the change, explicit attention is paid to both business closures and new businesses openings with the extensive use of the ReferenceUSA dataset (geocoded) that provides detailed information about individual business establishments in the study area. This is accomplished by employing accelerated failure time models (for business closures) and Poisson count models (for new business openings) to reveal the distinct patterns of two-sided business dynamics in rapidly changing urban neighborhoods and the factors that contribute to these dynamics. A comprehensive set of sensitivity analysis is also conducted to examine how the results vary along with the type of neighborhood upgrading and inclusion/exclusion of some (neighborhood-level) control variables.

The results show that the impacts of neighborhood upgrading varied substantially across the 12 sub-categories of retailers considered. More specifically, on the one side, urban neighborhood upgrading tended to be more influential on the survival length of some sub-categories of retailers, such as building material and garden equipment and supplies dealers. In the cases of food and beverage stores and clothing and clothing accessories stores, however, the impact of neighborhood upgrading on the length of survival depended on the types of neighborhood upgrading examined. On the other side, neighborhood upgrading was associated with a greater number of new businesses entering into the neighborhood for most types of retailers, suggesting that it can create opportunities for a range of economic activities. The location of businesses also appeared to matter; for instance, businesses that were closer to the CBD or farther from transit stations were likely to experience a higher turnover rate. Furthermore, for all types of retailers, new businesses tended to be located within the neighborhoods where the same-type, larger, and/or older retailers were concentrated in 2000.

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Key Words: Business dynamics, Neighborhood upgrading, Gentrification, Commercial displacement

THE CHANGING NATURE AND QUALITY OF NON-STANDARD EMPLOYMENT

Abstract ID: 532

Individual Paper Submission

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Institutional changes, such as globalization and markets liberalization in the 1970s, led to an internal reorganization of enterprises' business models, with direct consequences to employment relations. Weil (2014) describes the current scenario as a "fissuring workplace", in which big enterprises tend to shed employment to a fiercely competitive network of smaller business units, while setting strict standard controls for their performance. In addition to institutional factors, the composition of the workforce itself contributed to a growing polarization between "good and bad jobs", and to a change in the traditional psychological and social contracts between employees and employers (Kalleberg 2011). In this context, the resurgence of the interest on non-standard employment is justified by the perception that the trend has sharpened recently, in part due to new technologies (Abraham et al. 2017).

So far, the consequences of this changing nature of employment are mixed. The concern about quality of new employment arrangements is central to the discussion, but measuring it is somewhat challenging given the multidimensional and subjective nature of the concept. Such job quality change effects are not expected to affect all population groups to the same extent. Minority and immigrant populations are more likely to be part of the non-standard workforce as they are particularly concentrated in low-skilled jobs, as thus tend to be more vulnerable to precarity and segregation (Kalleberg 2011; Kalleberg, Reskin, and Hudson 2000; Catanzarite 2000). However, as my previous findings indicate, there are important distinctions within those groups as well across different types of alternative arrangements, skill levels, and industry sectors (Liu and Kolenda 2012). So far there is lack of literature that specifically examines these two population groups and their representation in the non-standard and contingent workforce, variation within the groups, and job quality premium or penalty associated with their participation in this emerging employment arrangement.

This paper seeks to fill this void by providing systematic analysis of minority and immigrant non-standard workers in comparison both to other non-standard white and native-born workers as well as in comparison to standard workers with comparable skills. We are also interested in how these job quality differentials change over time. We use data from the 2005 Contingent Worker Supplement (CWS) to Current Population Survey (CPS), and the Contingent Work Survey 2015, conducted by Rand Corporation as part of Rand American Life Panel Survey (RPCWS). While ideally we would like to use the new CWS supplement of 2017, its scheduled release date of spring 2018 is not yet confirmed. RPCWS bears much similarity to and can thus serve as a credible alternative (Katz and Krueger 2016, 2017). older) who worked in the previous week, comprising. We adopt the definition of alternative employment proposed by Polivka (1996), which includes workers "whose employment is arranged through an employment intermediary, such as temporary help firm, or individuals whose place, time, and quantity of work are potentially unpredictable". For the quality of employment indicators, we include total payments, multiplicity of jobs, number of hours worked weekly, expectations in terms of the future, among others. Descriptive analysis and regression analysis will be performed to gauge the changing quality of employment associated with non-standard work arrangement for minority and immigrant workers with different skill levels. We expect that negative effects associated to alternative arrangements to be stronger for low-skilled workers.

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Key Words: workforce development, contingent workers, job quality

THE CONTRIBUTION OF CIVIC AND CULTURAL AMENITIES TO THE HEALTH OF DOWNTOWNS

Abstract ID: 578

Individual Paper Submission

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This paper examines the significance of civic and cultural amenities to the health of downtowns. Across the US there is considerable angst and debate about the relocation of civic and cultural amenities from downtowns. Whether this involves courthouses, jails, county and city offices, libraries, or museums, the issue is always the same. How will the relocation of the civic use impact the downtown? The relocation of these facilities from downtowns to the fringe has become necessary in the last two decades because of the need for increased space to accommodate a growing inmate population, increased criminal justice workloads in courthouses or a desire to consolidate municipal and county services; space that is either unavailable downtown or available at a high cost. Because there is no research or hard data to guide policy makers, the decision has always been contentious, with proponents and opponents using anecdotal data to argue their case.

In Albemarle County, VA, county officials are considering the relocation of the county courts to a new location outside the historic Courthouse Square, while in Augusta County, VA, residents voted by a margin of 2-1 to keep the courthouse in downtown Staunton. The Davidson County, TN sheriff's office is considering closing the jail located in downtown Nashville and moving it to Antioch, so the county can consolidate all sheriff offices at the new location. Lucas County Commissioners in Ohio announced the relocation of prison facilities from a downtown location to Angola Road, a location outside downtown Toledo. The 650-bed jail is estimated to cost \$145 million and will be funded with a property tax levy of 1.08 mills.

While few studies exist that link the health of downtowns to civic and cultural uses, research by the University of Wisconsin-Extension of twenty cities of similar population size in Wisconsin found that cities with county government seats had 8.4% more businesses in their downtowns than those without a county seat. The downtowns of cities with county seats had more retail businesses, more professional service businesses, and an overall greater mix of businesses than those that did not have a county seat.

This paper extends this research by analyzing civic and cultural amenities in downtowns of a sample of small and mid-sized cities (defined as settlements between 20,000 and 100,000 residents) across the US. The research will document and analyze the relationship between the number and types of civic and cultural amenities in these downtowns and the economic health of the downtowns. Quantitative and qualitative data will be used to establish the relationship including for example, the number and mix of retail businesses, sales volume of retail businesses and restaurants, longevity of downtown businesses, number of visitors to downtown facilities, etc. Network analysis will also be used to establish the functional relationships between civic and cultural uses and other uses in the downtown. The findings from this study will be useful to city officials, civic leaders, and downtown managers as they contemplate the location and expansion of civic and cultural amenities and will support decision making and public policy on these matters.

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Key Words: Downtown revitalization, Civic and cultural uses, Economic development

SPATIAL HETEROGENEITY IN SPILLOVER EFFECTS OF BUSINESS IMPROVEMENT DISTRICTS

Abstract ID: 579

Individual Paper Submission

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In recent decades, some of the municipalities found across the U.S. have had challenges while attempting to provide sufficient public services due to diminishing revenue and the rising costs of these services. Thus, the inadequate public services and the decline of local economic development opportunities can be identified as the reason for the current dilapidation witnessed in commercial areas. In response, the Business Improvement District (BID), a private initiative supported by the public sectors, has been commonly adopted as a tool to revitalize the commercial areas in cash-strapped cities (Meltzer, 2012). With the introduction of BIDs, property and business owners are expected to pay an additional assessment fee which is used to facilitate the provision of public services such as cleaning the streets, providing security, initiating capital improvements, enhancing streetscape, and developing a positive public image for the area. In essence, the owners of commercial properties through the payments are investing in the improvement of the neighborhood quality which is aimed at attracting potential consumers and investors through the program. Considering the fact that BIDs are available only in prescribed commercial areas, the previous literature regarding this topic have been majorly focused on the impact of BIDs on the value of commercial properties (Ellen et al., 2007) and crime reduction (Calanog, 2006) within their borders (Meltzer, 2012).). Regarding attributed effects of BIDs, previous literature has also addressed the impact of crime (Hoyt, 2005; Calanog, 2006; Brooks, 2008), municipal finances (Brooks and Meltzer, 2010) and commercial properties (Ellen et al., 2007; Meltzer, 2012), however, the impact of BIDs on the neighboring residential areas have been overlooked.

In this study, our objective is to examine the spatial-temporal spillover effects of BIDs on the value of properties in the neighborhood beyond their service boundaries in the city of Los Angeles. Our particular goal is to examine and compare the impact in the different neighborhoods based on their varying income levels. In addition, the impact on the different housing types such as the single-family housing and the multi-family housing units have been analyzed. To evaluate the spatial-temporal spillover effect, we used the Adjusted Interrupted Time Series Difference in Differences (AITS DID) models. The outcome of our studies will be useful to planners, residents and local governments who seek to understand the heterogeneous nature of the spillover effects regarding the BIDs programs. From the results, private and public sectors will have a better comprehension regarding the adoption of BIDs and the potential impact on the neighborhoods with different income levels. Planners will find the information helpful in developing policies targeted at establishing social and economic balance in the concerned communities.

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Key Words: Business Improvement District, spillover effect, AITS DID, property value

INTERREGIONAL VIRTUAL WATER TRADING: IMPLICATIONS FOR REGIONAL ECONOMIC DEVELOPMENT UNDER CLIMATE CHANGE

Abstract ID: 589

Individual Paper Submission

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With the backdrop of finite fresh water resources, increasingly water-stressed regions, and the resulting consequences of insufficient water on future development, it is important to understand the concept of virtual water flows and incorporate it into economic planning. Knowledge about the virtual-water flows entering and leaving a country or region can cast a completely new light on the actual water scarcity of the country or the particular region. Using this concept, studies have shown that there are no countries/regions in the world where the pattern of trade does not influence the pattern of domestic water use.

This paper uses the Commodity Flow Survey (CFS) data for 1997, 2002, and 2007, and over 43 commodity groups, to understand the corresponding virtual water flows across the 51 U.S. states (including Washington D.C.). Virtual water flows represent the water embodied in produced and traded goods, and may have important regional economic development implications in the context of climate change and the resulting new patterns of water availability.

Water input coefficients have been used to convert commodity flows into virtual water flows and to estimate the amount of water used in the production of each commodity and each state. The only recent study estimating sectoral water use is by Blackhurst et al. (2010) (BHV), which has been used to estimate the water input coefficients for all CFS commodity in this study. The BHV study presents water coefficients in Million Gallons of water per dollar of output with the base year of 2002. As expected, the water coefficient of agricultural products is the highest, followed by Chemical products and preparation. Next, these coefficients are used to compute the virtual water flows by commodity and across states.

The net water flows by commodities and across states are found to vary substantially over the three survey years (1997, 2002, 2007) and for different commodities. An interesting trading pattern is observed. States such as California, Florida, Oregon, South Dakota and Tennessee are consistently high importers of virtual water, whereas Louisiana, Texas and Virginia are consistently high exporters. States like Arizona, Connecticut, Indiana, Ohio and Wyoming go from being importers in 1997 and 2002 to exporters in 2007, while other states like Kentucky, Mississippi, New Jersey, New York and Utah go from being exporters in 1997 to importers in 2007.

It is also interesting to note the pattern of flows across the three survey years. In many cases the flows are much larger in 2002 than in the other two years. A probable cause for this marked change is the drought that hit the western U.S., extending eastward to the Midwest and also the Southeast. States such as California and Florida had to import more water-intensive products to meet their demands, while other states, like Texas and Virginia, were on the exporting end. It can be seen from these results that climatic impacts, such as drought, tilt the scales, forcing some states to import more while forcing others to export more to satisfy demands within the U.S. As a result, these decade-long data provide some insights into the possibly high vulnerability of commodity exchanges and regional economies to climatic changes.

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Key Words: Virtual Water, Commodity flow survey, Regional Economic Development

THE EFFECTS ON THE LOCAL ECONOMY OF 'SANCTUARY CITY' POLICIES

Abstract ID: 592

Individual Paper Submission

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The debate about so-called 'sanctuary city' policies is hot. A local government's failure to cooperate with the federal government's crackdown on illegal immigrants may have several effects. Some relate to crime and community safety (Gonzalez, Collingwood, & El-Khatib, 2017), while others impact local economies in terms of local wages, income, employment, unemployment, and poverty. Given that research shows that immigration and ethnic diversity have positive effects on economic performance (Eraydin, Tasan-Kok, & Vranken, 2010; Thomas & Darnton, 2006), sanctuary policies can do through their effect on diversity, and indeed, this may be the reason why some local governments have adopted these policies. In this study, we try to estimate the effect of sanctuary policies on the local economy.

Sanctuary policies are relatively new and their impact has not yet been rigorously analyzed due to lack of data. Studies that deal with the subject typically divide cities into two groups, sanctuary and non-sanctuary cities, matching the two to control for factors such as population size and immigrant share, and then estimate the difference between the two groups. (Woong, 2017). However, this method cannot fully control for all fixed effects of sanctuary cities; it cannot correct for endogeneity problems; and it cannot study trends and lagged effects over time. To deal with these problems, we introduce a panel model using longitudinal US county data on sanctuary policies and economic performance. A unique dataset on the adoption and implementation of various types of sanctuary policies comes from the Immigrant Legal Resource Center's FOIA (Freedom of Information Act) request and data on local economic performance come from the Bureau of Economic Analysis and American Community Survey.

The main findings expected from the analysis are as follows: First, sanctuary policies will affect resident wages and income for two reasons. First, they contribute to labor diversity, hence stimulating innovation and market expansion. Second, they promote trust between residents and local government, stabilize the status of immigrant workers, and thereby eliminate uncertainty. Next, the rates of poverty and unemployment may be affected temporarily, though fleetingly. Sanctuary policies reduce barriers to labor mobility, which in turn may increase the influx of migrant labor and raise poverty and unemployment rates. This effect, however, will be temporary, as the local economy finds its new equilibrium over time and these effects disappear.

City planners and development economists should consider the results. Regions adopting sanctuary policies may be able to look forward to a greater expansion of the economy than may otherwise exist, but must also supply the necessary infrastructure and plan for a housing supply that accommodates ethnic diversity.

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Key Words: Sanctuary cities, Economic effects, Panel model, Inclusive planning

UNFOLDING CITY BRANDING STRATEGIES: EVIDENCE FROM THE CITY OF DALLAS

Abstract ID: 595

Individual Paper Submission

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City branding has recently gained much attention in the planning literature, as a competitive strategy for local governments to project a positive image of their jurisdictions, hoping to attract business investment and promote economic growth (Ashworth & Kavaratzis, 2009). Anchored in neoliberal policies, the growth paradigm (Logan & Molotch, 1987), and urban entrepreneurialism (Harvey, 1989), city branding draws on cultural projects, signature architecture, event spectacles, and recent strategies including urban greening and diversity to foster economic development. Particularly, cultural projects and art industries have often served as potential catalysts for realizing the creative economy (Grodach, 2017; Scott, 2000)

This paper examines the role of city branding strategies that have recently manifested in the City of Dallas, located in Dallas-Fort Worth (DFW) region, one of the booming economic regions in the United States. Dallas has started a diverse range of initiatives for strengthening its economic development and undergirding its mission to achieve a distinguished and powerful position. While this research investigates what city branding strategies Dallas has initiated and implemented, it identifies the implications of such strategies for local communities.

This research purposefully selects Dallas, as a rising mid-sized city with the potential for becoming a highly productive and entrepreneurial city, among the top economically influential cities in the United States. The data for this study comes principally from two sources. First, primary data include personal semi-structured interviews with local officials and branding agents such as marketing developers in Dallas. The selection of participants for interview is primarily based on a snowball sampling approach. Secondary data comprise official and archival reports, statistics, and extant literature. Given the qualitative nature of this research, it draws on the triangulation of data to facilitate a deeper understanding of city branding strategies still underway in Dallas.

The findings demonstrate that Dallas has particularly relied on a series of transformative strategies to overhaul its image and identity, boosting its economic growth. First, the development of cultural flagship projects has contributed to what has become one of the largest cultural precinct in North America, the Dallas Arts District. Second, Dallas has employed the use of architectural edifices including the development of three costly bridges (designed by the famed architect, Santiago Calatrava) as a part of Trinity River Project. Finally, the investment in communication media has facilitated the projection of a positive image of Dallas.

While the findings draw attention to the entrepreneurial role of Dallas in attracting potential businesses and tourists, they resonate with the broader implications of city branding for local communities, including limited citizen participation, the commodification of urban space and promoting the city image sanitized from undesirable realities such as poverty. While branding agents benefit from local government's support, they need to consider the social equity challenge as to how the outcomes of city branding practice accrue not only to external audience but also to local residents.

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Key Words: City branding, Economic development, Cultural policy, The growth paradigm, Urban entrepreneurialism

WHATEVER HAPPENED TO ITINERANT VENDORS? EVALUATING EQUITY AND VIABILITY OF FOOD HALLS IN SINGAPORE

Abstract ID: 670

Individual Paper Submission

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One of the key features of natural markets is their mobility. With low set-up costs and a modular structure, traders can assemble and disassemble in response to cycles of local demand. These characteristics also allow vendors to locate in underserved areas, where traditional retail cannot or will not. Yet, an increasingly popular city response to street vending is moving traders to certain fixed locations such as within food halls. One of the most (allegedly) successful example of such planning policies comes from Singapore, where beginning in 1970 all vendors were moved to large ‘hawker centers’ - a cross between food court and covered public market. The claim of the Singaporean government was that the new setup would provide all the service delivery benefits brought about by itinerant vending within a controlled, ordered, regulated space. Numerous cities in the Global South have eagerly adopted Singapore’s model, creating their own versions of hawker centers. The pinnacle of their global relevance came in 2010 when, claiming inspiration from Singapore’s hawker centers, celebrity chef Anthony Bourdain announced a 150,000 sqft food hall in New York.

Yet, there is little empirical research on whether food halls can deliver the responsive, equitable and stable ecosystems natural markets have been seen to create. Using Singapore as a case study, this paper comments on the tensions and trade-offs that can occur when cities fix itinerant vendors in space, constraining their mobility. It evaluates Singapore hawker centers on two metrics: equity and economic viability.

To assess socio-spatial equity, various accessibility measures are computed, relying on a fine-grained, parcel-level synthetic population dataset of the 4million+ Singaporean residents. While Singapore performs well on measures of income-based vertical equity, results show certain populations like foreign workers are significantly disadvantaged vis-à-vis access to the centers. Since foreign workers were a key market of previously itinerant vendors, this outcome points to the serious challenges created when states force vendors to trade from predetermined locations.

Economic viability is tested by leveraging real estate data to create measures of rent, vacancy and turnover. Through this analysis a considerable spatially discriminating economic performance gradient across the centers was discovered. For instance, rents at the most expensive centers were approximately 600% higher than rents at cheaper centers, while prices were almost undifferentiated. If this pattern continues with no ameliorating policies, small-scale, independent vendors may soon get priced out of the enterprise.

In light of these results, this paper puts forth three propositions, which can be used to evaluate urban planning interventions in informal economies. First, any initiative which sweeps vendors of the street has to consider alternative service delivery mechanisms to marginal populations. Second, if the government wishes to support

local entrepreneurship through vendor markets it needs a more spatially nuanced and locally targeted policy. Third, innovative planning approaches to sidewalk vending are needed which leverage and build upon its flexibility. As more cities seek to constrain a naturally modular, mobile and valuable form of retail, this reflection takes on global relevance.

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Key Words: Planning for Informality, Spatial Analysis/GIS, Food Halls, Street Vending

DISPLACEMENT AND REPLACEMENT OF RETAIL BUSINESS BY ENVIRONMENTAL GENTRIFICATION: THE CASE OF SEOUL, KOREA

Abstract ID: 677

Individual Paper Submission

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Urban green space plays an important role in providing citizens with recreation opportunities and amenities. It could also contribute to revitalizing neighborhoods when the green space improves the image of disadvantaged communities and attracts people like the case of High Line Park, New York. Environmental gentrification could be defined as the mechanism by which opening of a new park or a green space works as a trigger for gentrification. From a neighborhood small business perspective, urban green spaces could lead to drastic change in retail business: opening of new entrepreneurial retail capital—boutiques, trendy restaurants, and café as well as the replacement of local retail store and services.

This study introduces recent policy efforts of Seoul City to make the city greener such as Cheongye Stream Restoration, Seoul-Ro, Gyeongui Line and Gyeongchun Line projects. Then, from the perspective of environmental gentrification, this research explores the outcomes of the urban greening projects using the case of Gyeongui Line Forest Park.

Gyeongui Line, which had been underutilized railways, was converted into a linear urban park three miles long and 10 to 60 meters wide. The neighborhoods near Gyeongui Line have been in the process of gentrification, and the opening of Gyeongui Line Forest Park has accelerated and expanded gentrification. In order to explore the environmental gentrification mechanism, this study analyzes the trajectories of retail business before and after the opening of the park. Spatial and temporal characteristics of retail business are analyzed based on the birth and death information of the various small business. The analysis for the trajectories of retail business confirms that displacement of retail services for residences was promoted by the opening of the park. Land use change from residential to commercial use has been increased by the opening of the park. Further, the opening of the Gyeongui Line increased new entrepreneurial retail business. The results and findings of this study provide a better understanding of neighborhood change from the environmental gentrification perspective.

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Key Words: gentrification, retail, boutiques, revitalization, green space

POST-RECESSION ECONOMIC DEVELOPMENT POLICY: CITY FISCAL SPACE, STATE POLITICS, AND LOCAL AGENCY

Abstract ID: 687

Individual Paper Submission

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The Great Recession left its mark on cities in many arenas of policy and politics. In addition to cuts in social programs and public safety, government programs conventionally considered less vulnerable to austerity and budget cuts, including subsidies for private development, were also significantly affected. Using a comparative case study approach, we examine how economic development policy and practice evolved in six U.S. cities over the recession and recovery. Our cases—Boston, Fresno, Las Vegas, Milwaukee, Minneapolis, and Oakland—were sampled to provide a diverse range of economic and fiscal conditions before and after the Great Recession.

We measure and explore the reasons for changes in incentive use through in-depth interviews with policy makers and watchdogs and documentation of fiscal, economic, and policy trends in these cities over the post-recessionary period. We find that changes in economic development strategy are in large part motivated by the contraction of a city's fiscal policy space – their ability to adjust sources of revenue, including borrowing (see Warner and Zheng, 2013). This fiscal constraint, however, was not the only force shaping municipal economic development policy. We argue that new policy regimes and relationships have come into being as a result of the crisis and that these interact with other trends in economic development practice (see Reese, 2014 and Lester et al, 2014).

As a result of these regimes, the economic development function of local government appears to have been weakened, as reflected in the elimination of city-controlled redevelopment agencies, declines in state revenue support, and regulatory restrictions. Our evidence provides a counter-narrative to those claiming that a “new municipalism” has increased the role of cities as economic actors. The role of state governments in shaping both economic development strategy and the toolbox of economic development policies (including incentives) was strengthened in the wake of the Great Recession, making it important to understand the economic development frameworks operating at the state level (Hanley and Douglass, 2014). The reformulation of economic development by local officials, however, reveals austerity as a complex top-down and bottom-up process (Davidson and Kutz 2015) and confirms other findings that the local is an important site for understanding how institutional actors adapt in periods of disruption and uncertainty (see Pike et al, 2015).

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Key Words: Economic development, Incentives, Fiscal policy, Governance

WHERE ARE INNOVATION SPACES IN BEIJING? A MIXED LOGIT MODEL TO ESTIMATE INNOVATION SPACE LOCATION CHOICE

Abstract ID: 766

Individual Paper Submission

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China has witnessed exceptional firm birth rates and a booming trend of entrepreneurship over the last three decades. In particular, the great volume of entrepreneurship, accompanied by steady capital market growth, has led to a recent surge in the development of innovation spaces (e.g. co-working spaces, incubators, makerspaces, and accelerators). Despite the growing literature on the geography of entrepreneurship in China (Zheng and Zhao, 2017), little attention has been given to how spatial distributions of innovation spaces are formed.

Using a unique dataset of innovation spaces in Beijing, this paper develops a mixed logit model (Brownstone and Train, 1999) to estimate the location choices of innovation spaces at a high spatial resolution (1 km × 1 km grid cell level). We consider three major forces that shape the spatial distribution of innovation spaces.

First, we calculate the supply of affordable rental housing using subway travel time as a weight, and estimate the impact of grid-level access to affordable rental housing on how innovative spaces are spatially distributed. Our results confirm that subway networks facilitate young entrepreneurs' access to affordable rental housing, and promote the separation of workplace and residence in order to realize economies of scale.

Second, our results show that the location choice of innovation spaces is causally associated with the availability of urban consumer amenities, for which we use the number and the diversity of restaurants and coffee shops as well as community walkability as proxies. We are able to produce causal estimates by instrumenting consumer amenities with historical road networks in Beijing. The result is consistent with an extensive literature on urban consumer amenities (Glaeser et al., 2001).

Third, we find that innovation spaces tend to cluster in areas with higher land availability for either residential housing or office buildings, which may lead to lower living and business costs. Following Zheng et al. (2014), we use the relocation of state-owned enterprises (SOE) at the beginning of SOE reform as an instrumental variable for land availability. The historical SOE relocation gives us a plausible source of exogenous variation to address the endogeneity issue.

Further analysis suggests that innovation spaces are drawn to the locations with higher concentrations of incumbent firms, universities, and research institutions, corroborating our hypothesis that agglomeration forces and knowledge spillovers are at work (Delgado et al., 2010). Using data on the vacancy rate of innovation spaces, we try to understand whether space resources in Beijing are misallocated.

Our study sheds light on the formation of innovation spaces in China, and provides insights into how innovation spaces respond to the location preferences of startups by providing agglomeration benefits and low-cost entry opportunities for small businesses. The rapid growth of entrepreneurial activity came at a time when the Chinese central government was launching the Mass Entrepreneurship and Innovation initiative, which poses new challenges for urban planning and is especially relevant for innovation spaces. Our study points to the importance of policymakers thoroughly investigating the underlying determinants of the innovation space location choice when instituting urban planning policies. Such policies should facilitate a city structure that is conducive to agglomeration economies and reduce the misallocation of space, human capital, and capital resources.

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Key Words: Innovation space, Mixed logit, Location choice, Agglomeration, Low space cost

EXAMINING THE SOCIOECONOMIC IMPACTS OF WIND POWER DEVELOPMENT ON RURAL AREAS: A FOCUS ON EMPIRICAL FINDINGS

Abstract ID: 800

Individual Paper Submission

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Wind power development has rapidly expanded in the United States. Much of this growth occurred in rural areas because of the availability of land and wind resources to power turbines. The economic promise of wind power projects is particularly appealing for rural areas whose traditional economic base (typically manufacturing or agriculture) no longer support as many household as it once did. Numerous studies have found that wind power projects have positive economic impacts on rural areas. What is less well understood is the impact of these wind power farms on other indicators of development, such as municipal finance, demographic change, and quality of life. This article reviews the literature on the socioeconomic impacts of wind projects in the United States and the relationship between these impacts and rural development, broadly defined. Given the complexity of distinguishing between economic growth and development, most studies find a strong association between wind power projects and economic growth in rural counties measured by an increase in personal income, employment rate, tax base, and school local revenue. However, the consequence of this economic growth did not investigate yet; more research is needed to determine how wind power benefits quality of life and other dimensions of development. We recommend using different measurements and methods to find the net impacts of wind power development on rural development.

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Key Words: Wind Power , Socioeconomic Impacts, Rural Development

PATH-BREAKING OR PATH-DEPENDENT? HOW DID SPECIAL ECONOMIC ZONES INFLUENCE INDUSTRIAL TRANSFORMATION OF CHINESE CITIES

Abstract ID: 829

Individual Paper Submission

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Industrial planning is a key component of China's urban and regional planning systems. Over the last three decades, special economic zones (SEZs, or "kaifagu") have become one of the most important place-based industrial planning policies. It has been reported that China has so far constructed 552 national-level SEZs and 1,991 provincial-level SEZs. Whereas the significant roles of SEZs in promoting China's economic growth and urbanization process have been documented in many studies (Zheng et al., 2017), relatively little attention has been paid to investigating how SEZs have influenced industrial transformation of Chinese cities. With the decentralization process of China's economy, Chinese local governments have gained more power and freedom in choosing their own industrial development modes. In this context, SEZs have been often regarded as a key place-based industrial planning policy to prioritize development of specific industries for which a given city may or may not have comparative advantages. Compared with other non-prioritized industries, however, these prioritized industries usually get more preferential incentives and are therefore expected to have faster growth rate.

From an evolutionary economic geography perspective, industrial development is usually characterized by path dependence and path breaking, depending on the extent to which new industries are related with existing industries in a given city. In this study, we investigate how SEZs would influence path-dependent and path-breaking development of industries in Chinese cities. To that end, we draw upon the Chinese Manufacturing Business Performance Database which covers detailed performance information (i.e., gross output, employment) of all the Chinese state-owned enterprises and non-state-owned enterprises above designated size from 1998-2008. During this study period, China had undergone an unprecedented economic growth rate and the number of SEZs had also increased significantly. We first calculate each city's location quotients of 191 manufacturing industries which are classified according to China's national three-digit industry codes. Based on the results of location quotients, we can identify industries with comparative advantages and those without comparative advantages for a given city at a given time point. We then calculate the relatedness of each pairs of manufacturing industries. Here the relatedness of industries could be attributed to the similarity of technology base, the sharing of labor force, and the spillover of knowledge. In addition to the impacts of SEZs upon which we mainly focus, we also control for other social, economic, and political factors.

The Probit regression results first confirm the research findings of existing studies that industrial development has been mainly characterized by path-dependence (Zhu et al., 2017; Pinheiro et al., 2018). In other words, a given city is more likely to maintain or develop industries with comparative advantages which are highly related with existing industries in this city. Regarding the impacts of SEZs, it is found that industries with comparative advantages are more likely to survive when they are prioritized in a city's SEZs. Other things being equal, industries without comparative advantages are more likely to develop comparative advantages when these industries are prioritized in a city's SEZs. Both findings have shown significant roles played by SEZs in maintaining and developing comparative advantages of industries, justifying the effectiveness of this place-based industrial planning policy for the rapid industrial development of Chinese cities. Our findings could also help urban planners identify the "right" industries for a city or SEZ at a given time point and the "right" conditions upon which certain industries could survive and succeed in a given city.

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Key Words: Industrial park, Industrial planning, Relatedness, Comparative advantage

A STRUCTURAL-RELATIONAL APPROACH TO ECONOMIC RESILIENCE OF KOREAN INDUSTRIAL CITIES IN JEOPARDY

Abstract ID: 834

Individual Paper Submission

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Economic resilience to recessionary shock has become an urgent social issue of several industrial cities in Korea, such as Gunsan from where General Motors withdrawal and Geoje where shipbuilding yards are closed. Although the evolutionary concept of economic resilience is useful to interpret developmental phases of those cities posteriorly, it implies little relevant policy implications to local actors who are the political stakeholders including central/local government, laborers, local firms, and citizens of the cities but 'adaptation' which means their deprivation and resorting to external aid. With the cases of Korean manufacturing industrial cities, this study examines the notion of economic resilience in terms of economic structure and global/local production network. Below are the questions regarding to policy implications that this study propounds.

A. What are the cause of changes called 'impact' and global/local structural attributes conveying impact to the cities?

B. What is substantive risk in the view point of subject who suffers from the recession?

C. How can the notion of economic resilience be re-defined in structural-relational approach?

D. What are the policy issues the local government take into consideration in terms of structural aspect?

The study traces 20-year change of seven industrial cities in Korea focusing on fluctuations in aggregated amount of production activities and employment by industries, and the developmental trajectory of industrial space in the cities regarding government industrial park projects and spatial plans anticipating investment of global corporations. The analysis includes the delineation about what are the substantive changes to the subjects who take their own response to the impact with the field study in Gunsan and Geoje where decline is ongoing.

The analysis found that: first, the cause is related to topology of production network across in global/local scale and industrial composition of the city which can be categorized into structural attributes of economic resilience. Second, the benefit and damage accompanied by the recession process is distributed unevenly among the stakeholders via spatial fix during developmental process and via hierarchy among laborers. Third, the risk actually is seeded and embedded not only into the economic structure but also spatial structure in in developing process. This implies that local government policy needs a strategic 'coupling-decoupling' approach to the institutional configuration of industrial space.

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Key Words: Industrial composition, industrialization path, GPN, economic susceptibility

HOW DOES URBAN GREENWAY PROJECTS AFFECT LOCAL ECONOMIES WITH VARYING CHARACTERISTICS? AN ANALYSIS OF HETEROGENEOUS EFFECTS OF ATLANTA BELTLINE ON LOCAL ECONOMIC PERFORMANCE

Abstract ID: 840

Individual Paper Submission

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There have been growing concerns over the loss of green space in cities, and its implications on ecosystem services, public health, and the quality of life. In response, an increasing number of cities take initiatives to develop urban greenways that connect local communities through parks, natural amenities, pedestrian trails, and bike paths. Although studies document economic, ecological, psychological, and public health benefits of such efforts, how these benefits are distributed between communities still remains unanswered. To be specific, only few studies explore the economic performance of various communities in response to urban greenway projects. As an in-depth case study, this study examines the effects of an urban greenway project on various measures of economic performance and reveals the factors accounting for spatial variations in the performance measures. Atlanta BeltLine is an urban greenway project, which has drawn a national attention for its bold vision, rapid growth as a popular recreational venue, and concerns over equity. It converts a former railway corridor around the core of Atlanta, GA, to a series of connected parks, trails, and bike paths. Its multi-phase implementation, which spans almost over two decades from 2013 to 2030, allows researchers to analyze its impacts on varying types of local economies by the comparison of treated and control areas: i.e., communities with its portion of the project implemented and their equivalent counterparts waiting for implementation in next phases.

This study analyzes an establishment-level rich data set of InfoGroup, which contains information on individual businesses in the project area from 2003 to 2016. With the data set, this study employs multilevel models to investigate the effects of establishment- and neighborhood-level characteristics on the economic performance of various types of businesses. In doing so, this study focuses on three types of economic performance: entry/survival/exit of individual firms, changes in the size of employment, and changes in the composition of various industries. The multilevel models estimate the economic effects of the urban greenway project and its interactions with community characteristics. Our preliminary analysis shows that Atlanta BeltLine has positive effects on local economies in surrounding areas: e.g., we find strong employment growth and increased entries of new businesses to those neighborhoods within a half-mile from Atlanta BeltLine. However, we also observe that the BeltLine development imposes a large pressure on existing businesses to adapt to the changing environment. We speculate that rapid changes in the industrial composition make old and small establishments particularly vulnerable to such industrial restructuring process. This study suggests that planners should consider the uneven benefits of urban greenway projects across varying local economic players.

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Key Words: Urban greenway, Business establishments, Walkability, Landscape metrics, Multilevel analysis

REVISITING THE ONE HILL DISTRICT CBA IN PITTSBURGH: WHAT ARE THE BENEFITS TO THE COMMUNITY?

Abstract ID: 848

Individual Paper Submission

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Historically, marginalized urban communities have been severely impacted by top-down economic development in or bordering their communities, often resulting in such negative outcomes as displacement, gentrification, and destruction. Politically, the fabric of local communities has come unraveled from development projects, which grant limited or no involvement in the decision-making and implementation process. Due to past failure to involve residents in the designing, monitoring and evaluation of projects, CBAs were created as a tool or a mechanism to reverse this and ensure that residents receive incremental benefits from proposed projects (Patterson et al. 2017). More recently, CBAs have come into sharp public focus due to demands for such an agreement by a coalition of Chicago organizations with the Obama Foundation, City of Chicago, and University of Chicago, regarding the proposed Obama Library. This high-profile, unfolding drama makes a broader examination of this issue particularly urgent at this time.

My own study focuses on a case study of a CBA in Pittsburgh, Pennsylvania. For decades, Pittsburgh has seen increasing economic development and gentrification, which has displaced and marginalized poor communities and prompted the negotiation of one of a handful of CBAs existing nation-wide (Lucas-Darby 2012; Salkin and Lavine 2007). The One Hill District CBA serves as an important case study for the purpose of determining whether CBAs continue to perpetuate neoliberal policies by accommodating a “technocratic compromise” that places private sector and government interests over public needs. In the proposed study, I expand on Redwood and Laing’s research (2012) exploring the ability to implement and enforce a CBA in a city that has experienced negative economic and social effects from deindustrialization, such as high unemployment, shrinking population size, hypersegregation, and increased poverty especially among people of color.

In this paper, I provide a preliminary exploration and analysis of in-depth, semi-structured interviews with members of coalition groups and government officials involved with negotiating and implementing the One Hill District CBA, along with community members who are affected by related development outcomes to date. My analysis will include an assessment of the use of the CBA as a tool to deliver environmental and social justice to communities impacted by urban redevelopment and deindustrialization. To make such an assessment, I will expand on the framework of “environmental gentrification” proposed by Checker (2011) to engage and complicate the problematic of social justice in an urban setting.

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Key Words: Community Benefits Agreements, economic development, deindustrialization, social justice, community development

U.S. STATE CLEAN ENERGY POLICY AND INNOVATIVE TECHNOLOGY ADOPTION: ANALYZING IMPACTS OF ENERGY-BASED ECONOMIC DEVELOPMENT

Abstract ID: 881

Individual Paper Submission

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Nations, states, cities, and towns are increasingly concerned about resilient and sustainable development against climate change. Energy-based economic development (EBED) has become a growing field of practice and research in the United States as well as across the world. EBED, a term recently coined by Carley et al. (2011; 2014), reflects the emerging convergence of two disciplines: energy planning and economic development. EBED captures the integration of policy-driven transformations of energy systems for low-emission and efficient energy generation and regional concerns for economic competitiveness and resilience.

Meanwhile, Hurricane Sandy and other catastrophic blackouts have strengthened the demand to secure energy systems during weather-related or human-induced disruptions. Distributed generation (DG) systems have received renewed interests because of the growing demand for resilient power supplies, low- or zero-carbon energy generation, economic and regulatory environment changes, and advances in DG technology efficiency with declining life-cycle costs (U.S. Department of Energy, 2017). Among various technology options for DG, this research focuses on a combined heat and power (CHP) system that is a mature and innovative DG technology promising efficient production of energy on site. However, the CHP deployment is challenged by financial, regulatory, and workforce barriers. To fill the gap between private and public interests, federal, state, and local policy-makers have implemented incentive-based and/or regulatory policies, which aim to promote EBED.

This research began from recognizing the lack of theoretical approaches and empirical analyses in current EBED strategies, and raised a question: How does clean energy policy affect clean energy use and job creation? I assume that consumers are more likely to adopt CHP where the state government provides a number of clean energy policy instruments. To test the hypothesis, this research finds two relationships—1) state governments' activities on clean energy policy entrepreneurship and firms' adoption of CHP technology, and 2) state governments' activities on clean energy policy entrepreneurship and the growth of relevant employment opportunities.

I develop an empirical method to address the influence of state clean energy policies on technology adoption and job creation. I first identify types of state policy instruments, and score states by the intensity of policy implementations. Using a framework of types of environmental policy instruments defined by Goulder and Parry (2008), I characterize the state clean energy policies by selective criteria, including the first year of policy enactment and the range of eligible CHP technologies. Second, I investigate regional differentiations of CHP generation by state and by year. The data of new CHP installations are collected in two forms: in capacity (kilowatt) and in the number of new CHP units. I also collected private-sector employment data by state and by year. Third, I find a relationship in two groups. The first group aims to examine the policy impacts on CHP technology adoption. The second group aims to examine the policy impacts on job generation. FE regression models are employed to analyze panel data by controlling for all time-invariant differences, such as geographic location, political system etc. To control non-policy conditions, time-varying variables are added to the models to

explain energy market conditions (electricity generation by fuel and fuel prices) and economic characteristics (personal income per capita and CO₂ emission). A panel data set for the 50 states and Washington D.C. with a time period from 1980 to 2015 is created for the FE regression analyses.

I extend the existing literature by developing a theoretical framework to converge two fields—economic development planning and energy planning. Within this framework, I demonstrate how EBED is embedded in reality, how firms act along with clean energy policies, and why energy efficiency and clean energy could be a source of economic development.

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Key Words: Energy-based Economic Development, Energy Resilience, Distributed Generation, Energy Policy, Job Creation

EXPLORING THE U.S. GEOGRAPHY OF HIGH-TECH ZONES, WHAT POLICIES MADE THE TOP 10 SUPERIOR?

Abstract ID: 920

Individual Paper Submission

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Since 1980s, the geography of innovation and regional innovation systems played major roles in the transition to knowledge-based economy in both the U.S. and developed countries. Much of the current literature in this subject pays particular attention to the formation of innovation clusters and their impact on planning and economic developments (Audretsch & Feldman, 1996; Hamidi & Zandiatashbar, 2018). While innovation is the key, the fact that high-tech industries generate innovation and also catalyze innovation in other firms make them equally or even more impactful on changing the momentum in the cities as well as the surrounding regions (Shearmur, 2010). In this work, we draw upon the seminal works on geography of innovation and provide a new perspective by defining geography of high-tech zones.

In phase 1, we identify the U.S. high-tech zones in 374 U.S. Metropolitan Statistical Areas (MSAs) as clusters of high density employment in high-tech sectors. The high-tech sectors comprise the industries relying on technology research and development (R&D) and STEM (science, technology, engineering, and math) workers. We borrow and apply Brookings' definition of high-tech sectors in this study (Muro et. al, 2015). We retrieve data for the high-tech employees from 2016 ESRI Business Data Source which provides the 8 digit NAICS code, employment size and sales volume for every individual firm in the U.S. We use the local spatial autocorrelation statistics (local Getis-Ord G_i^* statistic) for each block group in the MSA. This approach has been widely used in the research exploring the employment sub-centers (Hajrasouliha & Hamidi, 2017). Then applying a set of criteria we exclude unqualified block group candidates. Our criteria stem from the literature that emphasizes the role of talented workers, universities with extensive high-tech R&D activities, and urban anchors like Fortune 500 corporations in emergence of high-tech zones (Audretsch & Feldman, 1996; Zhu, 2000). Respectively, we use the Longitudinal Employment Household Dynamics data to select the high-tech zone candidates with above average number of workers with higher education and use NSF data to control for proximity to the region's

research universities weighted by university's R&D expenditure. We also account for the proximity to the Fortune 500 Headquarters. Our findings on spatial distribution of high-tech zones contribute to literature by allowing comparison between geography of innovation with stronger innovation clusters in the northeast and west territories of the U.S. and geography of high-tech zones with strong presence in south. Relatively, hosting urban anchors and national festivals help emerging high-tech zones particularly in south like Austin, Texas which is home to the South by Southwest Interactive Festival, attracting other Fortune 500s to Austin. Complementary to our study would be analysis of the negative impacts of high-tech zones on communities such as emergence of displacement, wealth or educational segregation.

In phase 2, we further study the supportive policies, regulatory structures and incentives in the top 10 MSAs that have the highest share of their regional employment in the high-tech zones. The majority of top 10 zones are emerged in a path dependent manner such as Bay Area's Silicon Valley, city of San Francisco, Boston's Route 128 and Seattle in Washington. However, our policy analysis shows that Market Payroll Tax Exclusion policy is supportive and successful in converting downtown's market structure from Finance, Insurance and Real Estate (FIRE) to STEM; for instance in San Francisco South of Market Area. At the regional level, stronger regional transportation system is a key to enhance accessibility to more high-tech zones. Thus, a combination of local policies (i.e. financial incentives that attract start-ups) and regional policies (i.e. enhanced regional accessibility to the zones) is key to be among the top 10 high-tech regions.

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Key Words: Geography, High-tech zone, Spatial Statistics, Policy, Regional Accessibility

RESPONDING TO DROUGHTS: A SPATIAL REGRESSION ANALYSIS ON INNOVATION IN THE WATER SECTOR

Abstract ID: 980

Individual Paper Submission

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The literature on water innovation raises the concern that innovative activity is perceived to be lagging in the water sector relative to activity in other environmental sectors (Wehn and Montalvo 2017). Water utilities, for example, have preferred traditional low-cost solutions to innovative engineering approaches and technologies even when the innovative approaches have proven more effective in private industry and in overseas markets. Others have pointed to less patent activity in the water sector relative to other environmental sectors. It is not clear, however, that comparisons to other fields in terms of patent innovation reveal a deficit of technological innovation (Ajami et al 2014).

As a resource, water is unique in that its availability is largely subject to variability in local climate conditions and geographical differences. Climate change is challenging some of the long-held assumptions of many water managers regarding the occurrence of extreme events, specifically droughts. These events not only test the resilience of many water systems, but also bring to the light geographic realities that affect local climate

conditions, obviating a need for innovations and approaches that can provide solutions that are more resilient to change.

In this paper, I investigate the relationship between droughts and water related patent applications in the context of the United States, using a time series of US Metropolitan Statistical Areas (MSAs) from 1976 to 2016. To do so, I exploit both geographic and temporal variation in innovation patterns to explain potential climate-related drivers of innovation in the water sector. Furthermore, I investigate whether droughts affect different types of institutions differently.

This paper will contribute to the existing literature in two ways. First, the empirical evidence in the environmental literature to date is based on all environmental innovation, not specifically focusing on water. Second, I explicitly take into account geographic variation to estimate the relationship between droughts and innovation in the water sector in a multivariate regression analysis. To my knowledge, this would also be the first paper that examines the relationship between extreme weather, droughts, and environmental innovation. My contribution to the literature would be to better understand the economic incentives that lead firms to develop new product in the water sector.

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Key Words: Drought, Innovation, Geography

PRIVATE BUSINESSES IN PUBLIC COMMONS: CONTESTED COASTAL DEVELOPMENTS IN CALIFORNIA

Abstract ID: 1003

Individual Paper Submission

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The California coast, like other regions endowed with natural beauty and useful resources, struggles to find equitable growth strategies that balance environmental protection. It is highly sought by multiple parties, often with competing or conflicting priorities for use. Shellfish aquaculture appears to be attractive on many accounts – advocates claim it enhances water quality and ecosystem health while also serving a thriving market for oysters on the half shell, resulting in increased stability for both local employment and wild oyster populations. Yet little is understood about implementing these projects at the local level in California – a state with some of the most stringent environmental protections in the country. This paper examines the celebrated, yet controversial, efforts in bays and ports across California to develop shellfish aquaculture as a mechanism for economic development that supports social and environmental outcomes. It studies how real actors negotiate competing narratives and normative goals of opening or expanding shellfish aquaculture operations. The project aims to clarify how and when development of the California coast is understood as a local versus regional resource; how collaborations with research institutions influence the scale of planning for environmental resources; whether there is evidence of new forms of scale reached through collective efforts; and the influence of communities on regional policy through local decisions. Using a case study approach analyzing data from interviews, observations, newspapers,

reports, and published papers, I compare contemporary efforts across California to understand how different business patterns, community efforts, and research collaborations influence the resulting development patterns and planning for multiple uses. Early evidence suggests permitting for new projects is mired in debate due to variation in community preferences, involvement of national environmental groups, uncertainty in the scientific literature on environmental impacts, and the fragmented permitting process across multiple agencies at the local, state, and national levels. Specifically, the case documents a highly contested and politicized process in which appeals to different conceptualizations of the scale of the debate may result in new collaborations – across aquaculturists and between regulators, policy makers, communities, private firms, and research institutions – that may yield environmental management and planning decisions catered to local contexts but complementary to the wider regional scale necessary to understand complex ecosystems.

The cases speak directly to ways in which planning for economic development and managing natural resources may be conflicting or congruent at the regional level, as well as challenges in citizen engagement when navigating decisions at the regional level with disparate local impacts. It also raises questions concerning the appropriate scale of planning problems and solutions; uneven spatial geography of development and resource management; and the responsibilities of private firms to environmental management and community engagement.

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Key Words: regional planning, environmental planning, scale

AGGLOMERATION IN THE POST-SPOTIFY MUSIC INDUSTRY: A STUDY OF MUSIC FESTIVAL ARTISTS

Abstract ID: 1027

Individual Paper Submission

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Few sectors have been as transformed by the digital marketplace as popular music. The Napster crisis of the late 1990s ushered in a period of reorganization for music firms, musicians and music consumers that it has not yet emerged from. Among the most powerful music firms today are companies (e.g. Spotify, Live Nation, Apple, and AEG) that either did not exist in the previous era or did not take part in the music economy. The dominant popular music business model which used live performance as a 'loss leader' to subsidize the sale of recorded music, is being recalibrated (Adler, 2014). The extent to which these organizational changes have prompted a geographic re-sorting of the music industry remains an open question, even though there have been somewhat recent studies of the topic (c.f. Florida et al., 2010).

This study deploys a novel dataset to investigate prevailing geographic patterns in the production of popular music. It is chiefly concerned with understanding the level of "absolute specialization" (Kemeny and Storper, 2016) in the sector. The dataset contains information on geographic origin, genre, and popularity for ~10,000 music acts with social media profiles in 2016, and data gleaned from these profiles. Of these roughly 3800 acts were selected to major music festivals in either 2009 or 2016 or both. A basic analysis of music festival acts finds that acts that have been selected to music festivals are at least twice as likely to be drawn from the three largest music 'clusters' (New York, Los Angeles, or London) as acts in the control group. A logistic regression analysis finds that, controlling for genre and popularity, the probability of being selected to a festival rises for acts from

these areas, from the hometown of a given festival, or from the hometown of the firm promoting the festival. These effects are stronger among acts from 2016 festivals than 2009 festivals.

Taken together, these results suggest that the digitization of music has not been accompanied by the spatial democratization of music production. While digital marketplaces for music theoretically make it easier for musicians to ‘plug and play’ from anywhere, and while artists in New York and LA might have as much physical access to the music festival circuit as artists from elsewhere, musicians from music clusters would seem to still have advantages. If anything, the ‘tyranny of the cluster’ might be stronger now than it was in 2000. This finding is not only consequential to policymakers in music clusters but to local economic development officials from less central regions who seek to build such clusters. They suggest that policies which target the local music industry must contend with strong agglomeration economies.

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Key Words: Agglomeration, Economic Development, Music Cities

DO CLUSTERS FAVOR SMALL FIRMS ?

Abstract ID: 1037

Individual Paper Submission

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Research Question: Do clusters improve the innovativeness of small firms more than that of the large ones? And if so, by how much and why?

Background: Small and medium-sized firms employ over 80% workers in the United States. Studies found that small firms contribute disproportionately to job creations and innovation, and are hothouses for entrepreneurs (Haltiwanger, Jarmin, and Miranda, 2013). Understanding whether clusters—co-location of firms and workers in related industries—benefit small firms is useful. For policymakers, it's important to know whether cluster-oriented policies, widely adopted by the federal, state and local authorities, assist these firms to innovate and grow. For entrepreneurs, it helps to evaluate whether their businesses will be the winners or losers in clusters, and facilitate their location choices.

Methodology: This paper uses a unique restricted version of the plant-level dataset from the Quarterly Census of Employment and Wages for the state of Maryland from 2004 to 2013, and matches it with the patent application and citation data from the United States Patent and Trademark Office.

This paper focuses on identifying whether small firms increase patent production in clusters more than large ones, and whether they have higher mortality rates in clusters. These goals are achieved through a series of quantitative methods, including the linear regression model following Arimoto, Nakajima, and Okazaki (2014), the cox proportional hazards model and the instrumental variable approach. This paper also explains what helps small businesses to absorb cluster benefits through case studies.

Findings: The preliminary results show that small firms increase patent applications more than large firms by 4.6% when they locate in industrial clusters. However, at the same time, their mortality rates in clusters are also twice as much as outside. These results indicate that the motivational effect (Porter, 2000) is likely to be what drives small firms to improve more than large firms in clusters. If they cannot improve faster than large firms,

which have more financial channels and internal resources, they will fail in the tough competition in clusters. The final part of the project is still ongoing, and the final result through a case study would show us whether this explanation holds.

Relevance: This paper contributes to the following lines of studies: the heterogeneous effect of clusters on different firms, the determinants of small firm success, and the mortality of firms in clusters (De Silva and McComb, 2012). This paper is also helpful for practitioners and policymakers. It serves as a guide for entrepreneurs to make better location choices, and for policymakers to evaluate the effects of cluster-oriented policies on different types of firms and to implement appropriate interventions.

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Key Words: Clusters, Small firms, Innovation , Mortality

THE QUEST FOR CREATIVE INDUSTRIES: A MULTI-LEVEL STUDY ON THE IMPACT OF URBAN COMPACTNESS ON THE GEOGRAPHY OF CREATIVE INDUSTRIES IN THE UNITED STATES

Abstract ID: 1043

Individual Paper Submission

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Creative industries have gained increasing attention in light of creative economy as viable magnets for economic development in cities and communities. The value of creative industries' production in the U.S in 2014 was 4.2% of the national gross domestic product, which contributed more to the national economy than did construction, mining, utilities, insurance, and accommodation and food services industries (National Endowment for the Arts 2017). Posited as new economic frontiers for the planning literature, creative industries have resurfaced in what have become "cool cities" (Markusen et al. 2008). Existing literature demonstrates that the location of creative industries tends to be place-specific. While creative industries seem to prefer dense and mixed-use neighborhoods, access to urban amenities, land-use mix, transit, and walkability offered in compact, as opposed to sprawling, urban areas could potentially contribute to the location preference of creative industries.

At the regional level, creative industries can benefit from more compact metropolitan areas with greater accessibility to regional destinations, public transit, and lower transportation cost and travel time. At the local level, compact neighborhoods facilitate knowledge spillovers through agglomeration economies and increasing social capital. However, despite research on the role of physical and socio-demographic characteristics of communities in the geography of creative industries, there has been little investigation on the impact of urban compactness on location preference of creative industries.

This article addresses the gap in the literature and examines the relationship between urban compactness and the location preference of creative industries in all census tracts of 374 metropolitan areas. This is one of the first national studies that investigate this relationship, drawing on Multi-Level Modelling to control for both neighborhood and regional characteristics. It uses the North American Industry Classification System developed by Markusen et al. (2008) to define the creative industries from a range of sectors directly involved in creative production. Data for the location of creative industries comes from 2016 ESRI Business Data Source that provides address-level employment size and sales volume for all firms within the United States. For capturing compactness, this study uses Ewing and Hamidi (2017) Compactness Index, at both census tract and metropolitan levels, comprising land use mix, development density, activity centering, and street connectivity. In addition, this study controls for walkability, transit accessibility, and other socioeconomic characteristics of the neighborhoods.

Our findings confirm that more compact and walkable neighborhoods with better access to transit, social interaction opportunities, a mix of uses, and quality urban amenities are correlated with the concentration of creative industries. Our results also suggest that live-work relationship is of crucial importance since the residential location of employees follow the location of creative industries.

This study points to key policy implications of location preference of creative industries for local communities. In order to promote economic growth, policymakers should consider the development of denser, more walkable, transit-served neighborhoods with a high level of land-use mix and a diverse range of urban amenities to attract and support creative industries while paying attention to the local characteristics of communities. These recommendations, however, require a few caveats as to the possibility of gentrification in socially disadvantaged communities.

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Key Words: Creative Economy, Urban Sprawl, Urban Form, Walkability, Transit

THE MATURING GEOGRAPHY OF BIOTECHNOLOGY: NETWORK FORMATION AND EVOLUTION IN LEADING AND LAGGING US REGIONS

Abstract ID: 1052

Individual Paper Submission

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Knowledge intensive industries such as biotechnology are characterized by spatial concentration and networks of organizations and inventors. Previous research generally acknowledges and has empirically shown that knowledge networks play a crucial role in sustaining the vibrancy of regional clusters and, by extension, the economic development of regions (Huggins and Prokop, 2016). However, we still have limited understanding of how networks emerge and evolve over time. Although there is a large body of research in regional studies, economic geography, and related fields that examines the association between regional/network-level factors and cluster outcomes, the research on factors that give rise to network structures is relatively scarce. Part of the problem in this area of research has been the paucity of methodological techniques that are capable of dealing with dependencies and simultaneity inherent in relational data (Glückler, 2007; Broekel et al, 2014). Additionally,

this research rarely compares successful and less successful clusters in systematic ways and thus tends toward retrospective explanation, predetermining the importance of historical contingencies and geographical proximities in the emergence and transformation of regional networks (Powell, Packalen, and Whittington, 2012).

Our study takes a broader view by incorporating a broader range of regions and leveraging recent advances in the modeling of network data. Using patent statistics from 1976 to 2010, our analysis relies on a longitudinal co-invention data set with geographic and organizational indicators. First, we identify actor and dyadic-level factors in the formation of network ties using Multiple Regression Quadratic Assignment Procedure (MRQAP) to test whether the observed network relationship is extreme compared to what we would expect to find if assignment to network positions were random. The results from this procedure enable us to assess the relevance of factors such as institutional type, size, and geographical proximity in explaining properties of the knowledge network connecting biotechnology organizations.

Second, combining insights from organizational and economic sociology with the more spatial perspective of economic geography and regional studies, we examine the evolving regional geography of the biotechnology industry in the US. For this purpose, we use conventional regression and dynamic social network modeling approaches to examine network evolution over time. This approach offers the opportunity to understand whether actors collocate because they already have knowledge ties or if they start to build relationships because they are already spatially close. The findings illustrate how organizational diversity within a regional network and a high share of intra-regional ties relative to extra-regional ties explain the diverging paths of leading and lagging clusters.

We envision this research as addressing sources of bias in attempts to extrapolate policy relevance from observational studies of the development of innovative clusters. Our findings differentiate the extent to which network properties, including the degree to which they are regionalized, are purely path-dependent or a product of regional and/or firm characteristics that might be manipulated through the levers of economic development policy. In addition, this framework could be extended to examine the link between network properties and a variety of outcomes of more general relevance to the region, such as functional specialization, tie-ins with anchor institutions, and employment outcomes.

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Key Words: Biotechnology, Clusters, Network analysis, Innovation, Regions

ARE INCLUSIVE CITIES MORE PRODUCTIVE? EVIDENCE FROM INTERNAL MIGRATION IN CHINA

Abstract ID: 1079

Individual Paper Submission

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Population growth has been regarded as the yardstick of urban development in urban economic theory. (Glaeser 2008) Among others, human capital contributes to urban development through their skills and positive externalities. (Ethan & Peri 2015; Moretti 2004) Most changes in urban population and human capital concentration occur through migration, especially internal labor migration across cities/states. (Glaeser 2008) To

boost local development, cities strive hard to create jobs and amenities in order to attract labor, especially skilled-labor. (Partridge 2010) Among these policy options, a favorable local institutional environment (either formal or informal institutions), such as an open attitude towards cultural diversity, is argued to be attractive to skilled labor and is positively associated with urban development (Florida et al 2008). However, it is less known to what extent urban migrants in general, in addition to the creative class, respond to an inclusive urban institutional environment, especially formal institutions, and how that further influences subsequent urban development. This paper aims to fill this gap and seeks to understand how local inclusive institutional environment affects labor mobility and impacts urban development through influencing the quantity and quality of urban migrants.

The household registration system in China allows local government to determine eligibility to access local social insurance programs based on one's local residency. Taking advantage of this formal institutional arrangement, we define urban inclusiveness as the extent to which local governments allow urban migrants to access local social insurance benefits as a measure of local inclusive institutional environment to urban migrants, and we propose the following hypotheses:

Hypothesis 1: inclusive cities, i.e., cities that provide urban migrants with equal access to local social insurance benefits, attract more migrants;

Hypothesis 2: inclusive cities have better economic performance through attracting more migrants.

Using cross-city variations in social insurance coverages among urban migrants in the National Migrant Survey in China, we construct urban inclusiveness indexes for over 200 Chinese cities with factor analysis. We develop a two-sector structural model to theorize how urban inclusiveness influences urban migrant population size and urban productivity through consumer utility and firm output maximization. Reduced-form regression results without and with instrument variables indicate that controlling for urban native population, natural amenities, current human capital stock and migration cost, more inclusive cities tend to attract more migrants, and inclusiveness is positively associated with the nominal wages of both the high-skilled and low-skilled migrants, particularly that of the high-skilled.

This research contributes to current understanding on the role of local institutional environment in labor mobility and the resultant urban development. Our findings suggest cities with favorable institutional environments to urban migrants tend to attract more migrants and have better economic performance.

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Key Words: Urban development , Labor mobility , Migration , Inclusive cities , Institution

CREATING OPPORTUNITIES AND CONFRONTING TRADITION: AN INVESTIGATION OF AMENITY MIGRATION AND CREATIVE INDUSTRIES IN SMALL TOWNS OF THE MOUNTAIN WEST

Abstract ID: 1094

Individual Paper Submission

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Amenity migration became a driver of change and economic growth throughout the Mountain West in the late 1990's with several scholars documenting the pattern and its dominant traits of pursuit of experience, desire for outdoor recreation and nearness to impressive landscapes, and small town atmosphere. Many small western towns transitioned from places of production, primarily supported by agriculture, mining, and manufacturing, to places of consumption, with economies driven by tourism and recreation, offering experiences to visitors and new residents (Shumway and Davis 1996; Hines 2007).

Over the last decade, a new pattern has emerged as creative economies have been developed throughout the region as a mechanism for inducing economic growth and drawing innovative, knowledge based workers (Grodach et al 2014). Put together, this creates greater complexity for small towns with only limited capacity to implement change. Literature on amenity growth has diminished and little research addresses the issue of creative economies in the Mountain West.

It is theorized that creative class workers tend to select their location because of additional amenities such as access to outdoor recreation and local culture that fosters creativity and exploration (Markusen and Schrock 2006). This puts the American West in a prime position for the development of creative economies in rural and urban places, evidenced by formal and informal agglomerations of creative production present throughout the region (Markusen 2007). This research aims to fill a gap in the literature regarding the intersection of amenity migration and creative economies by answering the following question: Is growth in small Mountain West towns a result of continued amenity migration, or an emergent pattern, and in what ways is this related to creative economy development?

This exploratory study reveals patterns of migration that indicate changes in the patterns of growth and development for small towns of the Mountain West. Migration, demographic, and economic data spanning the last twenty years reveal concentrations of population increase or decline, changes in dominant economic sectors, and variations in the groups of people occupying these spaces. Specifically, I focused on concentrations of agriculture, manufacturing, mining, tourism, recreation, and arts industries for patterns of change in average income, overall productivity, and industry dominance. Amenity migration theories documented general changes in the motivation of migrants coming to the Mountain West. However, reality has turned out to be increasingly complex as old and new residents negotiate new identities of place.

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Key Words: amenity migration, creative industries, Mountain West

UNDERSTANDING THE DETERMINANTS OF SMALL- AND MEDIUM-SIZED HIGH GROWTH FIRMS IN MANUFACTURING SECTOR: IN THE CASE OF THE CITY OF INCHEON

Abstract ID: 1145

Individual Paper Submission

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This research attempts to identify important characteristics of small- and medium-sized high growth firms in manufacturing sector by using the case of the City of Incheon. With the growing literature in this area, we now

know that a small number of HGFs creates most new jobs at a specific point in time; they tend to be young but not necessarily small in size; and entrepreneurial or innovative firms are more likely to be HGFs but they are not necessarily high-technology firms (Coad et al., 2014; Jung, 2017). While these findings are informing, they are limited to tell us about what more specific characteristics and elements HGFs share, how they operate and, more importantly, whether HGFs static and dynamic characteristics are replicable. Understanding these aspects might help researchers and policy makers to predict which firms are likely to grow and how to support them. It is known that high growth period is not persistent overtime thus it is difficult to target potential HGFs. Reasons might be the lack firm specific panel data with attributes to help understand important internal firm aspects. Existing studies identifying the internal firm characteristics of HGFs often use variables from the firm's financial statement (Hong et al, 2016).

Extending the existing studies on HGFs, this research builds a matched employer-employee panel data for small- and medium-sized manufacturing firms in Incheon. The data set contains a wide spectrum of variables from the general characteristics of the firm (i.e. firm size, firm age, and the subset industry sectors of manufacturing) variables from the firm's financial statement, and innovation activities to basic HR practices.

In carrying out analyses, this research sets up a few structured steps. First it categorizes HGFs according to their growth patterns reflecting the dynamics between the sale growth and employment growth. Those categories include: 1) high sales growth firms, 2) high employment growth firms, and 3) jobless growth firms (sales growth rate-employment growth rate > 0). Next, this research builds statistical models by using logistic panel regression on each HGF category to identify what internal firm characteristics are related to the firm's high growth. Finally, it compares the characteristics of HGFs with non-HGFs, HGFs in only one point in time, and HGFs over two periods.

This research adopts the OECD definition of HGFs, the enterprise with average annualized growth greater than twenty percent per annum, over a three-year period, and with ten or more employees at the beginning of the observation period. The employer-employee matching dataset is created by merging entrepreneurial firm data collected by Korea Enterprise Data(KED) and Employment Insurance Data(EID) collected by the Ministry of Employment and Labor.

The richer information on HGFs in a specific industry sector might help us to enhance our knowledge about HGFs that could possibly be relevant to firms in the same industry sector but in different cities and regions.

Citations

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Key Words: high growth SMEs, categories of high growth firms, internal firm characteristics of high growth firms, manufacturing

EMBEDDING MOBILITY: TRAINING INSTITUTIONS AND INCLUSIVE DEVELOPMENT IN PERNAMBUCO AND RIO DE JANEIRO, BRAZIL

Abstract ID: 1156

Individual Paper Submission

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Under what conditions can workforce development initiatives promote both economic growth and inclusive social mobility? Training programs regularly struggle with a dual mandate of providing valuable human resources to

employers and also creating pathways of mobility for disadvantaged and low-skilled workers. On the one hand, many critics disparage training programs as too-often useless to trainees and employers alike, typically due to a poor understanding of employers' labor needs (Osterman and Batt 1993). On the other hand, even programs that are successful are frequently criticized because they encourage employers to "cream" those trainees who are most likely to prosper, and neglect others who may be in greater need of support or advocacy (Giloith 2000). As economic development planners in the US and throughout the world grow increasingly interested in the expansion of training institutions as an avenue to both economic development and social inclusion (Clark 2014, Lowe 2015), we lack a firm understanding of how, and the conditions under which, workforce development can live up to this hope.

To address this gap, I present a set of practical and theoretical lessons from Brazil, where a series of policy reforms between 2003 and 2015 led to an expansion of training institutions throughout the country that proved to be both exceptionally effective (that is, they exhibited high job placement rates) and remarkably inclusive. In this paper, I use a comparative case study design to understand, in a grounded way, how new training programs became implemented within diverse labor markets and sectoral contexts, and the factors that explain success and failure with respect to: 1) their effectiveness in addressing sectoral workforce challenges and 2) their inclusiveness, that is their capacity to facilitate economic mobility in a way that is socially broad-based.

I present nested case studies of programs in Pernambuco and Rio de Janeiro, some of which were successful, others less so. In explaining this variation in outcomes, my cases focus on how state-level education networks interpret federal training policies and how individual schools within these networks implement policies in three areas: recruitment, programming, and the matching of graduates with firms. The cases of Pernambuco and Rio de Janeiro offer an analytically rich combination of similarities and differences. Both states experienced high levels of year-on-year growth in enrollments in training courses and a substantial expansion in the number of institutions offering these courses. In Pernambuco, a relatively poor and unindustrialized state, training schools developed in conjunction with the establishment of large employers in the context of "greenfield" industrial projects. I focus in this state especially on the articulation of a new training network around a recently installed automotive cluster, as well as a shipbuilding cluster. In Rio de Janeiro, on the other hand, training schools expanded in a mature labor market context, where employment gains came about through entrepreneurship and job creation within small firms, especially in the services. Here, I focus on training programs related to the tourism, healthcare, and footwear industries. In explicating these cases, I draw on data from the economic and educational censuses, archival documents and news articles, and interviews with schools, firms and trainees.

Mining variation in how training programs were implemented, I show that the programmatic success of these training initiatives depends on their horizontal relationships with employers. I argue that inclusiveness is largely driven by top-down policies, and schools and municipalities have developed innovative recruitment and programming strategies to accommodate these.

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Key Words: Workforce development, Economic development, Inclusion, Brazil

GOING LOCAL: PLACING ENTREPRENEURIAL MICROGEOGRAPHIES IN A LARGER REGIONAL CONTEXT

Abstract ID: 1164

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As cities seek to promote innovation they are increasingly investing in localized institutional entrepreneurial supports with the goal of intensifying innovation-enhancing interaction and related entrepreneurial activities. Within regions, a select group of institutional supports can be classified as hyperlocal—insofar as their entrepreneurial influence is highly concentrated within a neatly bounded geographic sub-space. From incubators and co-working spaces to accelerators and innovation districts, these localized supports aim to both place entrepreneurial ventures on successful paths while funneling them within spatially-bounded microgeographies. The resulting spatial configurations speak to the power of institutional actors in shaping small-scale innovative geographies but also raise broader questions about their effects on fundamental entrepreneurial decisions and behavior.

Scholars of economic development have begun to critically evaluate the role these institutional supports play in the entrepreneurial experience, even as questions remain about the appropriate scale of institutional intervention and the resulting effects on entrepreneurial decision-making (Block 2008; Mack and Credit 2016; Schrank and Whitford 2009). In this paper, we extend this nascent field by considering the influence of universities on entrepreneurial activities within their immediate surroundings. We focus on the University of North Carolina (UNC), where actors from the business school helped build a unique web of hyperlocal entrepreneurial supports that reinforced core educational and research missions but also culminated in the creation of proximate university business incubators. Our approach is rooted in what Siegel and Wright (2015) characterize as a much-needed ‘rethink’ of academic entrepreneurship, one that shifts characterizations away from a tightly structured institutional drive for revenue and towards a holistic, multinodal ecosystem driven by a wide-ranging set of university stakeholders and entrepreneurial advocates.

Using a series of interviews and a novel dataset on start-up firms (Feldman and Lowe 2015), we first trace the emergence of entrepreneurial supports at UNC before asking: how have these programmatic changes altered the entrepreneurial experience for life sciences firms founded by UNC employees between 1990 and 2012? We identify three notable shifts in established entrepreneurial practice. First, we observe an upward trend in the annual number of new life science establishments founded by academic entrepreneurs. Second, we find a growing spatial concentration of life science firms indicating a tightening of the boundaries of UNC’s entrepreneurial microgeography. Finally, we find an unanticipated consequence: life science start-ups are now more likely to launch at an earlier phase of technology development compared to previous counterparts. We suggest these trends are interconnected and reinforce firm dependence on UNC’s support system and institutional network.

The case has broad implications for how we characterize the contribution of universities to local and regional entrepreneurship. The findings suggest a clear link between strengthened entrepreneurial programming and the emergence of new firms. Yet the findings also highlight a tension inherent to programmatic expansions. Universities, even as they strive to create protected environs for nascent firms, remain well-established and much-needed anchors in the larger regional economy. This dual nature creates a predicament for regions and their universities. Walling off an internal microgeography has the potential to increase a university’s immediate influence over local entrepreneurship. Yet, it also risks disconnecting emerging entrepreneurs from the larger ecosystem’s valuable resources and stunting or removing knowledge generated by academic firms from the larger ecosystem. In other words, the institutional model of mirroring a regional entrepreneurial ecosystem on much a smaller scale, while improving the entrepreneurial experience and increasing the number of firms within the microgeography, may have unintended consequences not just for the academic firms but for the region, too.

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Key Words: Microgeography, Bioscience, Entrepreneurship, Academic Entrepreneurship, Innovation

MEASURING REMOTE WORKER EMPLOYMENT AND OCCUPATIONS

Abstract ID: 1173

Individual Paper Submission

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The nature of work is changing. Recent evidence suggests nonstandard work arrangements are growing (eg. Kats and Krueger, 2016; Liu and Kolenda, 2012) and global economic pressures and rapidly advancing digital information and communication technologies are helping to reshape how and where work is done (Carnoy et al 1997; Blakely, 2001). Workers, particularly high-skilled knowledge intensive ones, are demanding greater flexibility outside of standardized work arrangements and unified locations. Firms, meanwhile, are seeking new means to access specialized talent absent in local labor pools. Many jobs can be completed entirely 'remote', or that are locationally independent from a unified central office location, especially those occupations that are information or digital knowledge intensive. Remote workers are distinct from the more ubiquitous teleworker in that remote workers are not geographically dependent on a physical location to do work. This suggests remote workers may be more footloose in locational decision making and that firms may not be limited to local labor markets to access workers.

There has been growing interest by researchers, policymakers, and economic development professionals on the implications of remote work, and the changing nature of the workplace more broadly, for regional economies, labor markets, and place. Remote work is viewed as a potential means to attract transient residents based on high quality of place factors, to link incumbent residents to economic opportunities, or assist firms in accessing specialized workers absent in the local labor pool. Yet, a measurement framework for counting and understanding remote work employment and the implications of it is lacking.

This research begins filling this knowledge gap by presenting a method for measuring remote workers based on a conceptual framework constructed from related literatures (Garrett and Danziger, 2007). I use microdata from the Integrated Public Use Microdata (IPUMS) American Community Survey (ACS) and Decennial Census, and data from the Occupational Information Network (O*NET) to construct measures of remote workers and their occupations and industries. Findings indicate that the share of remote workers has grown significantly since 2000, with remote workers that are W-2 employees growing the fastest compared to those identified as self-employed, 1099, or freelancers. Remote workers have significantly higher levels of educational attainment and income compared to non-remote workers, although at least part of this difference can be explained by the types of occupations remote workers do. The paper also presents findings from the occupational and industry analysis and discusses uses of this data for practicing planners and researchers alike.

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Key Words: remote work, labor markets, regional economies, economic development, economic methods

IS IT TIME TO RETIRE THE TERM “INNER CITY?”: RE-EXPLORING THE GEOGRAPHY OF METROPOLITAN DISTRESS

Abstract ID: 1176

Individual Paper Submission

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The term inner city was thrown around in a cynical and derisive manner during the 2016 presidential election, drawing criticism that it was merely a loosely coded racial epitaph. Yet, during the same year gun violence spiked in Chicago, with shootings clustered in set of neighborhoods on the South and West sides far from the rejuvenated downtown area. While Chicago’s violence problem—itsself an extreme symptom of economic distress—is geographically tilted towards the “inner city,” suburban areas are not immune to economic decline and social upheaval, as the events in Ferguson, MO highlighted. In fact, a host of research during the 2000s focused on the suburbanization of poverty and the decline of so-called “inner ring” suburbs (Kneebone & Garr, 2010). Given its contradictory and confusing usage in the public discourse and the blurring of jurisdictional lines among some researchers, it is time to ask the question: Is the term inner city still a valuable category of analysis for social scientific analysis? On the one hand, there is a spate of recent work research by a diverse set of social scientists that suggests broadly that geography matters more than ever in determining an individual’s chances of economic and social mobility (Chetty, Hendren, Kline, & Saez, 2014) This work implies a policy approach that begins with an assessment or categorization of neighborhoods by some kind of socio-economic status and/or opportunity index. On the other hand, recent demographic shifts—specifically the shift of wealthier professional workers into urban neighborhoods (i.e. gentrification)—and the economic restructuring of central city economies away from production jobs and towards professional services and consumption-based sectors challenges the traditional definition of the “inner-city.” Recent work highlighted that employment actually grew faster in core urban neighborhoods than the traditional central business districts or suburban areas during the 2000s (Hartley, Kaza, & Lester, 2016)

In this paper we (re)assess the term inner-city in both its theoretical and empirical dimensions. We first track the history of the concept through a critical review of the literature and an analysis of its usage overtime using Google N-gram, paying particular attention to how the term was and still is defined in racialized terms. Next, we track the changing geography of metropolitan economic distress using three different definitions of tract-level economic criteria—following Porter (1997) and Jargowski (1997)—from 1970 to 2015 using data from the Brown University Longitudinal Tract Database (LTDB). We find that while there has indeed been a shift in the number of census tracts classified as economically distressed (e.g. high poverty) from central cities to suburban areas, the shift is modest in scope. We extend this analysis by exploring the factors that lead some metropolitan areas to reduce the “centrality of distress”—defined as the proportion of distressed tracts located in the central city—more than others. Finally, we conduct a spatial contiguity analysis of distressed tracts within all U.S. metropolitan areas to determine whether there has been a diffusion or continued clustering of economically distressed neighborhoods overtime.

We conclude the paper by highlighting the implications for both policy and theory of the increasingly divergent patterns in the geography of metropolitan distress—with some regions following the traditional 20th century pattern of concentrated urban poverty in the midst of regional growth while others have seen a wholesale shift of poverty to distant suburban jurisdictions. Ultimately the authors argue that planners need a more nuanced, and less racialized vocabulary to describe the problem of concentrated poverty and neighborhood economic distress.

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Key Words: Inner City, Concentrated Poverty, Metropolitan Distress, Suburbanization

PLANNING FOR LABOR MARKET RESILIENCE: CAN BIG COMPANIES CREATE A BIG TENT?

Abstract ID: 1218

Individual Paper Submission

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Experts report that larger firms' training needs shape our public workforce development systems (Berger 2013). States spend tens of millions of dollars to subsidize the training programs of the largest firms, often adding these subsidies to already robust relocation and expansion incentives. And large firms are well positioned to reap the benefits of any public investments in training (Christopherson & Clark 2007).

Smaller firms, which employ about half the U.S. workforce, are less likely to train and pay lower wages than their larger-sized counterparts, contributing to labor market inequities (Osterman & Weaver 2014). Scholars have recommended directing federal funding to smaller firms, but have failed to ask whether state responses to the training demands of large firms, including investments in physical and human resources, can be leveraged. I answer this question in the context of the U.S. automotive sector, comparing the skill demands of large lead firms, like Ford or Toyota, with the skill demands of their parts suppliers, in order to inform the design of public training programs. I utilize data from U.S. Bureau of Economic Analysis Input-Output Tables, Bureau of Labor Statistics Occupational Employment Statistics and O*NET Online to supplement case studies of automotive clusters in the southern United States.

By focusing on how occupational skill requirements vary across industries and firm size, this research can help state and local policy makers ensure that smaller firms and their workers are not limited in their development trajectories by outdated or outsized training plans and curriculum. By considering firm size, this research improves assessments of worker mobility and can be used to update occupational transition plans for displaced workers. The paper discusses how related human-centered development strategies reach across industrial sectors and increase regional competitive advantage, but also how human resources can strengthen labor market resilience in the face of industrial change.

This paper addresses the automotive case in order to inform broader debates regarding how technology and trade may disrupt the automotive and related sectors. Understanding how skill requirements differ across sectors should inform how micro- as well as macro-economic studies measure skill as a component of value-added in global trade.

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Key Words: economic development, workforce development, occupational clusters, training

THE RESURGENT IMPORTANCE OF CENTRAL BUSINESS DISTRICTS TO REGIONAL ECONOMIES

Abstract ID: 1222

Individual Paper Submission

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Recently, planning scholars have enthusiastically embraced the prospect of an ‘urban revival’, which describes the process by which long-term trends in the suburbanization of jobs and population may be reversing. There is mixed evidence in support of the urban revival hypothesis. In relation to population patterns, some evidence suggests that, while there has been growth in the center of regions, such growth continues to be slower than suburban population growth. Furthermore, the idea of an urban revival has been criticized on the grounds that it has been largely confined to a handful of large metro areas, and limited to relatively affluent, white, young professionals. In relation to employment patterns, the evidence is again somewhat mixed, with some studies showing that jobs have been growing quicker in the center of regions than in the suburbs while other studies have shown the opposite. The proposed paper will examine evolving employment patterns in the 150 largest metropolitan regions in the U.S. since the mid-1990s. The present analysis seeks to answer two primary research questions. First, over the period 1994-2015, have employment levels grown in central business districts (CBDs) relative to growth in the broader regional economy? Second, has the quality of jobs (measured in terms of wages and task content) in CBDs improved over this period, especially relative to the rest of regional economies?

In this analysis, central business districts are defined according to the definitions of the census of retail and trade in 1982. These definitions have been updated to allow for changing patterns of density and development within regions since this time. The primary data for this analysis is drawn from the Census Bureau’s Zip Business Patterns (ZBP), which provides zip code level employment and establishment counts at disaggregated levels of industrial classification. Zip level data are matched to census tracts (upon which CBDs were defined by the Census Bureau) using a crosswalk provided by the Department of Housing and Urban Development. For each of the largest 150 metropolitan areas in the U.S., concentric rings have been created around each CBD at distances of 1, 3, 5, 10, 15 and 20 miles. The ZBP data on employment and establishment counts, as well as wage data, have been assigned to each ring for each year of analysis. ZBP data are available covering the period 1994-2015.

Preliminary analysis finds that the regional share of jobs in (and close to) CBDs is largely unchanged since the 1990s, but there are clear qualitative differences between the jobs found in CBDs in the 1990s and the present period. Since the 1990s, relatively more productive, and higher paying jobs have been locating in central business districts than in the recent past. As such, central business districts are increasingly serving as wealth generators for regional economies. The regional multiplier for CBD jobs has increased markedly since the 1990s: on average, jobs in the CBD create roughly 25% more regional jobs than was the case in the 1990s. This work adds to existing research by demonstrating that while the relative quantity of jobs in CBDs has been somewhat constant over time, the importance of CBDs to regional economies has increased markedly.

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Key Words: Central Business Districts , Urban Revival

EXAMINING THE CONNECTIONS BETWEEN WORKFORCE DEVELOPMENT, ECONOMIC DEVELOPMENT AND COMMUNITY WEALTH BUILDING: A THREE CASE COMPARISON

Abstract ID: 1224

Individual Paper Submission

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Creating jobs and connecting people to work has been an enduring focus of urban policy and scholarship. Scholars have been explicitly calling for a greater connection between workforce development and economic development for the last two decades (Fitzgerald, 2004; Giloth, 2000; Harrison & Weiss, 1998; Meléndez & Harrison, 1998; Harper-Anderson, 2008). The call was framed as a means to enhance regional economic competitiveness and efficiently achievement of goals on both sides. Much progress has been made in both policy advancements and scholarly work. The focus on competitiveness and growth has raised some questions about implications for equity, shared prosperity and more specifically poverty alleviation. While theoretically linking local workforce development programs to and local economic development initiatives could help alleviate poverty by connecting people to work, if disadvantaged population are not intentionally included, they may not benefit.

The concepts of inclusive growth and shared capitalism have gained popularity as frameworks for thinking about strategies to address those left out of the prosperity. There has been increased attention on a group of programs addressing the poverty issue from the ground up. Community wealth building (CWB) has become the new catchphrase for policymakers and practitioners seeking to combat poverty and bring about self-sufficiency for vulnerable people and communities. CWB initiatives have received the most attention but included in the group are shared capitalism initiatives and anti-poverty programs. Reducing poverty on a city or regional scale is extremely complicated. The core mechanisms for doing so are directly tied to creating jobs (i.e. economic development), connecting people in poverty to those jobs (i.e. workforce development), and creating opportunities for broad-based economic security through various other models of shared revenue. The precise approach to implementation of these strategies varies across local contexts.

In an ideal world, the four pillars of economic growth, sustainability, and inclusion (economic development, workforce development, entrepreneurship and community wealth building) would constitute an ecosystem of sorts and all connect in a comprehensive system working toward the joint goals of regional economic and social well-being. However, it is not clear whether newly established CWB initiatives are being integrated with existing functions in a way that would allow for these strategic linkages to take place.

The purpose of this study is to explore the connections between these four pillars by examining four cases with varying approaches to CWB and their integration in local contexts. This study both compares models of connectivity across cases and looks collectively at types of connectivity between the various components. Case cities will include Richmond, Newark, Rochester, and Cleveland.

Four research questions drive this study.

1). What is the model of CWB being pursued in each region? 2) What are the connections (deliberate or not) between CWB, WD, ED, and entrepreneurship? 3) What are the measurable and non-measurable outcomes of linkages between the three? and 4) What factors could allow for more strategic alignment and collaboration across these functions?

Results could help us better understand how to best integrate and refine this emerging strategy to increase its effectiveness in a variety of contexts.

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Key Words: Community wealth building, Economic development , Workforce development, Connectivity, Inclusive capitalism

PLANNING FOR INNOVATION IN AN ERA OF GROWING WORKPLACE MOBILITY: THE CASE OF INNOVATION DISTRICTS

Abstract ID: 1228

Individual Paper Submission

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According to sociologists Zygmunt Bauman, Manuel Castells and John Urry (among others), modern society is characterized by multiple flows of information and changing patterns of corporeal and virtual mobility. In this liquid society, advancements in technology - information and communication technology in particular - transform the geographical scope of everyday life. The Internet and ubiquitous computing have contributed to what Anthony Giddens labels a “decoupling of people, activity and place.” For a growing number of people, the digitization of activities has enabled a more fragmented (and less static!) use of space at different times of the day, the week and the year (Schwanen and Kwan 2008). As a result, human activity can no longer be confined to a single geographical scale. Work and ways of working are also being transformed. Given the flexibility and mobility imperative, the individualization of work, and the popularity (as well as frequency) of subcontracting and project-based work, firms are integrating technologies into their restructuring processes so as to enable greater flexibility and mobility of work and the worker (Kesselring 2015). Individual coping strategies and spatialities are becoming more important in understanding work organization, the location of value creation and the land use patterns of particular industries (Pajević & Shearmur 2017). However, there is scant discussion of workplace mobility in economic geography and land use planning scholarship. Meanwhile, workplace mobility, albeit gradually, is spreading across sectors and industries with little signs of stopping.

This oversight translates into economic and territorial development strategies that disregard the changing nature of work, particularly in high-tech sectors. Innovation districts constitutes an example of such a strategy. They are designated inner-city areas where research-intensive anchor institutions and companies co-locate with start-ups, business incubators and accelerators under the purview of a public-private governance body (Leon 2008). Relying on both Marshallian specialization externalities and Jacobsian urbanization externalities, the policy emphasizes proximity as an essential component of innovation processes. Innovation districts draw on a series of existing territorial innovation models (TIMs) developed since the 1980s that emphasize a static understanding of knowledge spillovers as an essential component of innovation (Moulaert & Sekia 2003). The increasing mobility of work and workers challenges the theoretical underpinnings of place-based innovation strategies such as innovation districts. Policies that assume the staticity of work are based on enduring but outdated understandings of the location of economic activities and will likely have little discernible impact on regional innovation and prosperity.

In light of this, our contribution will address the following research question: are policies such as innovation districts informed by mainstream territorial innovation models still relevant in view of real-world developments in workplace mobility? The paper will be organized as follows: first, we will conduct a methodical literature review

to develop a conceptual framework for innovation districts. In addition, we will discuss the theoretical underpinnings of contemporary real-world developments in urban policy and workplace mobility. Second, we will conduct a brief policy document analysis, highlighting the links between policy and innovation models as described/prescribed by mainstream economic geography scholarship. Third, we will present key empirical findings, extracted from in-depth interviews with ten policy makers in Toronto and Montreal, and mobile workers in Ontario's Innovation Corridor. Finally, we will discuss the findings vis-a-vis territorial innovation models. Our results show that orthodox policy approaches informed by spatially static conceptualizations of work that generally disregard how workers in high-innovation sectors actually use space in their everyday lives. There is a need to acknowledge the growing complexity of the time-space dynamic pertaining to the location of employment and value creation to ensure the long-term relevance of land use strategies such as innovation districts.

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Key Words: Innovation districts, Workplace mobility, Economic development, Land use planning

IMPACTS OF TRANSPARENCY IN ECONOMIC DEVELOPMENT SPENDING

Abstract ID: 1230

Individual Paper Submission

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Economic development practice is rife with uncertainty and is often considered unfocused. Where evidence for the effectiveness of local economic development policy is lacking, economic development initiatives constitute good politics. At the same time, project-based economic development programs tend to complicate financial arrangements in such a way that obstructs public understanding. Notwithstanding this obstruction, studies have shown that businesses often extort public financing opportunities via local economic development initiatives, but never follow through on their promises for well-paying jobs (LeRoy 2005). While some have argued in favor of corporate clawbacks or “protective economic development” (Eisinger 1988) to protect against such abuse, businesses are often not held accountable.

Within advocacy circles, there is a push to make economic development subsidy data available to the public based on the assumption that it promotes accountability, consistent with arguments for open data and government transparency more broadly. Scant attention is paid to these advocacy efforts within academic literature, which tends to focus on improving economic development policy so it can better serve the public interest through things like a “local public balance sheet,” or a call for attention to “civic culture” in economic development planning (Reese & Rosenfeld 2001). At the same time, the call for greater transparency in economic development spending is widely accepted among advocates and planners. For example, Good Jobs First, a national policy resource center, provides a subsidy tracker that makes available to the public information on government financial assistance to businesses.

While transparency in spending is valuable in its own right, this study is the first step in understanding the value of transparency in economic development spending both internally and externally. That is, does transparency alter budgeting and administrative processes within agencies? Does it impact the practices of the agencies and other groups that hold governments and economic development agencies accountable?

Although advocates declared a victory in 2015 when the Governmental Accounting Standards Board (GASB) issued Statement No. 77, mandating that all state and local budgets after December 2015 report on revenues lost to corporate subsidies, the practice has not yet been adopted on a widespread basis and in some states there is no enforcement. Further, subsidies made by, for example, state public authorities, remain indirect or structured in a way that makes them unintelligible to the average taxpayer. Consequently, many good government groups continue advocate for transparency. For example, in New York State, groups like Citizens Budget Commission, Reinvent Albany, and the Fiscal Policy Institute advocate for a “Database of Deals” whereby the Empire State Development Corporation would create and maintain a subsidy and economic development benefits database.

At the same time, some states like Wisconsin and Illinois have such databases. This paper will describe the case of Illinois, which launched a subsidy disclosure system in 2005. Through a qualitative analysis of media, program reports, press releases, and a small set of interviews, this paper lays out an initial evaluation of the internal and external impacts of transparency to begin to understand whether and how economic development spending and practice changed after information on economic development spending was made available to the public.

This paper will contribute to substantiating the claim that more data actually leads to improved outcomes. A qualitative assessment of economic development transparency that examines practices both within and outside of government institutions can provide insight into policy adoption, policy transfer, advocacy efforts, and economic development practice more broadly. Further, building on the work of Jansa and Grey (2017), this study speaks to wider efforts to leverage economic development data in order to improve accountability and effectiveness.

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Key Words: economic development, open data, subsidies, transparency

WHY SECTORAL STRATEGIES IN THE GREEN ECONOMY FALL SHORT

Abstract ID: 1237

Individual Paper Submission

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A strong case can be made for national industrial policy targeting clean/green sectors (Rodrick, 2014). Lacking such policy in the United States, states and cities are employing sectoral economic development strategies focusing on various clean/green technologies. While there have been many successes, U.S. states and cities are competing amongst each other while also competing with countries, such as China, with aggressive industrial policy in several clean/green tech sectors.

This paper examines this dilemma as it relates to regional and urban efforts to create supply chains in wind turbine and solar panel manufacturing. I hypothesize that competition from China is a major factor limiting the success of these efforts, and plays more of a role than problems inherent to the sectoral approach. Specifically, I examine why efforts to transition manufacturers in Cleveland and Northeast Ohio to become suppliers to turbine manufacturers fell short of their goals and how the attempt to build a solar manufacturing sector in Buffalo is faring. The analysis relies on interviews with actors involved in the sectoral efforts in both places set in the context of an analysis of national policy in China and Germany with related data on economic performance in the solar and wind industries.

The analysis is a component of a broader initiative examining green/clean-tech economic development strategies as co-benefits of climate action (see Floater et al., 2016; Rode & Floater, 2013; Fitzgerald, 2010). Fitzgerald (2010) identified three types of “green” economic development strategies: linking, which connect elements of a sustainability or climate action plan to job creation, workforce development; transformational, which green existing industries; and leapfrogging, which build new green technologies and sectors. This framework is combined with one that distinguishes between approaches that have varying degrees of spatial concentration (see table).

Sample Green Economy Strategies

Type	City	Approach	Projects	Goals
Economic development a goal of climate action plan	Vancouver	Linking, Transformational	Developing clusters in energy and other areas of clean/green economy.	
Clean/Green Tech Incubators	Los Angeles	Leapfrogging		To develop a platform to help support and grow tech industries in the Los Angeles region in energy, transportation and other sectors.
Sectoral Strategy in clean technology	Cleveland	Transformational		
	Austin	Leapfrogging		
Eco-industrial Park/District	Milwaukee	Leapfrogging	Reed Street Yards	To create and expand a mixed-use office park focusing on building expertise in water technologies.
Eco-District w/ economic development goals	Stockholm	leapfrogging	Hammarby Sjöstad, Royal Seaport	To develop export technologies in waste management, renewable energy and smart grid technologies

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Key Words: green economy, sectoral strategies, eco-innovation

FIVE QUESTIONS IN CONSIDERATION OF THE DIGITAL: RECALIBRATING THE ECONOMIC DEVELOPMENT PROFESSION TO CONTEMPORARY TIMES

Abstract ID: 1266

Individual Paper Submission

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At least since the early 90s, advanced capitalist countries have witnessed structural changes directly related to sophistications in information and communication technologies (ICTs). While theories on the networked society (Castells, 1996) and the implications of time-space compression (Harvey, 1989) remain pertinent, scholars within economic geography, organizational studies, and Science, Technology, and Society studies (STS) have advanced the theories to grapple more directly with issues at the nexus of technology, the economy, and space. A global restructuring of the economy, afforded by ICTs, creates new capital-labor and capital-capital relationships. Graham et al. (1988) call this a new capitalist variant, which we argue a new digital capitalist variant introduces additional worker precarity, re-organization of the firm, changes in government policies, and shifts in global supply-chain policies. These changes across scales and boundaries require attention by economic developers and related actors seeking to foster widespread economic development, yet planning programs, and more specific to this paper, economic development scholars, have yet engaged work with this scholarship to make it legible to practitioners.

This paper is an interrogation of the continued relevance and a necessary update of economic development theories that form the canon of urban planning education. After establishing a new digital capitalist variant using a method similar to Graham et al. (1988) -- based on sectoral occupational precarity, computerization and internet adoption, capital concentration, and sectoral concentration -- we pose five specific questions that force the reframing of existing economic development theories. We work through these questions to postulate effective economic development policies that can build up and improve efforts by local actors seeking to building a tech economy.

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Key Words: Economic Development, Information and Communication Technologies, Digital Capitalism

THE ROLE OF LARGE FIRMS AND LOCAL INSTITUTIONS IN THE EMERGENCE AND EVOLUTION OF TECHNOLOGY-BASED REGIONAL ECONOMIES

Abstract ID: 1268

Individual Paper Submission

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Several interesting but potentially contradictory explanations have come to the fore to explain uneven regional growth processes. Prominent arguments and findings in contemporary economic development and economic geography literatures claim that: 1) regional growth and industrial diversification are shaped by the relatedness of localized industrial and technology bases; 2) uneven regional growth is strongly influenced by distinct territorial institutional set-ups and practices; and 3) uneven regional growth is explained by the health and vibrancy of local entrepreneurial ecosystems. The first two explanations suggest a certain path dependence based upon existing and slowly evolving local structures and elements, while the later suggests opportunities to construct new support systems or repair breaks or gaps to accelerate growth.

This paper attempts to evaluate and synthesize these three strands through a close case study of three regions that transitioned from traditional regional hubs to major technology centers over the past 40 years: Austin, Texas, Research Triangle, and Denver. Drawing upon secondary data analysis, historical/archival information, and local reports and internet sources the research will explore the significance of large public and private institutions as “prime movers” in shifting the development trajectories of these regions.

The case histories and evidence will provide insights on how more aggressive economic development institutions form, how they operate to “set off” new processes of industrial specialization and agglomeration and how they steer adaptations to rapid changes in technology and industrial structure. We hypothesize that local institutions in the three regions changed their industrial development trajectories by first recruiting large technology based public research institutions and firms. These large institutions laid the essential foundations of skilled labor, technical expertise and connections to external producer services and large markets.

Of particular interest is how local institutions engage with the large technology-based firms and research institutions they attract to expand their local operations to encompass research and product development activities. The paper explores if localization of research and product development in larger local facilities constitutes a crucial link in promoting industrial diversification and accelerating the growth of start-up and spin-off firms out of the larger incumbent firms. The research will trace the employment histories of founders, CEOs and chief technology officers in 50 small to medium-sized technology firms in each region to evaluate prior relationships to large local technology-based firms

The findings of this research can potentially delineate a new framework for explaining the emergence of new high growth regions over time. The co-evolution of regional institutions, industrial structures and the effective leveraging of opportunities for exogenous public and private investments may integrate processes of related specialization and agglomeration, unique local institutional capacities and the formation of robust local entrepreneurial systems.

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Key Words: explanations for high tech development, local development institutions, large technology firms, spin off firms

ECONOMIC DEVELOPMENT AND STRUCTURAL CHANGE: A SIMULATION APPROACH

Abstract ID: 1286

Individual Paper Submission

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Economies – whether at the national, regional or city level – develop and grow by undergoing structural change. This transformation of economies is characterized by a continuous evolution of the underlying technologies, capital, institutions, and social fabric such that markets evolve and new products emerge. At the city and regional level, local economies are also influenced by their surrounding environment through competition and collaboration with neighboring areas. These different internal and external factors constitute an “ecosystem” where a plethora of agendas act together to shape the overall outcome of the system as a whole (Batty 2013).

This paper focuses on a key characteristic of ecosystems, namely the interrelatedness of its different elements, where each component influences one another to bring about emergent outcomes. Concentrating on industrial structure as one aspect of the ecosystem of cities, I thus attempt to depict a picture of the “industry space” of cities where industrial sectors are connected to each other within a network of relatedness (Hidalgo et al. 2007). At the local level, cities diversify into and specialize in different industries as a result of regional competition and local comparative advantages. Accordingly, the evolution of a region’s industry space – and thus local economic development – can be measured by analyzing how the underlying industrial composition of the region shifts. Thus the ultimate goal of this exercise is to first accurately depict the ecosystems of cities through this network, and model structural change as a shift in the underlying industry network over time.

Utilizing data on new firm formation and industrial composition for MSAs taken from the Statistics of U.S. Businesses (SUSB) at the four digit level for the years 2005 to 2013, the underlying industry network is constructed such that the nodes are defined as individual industrial sectors. The links are defined using the Ellison-Glaeser index of coagglomeration (Ellison et al. 2010), to take into account the relatedness between any two industries. Then, any MSA’s industrial structure is depicted within the network by assigning values corresponding to the location quotient for each industry to the nodes. The final novel step is where I simulate shifts in any particular city’s industrial structure over time by considering all possible pathways for development within the network. Utilizing the Method of Reflections (Hidalgo and Hausmann 2009), I then depict a pathway for economic development that maximizes the development potential of the city, given all possibilities.

Ultimately, this study attempts to answer two questions:

- 1) Do more successful regions show different patterns of evolution compared to those that are less successful?
- 2) How should cities faced with different circumstances promote structural change such that their economic development capacities are maximized?

Preliminary results suggest that the change in industrial structure over the years for which data is available significantly shape the economic development outcomes of regions, and that in some cases these dynamics are more important than the actual industries in which these regions specialize in. In addition, more successful regions show distinct patterns of evolution that distinguish themselves with their less successful counterparts.

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Key Words: Economic development, industrial structure, entrepreneurship, network analysis, simulation

TIF TRANSPARENCY AS A STEP TOWARD ACCOUNTABILITY IN ECONOMIC DEVELOPMENT

Abstract ID: 1287

Individual Paper Submission

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Tax increment financing is a favored tool for cities to incentivize development by giving financial assistance, secured by projected future revenues, to private firms and real estate developers. Like other incentives, its capacity to use public funds to leverage private investment has relied on circumventory approaches to budgeting, marked by closed-door negotiations rather than being subject to public deliberation of municipal budgets. It has

also been roundly criticized for its role in furthering uneven development. Despite ongoing research that questions the effectiveness of incentive strategies and concerns from the public over distributional equity, TIF and other development incentives form the core of economic development policy in many cities. Policy reformers and community activists advocate for greater government and corporate transparency in order to lessen the public cost of incentives, improve the chances of beneficial outcomes, and strengthen accountability of government to citizenry.

In recent years, state and local governments have begun to collect and make available large amounts of data on public expenditures. This surge in publicly accessible data is the byproduct of advances in information and communications technology and broad interests in government transparency across the political spectrum. A push for greater transparency in public-private urban development partnerships has come from civil society's interest in open data as a route to good government, private sector advancement of software and development consultant industries, and state policies for disclosure and accounting standards (Barns, 2016). However, disclosure of economic development subsidies lags behind this overall advancement of transparency, in part due to the pseudo-public nature of development agencies and the off-budget financing modes they are able to use (Surka & Ridlington, 2016).

Chicago's TIF program is unique in the depth and breadth of its usage for a range of development goals. Accompanying this intensive use is a high degree of public literacy about TIF in popular politics. Due to the intrepid research focus on TIF by local scholars of economic development (Weber, 2002), a large teachers union organized around the impact of TIF on public schools, and a coalition of organizers and journalists, TIF has become a major focus of Chicago politics. Alongside lively debates about the appropriate use of TIF, creative strategies to repurpose TIF for community goals have cropped up as well.

The continuous scrutiny of the public spotlight on TIF has led a steadily increasing demand for transparency from local governments about how much public resources are allocated to TIF expenditures. Formerly invisible, documentation on TIF is now accessible to the public: reports are published at the state, county and city level detailing expenditures and recipients. Raw datasets of checkbook-style records at the project level are made available through data transparency websites. While TIF is enabled and regulated by state law, the City of Chicago also passed its own sunshine legislation, dictating even higher reporting requirements from TIF districts than at the state level.

Using qualitative research methods including participant observation, interviews, and analysis of planning, policy and legal documents, I examine the recent history of the phenomenon of transparency around TIF in Chicago. I develop a causal narrative of how this progress in economic development transparency was forged, highlighting the actors and stakeholders who have shifted the expectations of local government to disclose and legitimize TIF-funded projects. This descriptive study is the first step in a larger project about transparency in economic development incentives and its potential for greater accountability. Using this case study I will produce a model that I will apply to other cities to measure the activity of transparency initiatives and their potential for accountability in urban economic development.

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Key Words: TIF, incentives, transparency, accountability

INSTITUTIONAL LOGICS AND THE VALUE OF TIME: USING ORGANIZATIONAL THEORY TO EXPLAIN THE PARADOX OF AID AND RECOVERY AFTER NATURAL DISASTERS

Abstract ID: 1338

Individual Paper Submission

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Disaster assistance is generally thought as a way for communities to improve their recovery outcomes by providing the resources needed to rebuild and resume social, economic, and political functions. However, research has indicated that individual assistance to businesses after disasters is not necessarily effective in promoting their recovery (Dahlhamer & Tierney, 1996). This research uses the institutional logics perspective in sociological and organizational theory to understand the paradox of aid and recovery for businesses after disasters.

Institutional logics are “the socially constructed, historical patterns of cultural symbols and material practices, including assumptions, values, and beliefs, by which individuals and organizations provide meaning to their daily activity, organize time and space, and reproduce their lives and experiences” (Thornton & Ocasio, 1999). This research uses the case of Galveston, Texas after 2008 Hurricane Ike to illustrate the three major logics impacting recovery—the community logic, the market logic, and the state logic—as well as how relief programs vary in their effectiveness based on their grounding in each of these logics. We develop a model of institutional logic sequencing where the ordering of these logics is associated with four levels of disaster recovery resource outcomes based on the ability of each logic to operate under time compression (Olshansky, Hopkins, & Johnson, 2012). In this case, our findings show that success relies on the correct sequencing of the state and the community logic. The state guarantees financial capital whereas the community logic utilizes local social capital and networks to quickly and efficiently distribute these resources.

This research has both theoretical and practical implications for planning. We offer an introduction in applying organizational theory, specifically the institutional logics perspective, to planning issues. Natural disasters present complex challenges, requiring the coordination of heterogeneous actors over multiple levels of governance with often limited resources and time for which to accomplish recovery; the institutional logics perspective can help organize these dynamics into a broader framework for planners to use. The ideal types of the market, state, and community that we see in recovery vary in their categorical elements, for example, their stakeholders, organizational form, and exchange relations, which help can explain the motivations of various interest groups after disasters and their ability to negotiate in times of crisis. Therefore, the practical implication is that by educating planners on these broader logics, they can better navigate participatory forums in the recovery planning process. Our findings suggest that planners and economic developers are in the best position to manage disaster funds and facilitate the correct logic sequencing. We offer information on challenges in economic development after disasters and how to best structure individual business assistance after a disaster event.

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Key Words: Disaster Recovery, Theory, Case Study, Economic Development

IDENTIFICATION AND CHARACTERIZATION OF URBAN MANUFACTURING IN METROPOLITAN AREAS IN SOUTH KOREA - IMPLICATIONS FOR THE FOURTH INDUSTRIAL REVOLUTION

Abstract ID: 704

Poster

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In the context of global industrial convergence and the revival of manufacturing, urban manufacturing is being re-evaluated as a potential resource for creating new goods and services and local employment. Considering the tendency of ICT industry clustering and industrial diversity in large cities, the city itself offers excellent environment of innovation. Thus, manufacturing industry located in large cities has the potential to become a new growth engine through innovation such as the 4th industrial revolution. Nevertheless, discussions on manufacturing industry in the metropolitan area is still in the beginning step and recent discussions are only limited within the boundaries of major cities.

The purpose of this study is to identify and characterize the growing manufacturing industries of the five major metropolitan cities in Korea and to suggest their potential as a 4th industrial revolution space. Specifically, first, using Industrial Manufacturing Analysis, the study identifies the growing manufacturing industry in metropolitan areas. Second, analyzing logistics interactions among counties across the country by using the cargo Origin-Destination data, which can be divided into item-based intermediate goods and consumer goods, the study clarifies urban manufacturing and related industries. Finally, the potential of the 4th Industrial Revolution through manufacturing innovation is evaluated through analysis of the industrial structures with regions that have a lot of interaction with growing manufacturing in big cities.

The results of this study can be used as basic data for establishing regional industrial policies for the forthcoming industrial revolution

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Key Words: Urban Manufacturing, Metropolitan Area, 4th Industrial Revolution, Industrial Targeting Analysis

RESEARCH ON THE PROTECTION AND DEVELOPMENT MODEL OF TRADITIONAL VILLAGES FROM THE INDUSTRIAL APPROACH

Abstract ID: 722

Poster

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Traditional villages are the remnants of regional, historical and cultural changes, and they have cherished cultural values which should be given full protection and respect. In recent years, with the impact of rapid urbanization and changes of modern lifestyles, many traditional villages have been in declines due to government's land acquisition or private reconstruction of rural households, and in a result, the number of traditional villages has continuously decreased. The Chinese government has attached great importance to traditional villages and local governments have put the protection of traditional villages into agenda.

In the face of the deteriorating situation of traditional villages, planning and design personnel should explore more reasonable mode for village protection and seek for industrial development to stimulate the vitality of traditional villages. This article analyzes the development mode of Yandunjiao community in Rongcheng, Weihai by conducting field survey and proposes opinions on the problems of population hollowness, humanistic homogeneity and industrial simplification. The article indicates that the most proper way to protect the traditional villages is not to maintain them but vitalize them, thus it is a necessity to focus on the villages' industrial development by allocating local resources and culture in order to improve the economic power of the villages by which support the protection work.

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Key Words: traditional villages, protection and development, industry

TRYING TO SMART-IN-UP AND CLEANUP OUR ACT BY LINKING REGIONAL GROWTH PLANNING, BROWNFIELDS REMEDIATION, AND URBAN INFILL IN SOUTHERN ONTARIO CITIES

Abstract ID: 732

Poster

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The redevelopment of brownfields and the promotion of infill in a manner that prioritizes the renewal, regeneration and retrofitting of urban areas has become a core strategy in government efforts aimed at cleaning up past pollution while working towards a more sustainable future. While the initial attention of policy-makers in the 1980s focused narrowly on the risks posed by these potentially contaminated sites, the focus began to broaden in the 1990s to reusing brownfields in an effort to bring people, jobs, and taxes back to communities afflicted by deindustrialization. As the new millennium has unfolded, policy makers have expanded the socio-economic and environmental benefits that they hope can be gleaned from redeveloping brownfields, although the core objective still lies in the strategic reuse of these properties as locations for urban intensification to combat urban sprawl. That is brownfields as locations for growing “in and up” instead of out.

In Ontario, Canada’s most populous, industrialized, and brownfield-laden province, a suite of progressive government policies and programs have been introduced to not only facilitate the assessment and remediation of the brownfields supply, but to also steer development demand away from peripheral greenfields and towards brownfields through integrated planning and policy that considers a wider regional perspective.

Building on a paper presented at the ACSP last year, this poster presents the extent of property redevelopment that has taken place on brownfields in several Ontario cities (i.e., Toronto, Waterloo, and Kingston) since the provincial policy shift towards smarter growth. Using property assessment data and so-called Records of Site Condition submitted by those who assess and remediate brownfields, the specific questions guiding the examination are: How has brownfield redevelopment activity evolved in these three municipalities? What has been the scale, character, and value of redevelopment activity? What factors have contributed to the patterns of redevelopment? Can any broader implications be distilled from these cases in terms of supporting a more sustainable growth regime?

The results reveal that brownfields redevelopment has been extensive despite the fact that most matters related to site cleanup and development escape the authoritative reach of government. That is the province has established growth policies to be largely implemented by municipalities and remediation policies to be largely implemented by private sector companies with some potential support from municipal governments. Ontario's model, combined with a relatively strong real estate market bolstered by strong planning and growth management policy, has resulted in over 4,000 cleanups between 2004 and 2014 and a significant number of redevelopment projects. In the city of Toronto alone, 995 of the 1000 brownfield sites remediated between 2004 and 2011 have repurposed over 2,867 acres of land and resulted in projects valued at \$37.1 billion in property assessment, including over 83,000 residential units that house over 200,000 people. The smaller cities of Waterloo and Kingston have also fared well, although the concern is that the market can only do so much and that once the low-hanging fruit is redeveloped, municipalities and upper levels of government (including the federal government) will have to intervene more directly if they want to continue to target brownfields as places to grow smarter.

The research highlights the strengths and weaknesses associated with Ontario's approach, which lies in between the European and US models in that it focuses more on regional growth planning and less on site-by-site brownfields remediation and redevelopment. This research is of relevance to urban planners and policy makers interested in this domain of urban revitalization and redevelopment, as well as the strong cohort of planning scholars who have made a significant contributions to this field of research over the last two decades.

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Key Words: brownfields, remediation, redevelopment, policy, trends

THE DISTRIBUTION IN THE SPACE OF URBAN ONLINE TAKE-OUT CATERING AND ITS FACTORS: A CASE STUDY OF SHANGHAI

Abstract ID: 775

Poster

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The emergence and development of China's online take-away catering market has greatly challenged the traditional spatial distribution pattern of the catering market. (Qin Xiao, Zhu Shoujia, 2014, Wang De, Wang Can, et al, 2015) Online take-away restaurants are ordered by mobile device, the food and beverage outlets are produced in a unified manner. The third-party delivery companies are responsible for food transportation. The networked, customer-oriented nature of the take-away catering service allows shop locations to no longer rely on customer density and traffic accessibility, which are of great importance in a traditional commercial layout.(Weltevreden J W J, 2007)

The traditional business location theory represented by central theories has a marked accumulation of commercial facilities, and the competitive advantage location is the main spatial logic of the traditional business site selection.

(Berry B J L, 1967) Online take-away shops are equipped with both dining-services function and food-production function. Along with this two functional attributes, the transportation of goods is handled by an independent third-party service company, and the transportation costs are borne by consumers. Therefore, the site selection for online take-away shops is mainly influenced both by the market location and rental cost of the shop location. The traditional business location theory is no longer fully applicable under the new online business service model.

Shanghai's online take-away catering market is representative, accounting for 12.5% of the country's total sales, and more than 60% of Shanghai residents have used online take-away catering services. By using Internet open data and official census data, the research uses Shanghai as an example to compare the spatial distribution characteristics of traditional restaurant sites and online take-out catering shop sites in Shanghai's main downtown area. Further, online take-out catering shop distribution is analyzed in both city scale and district scale. The research on the influencing factors of the shop sites shows: In the urban scale, online take-away restaurants are located far away from the traditional commercial centers of the city and clustered at the edge of the core business area, presenting the dual features of both space-flattening feature and center-network feature; at the scale of the block, online ordering platforms and third-party distribution teams are partially eliminated differences in the spatial location of restaurants in different locations. The rental cost and the spatial distribution of urban population are two great factors for the layout of online food shop sites. The study proposes that with the emergency of new online business models, the spatial layout of urban commercial facilities presents new spatial characteristics, and non-central urban areas can be functional renewed with online business platforms and low-cost cargo freight services.

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Key Words: Online take-away catering, Spatial distribution, Site selection, Shanghai

THE IMPACT OF LOCAL NONFARM ECONOMIC DEVELOPMENT ON RURAL LABOR'S SPATIAL CHOICE OF NONFARM JOB

Abstract ID: 855

Poster

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Research question

Because of the large income gap between farm and nonfarm occupations, rural surplus labor tend to seek jobs in nonfarm sectors. As most of the nonfarm work opportunities are in the urban areas, large scale rural-urban migration occurs. However, few researchers have focus on the local side of nonfarm labor markets. With the development of local nonfarm economy, how will it affect rural labor's spatial choice of nonfarm job? Namely, the choice between local nonfarm employment and migration opportunities at different distances.

Approach and methodology

This paper takes "town" and "township" as the unit of analysis. The spatial choice of rural labor's nonfarm

employment are divided into 4 categories: home town; home county but outside of home town; home province but outside of home county; outside of home province. Using government statistical data of rural areas during 2012-2017, we calculated the rural labor's nonfarm employment as a proportion of total rural labor at the above 4 categories for each "town" or "township" in Jiangsu Province, which is located in the eastern coast of China and has large inner-province development disparities.

We separate the local nonfarm economic development into two levels and divide the research question into several sub questions:

(1) What is the impact of county center's nonfarm economic development on the rural labor's spatial choice of nonfarm job? What's the difference of that impact among towns with different locations?

(2) What's the impact of town-level nonfarm economic development on the nonfarm job spatial choice of rural labor in it?

We use multiple variables to measure the different aspects of local nonfarm economic development: economic structure, size of nonfarm economy, nonfarm job quantity, nonfarm job quality. With panel data from statistics yearbook of counties and towns, we developed a series of multinomial logit models to examine the impact of those aspects of local nonfarm economic development on rural labor's spatial choice of nonfarm employment, and the different impact across towns with different locations and development conditions.

Findings

(1) The nonfarm economic development of county centers will increase the proportion of rural labor working in the home county but outside of their original town, and this impact is larger for the towns which located near the county center than those located in relatively remote areas.

(2) For the towns located in developed counties, most of the rural nonfarm labor working in their home town, and the development of that town's nonfarm economy has positive impact on the proportion of rural labor's employment in the home town. But for those towns located in less developed counties, majority of the rural nonfarm labor work outside of the county but stay in their home province, and the improvement of town's nonfarm economy has little impact on the proportion of rural labor's local employment.

(3) For the towns located in developed counties, the improvement of nonfarm job quality will increase the proportion of rural labor working locally, but the increase of nonfarm job quantity's impact is insignificant. For the towns located in less developed counties, both the quality and quantity of nonfarm job has positive impact on the rural labor's local employment.

Relevance

The findings can increase our understanding of rural labor markets and how they interact spatially with migration opportunities. It will enable us to provide local nonfarm job opportunities for rural people in a more proper way; as well as to make better use of rural labor resource for the development of local economy. It can also benefit our understanding of the spatial trend of local population redistribution, which is closely related to the provision of local infrastructures, public services and housing.

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Key Words: rural labor, nonfarm, employment

IDENTIFICATION AND CATEGORIZATION OF U.S. BUSINESS DISTRICTS USING UNEMPLOYMENT INSURANCE DATA

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Understanding the built form that cities take is necessary for effective urban planning. One important facet of this is the spatial distribution of employment and residents within cities. The location of jobs and residents affects many aspects of urban life, from the type of transportation system a city will use to the likelihood of bonds forming between community members. In this paper I explore a particular question about the spatial patterns of employment: to what extent are jobs clustered into compact business districts, and to what extent are they spread at low densities throughout cities? Although most scholars agree that few cities today fit the monocentric model of one downtown surrounded by residents on all sides (Alonso 1964), there is debate about whether urban employment is best characterized as polycentric (Garreau 2011) or truly diffuse (Lang 2003).

I address this question using high-resolution employment data from the Census Longitudinal Employer-Household Dynamics (LEHD) project. The LEHD data is based on unemployment insurance records, and is able to give employment counts by Census block, a very fine geographical resolution. Using the LEHD data, I show that unlike residents, who form a continuous surface covering most parts of each Metropolitan Statistical Area (MSA), jobs have a bimodal spatial distribution, with most blocks containing no jobs whatsoever and a small number having extremely high employment densities. Across the 100 largest MSAs about 75% of jobs are located on the 10% of built land in Census blocks with at least twice as many jobs as residents. Further, most of these jobs are in clustered business districts with more than 10 contiguous employment blocks. These relative proportions are extremely consistent across metro areas, even though cities vary greatly in the physical density at which they are constructed.

Motivated by these empirical regularities, I introduce an algorithm to identify contiguous business districts and classify them into four major types, building on previous algorithms that combine data on population and employment (Forstall and Greene 1997; Shearmur and Coffey 2002). Based solely on the relative densities of employment and population, this algorithm is both simpler to implement and more flexible than many current approaches, requiring no metro-specific tuning parameters and no assumptions about urban form. The results show that although the overall allocation of land to employment and residential uses is fairly constant across the 100 largest MSAs, cities vary greatly in the way employment districts are constructed. In some cities traditional urban downtowns—many contiguous employment blocks at very high densities—continue to dominate the employment landscape. But other cities now find the majority of their jobs in areas of suburban sprawl.

In addition to producing shapefiles and maps of business districts, I am able to generate counts of employment by business district that are comparable across cities. Midtown, Manhattan, is the largest business district in the country, with just over 1.1 million jobs. The Chicago Loop is the second largest, at roughly 410,000, while downtown Washington DC is third with roughly 360,000.

These findings are relevant to both scholars and practitioners of urban planning. Many types of planning practitioners need to understand where jobs are located within cities. Transportation planners need this information to predict likely commuting patterns, while economic developers need to know which neighborhoods have ready access to employment and which ones suffer from a lack of opportunity. Academic research in urban planning requires systematic ways to identify concepts like a business district or a downtown core that can be applied consistently in different cities. The algorithms I develop offer one such approach.

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Key Words: Employment, Spatial analysis, Business districts, Land use, Urban structure

CHANGING RETAIL DYNAMICS IN THE GREATER LOS ANGELES AREA

Abstract ID: 1170

Poster

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E-commerce retail continues to grow in its share of total U.S. retail sales, now making up close to 10% of annual sales. This growth in online sales has many implications for urban planning. First, retail is a key generator of nonwork travel (Handy 1993), therefore changes in physical retail establishments or shifts in consumer behavior have important implications for transportation, both for the length and frequency of shopping trips and for the truck trips made to deliver online purchases. Second, retail is an integral element of urban design and can help promote areas that are walkable, bike and pedestrian friendly and have a strong sense of community and place (Chapple and Jacobus 2009). Finally, retail is an important component of economic development, particularly in California where property tax is fixed and sales tax is a crucial element of both municipal finances and transportation funding.

Existing research has begun to explore what e-commerce and changing retail dynamics may mean for personal travel and goods movement, but has overlooked the potential implications for both municipal finance and the built environment (Bruce et al. 2009). More information is needed to understand how e-commerce is impacting sales in local businesses and what those changes may mean for when and where retail establishments flourish. Though researchers note that the “death of retail” is highly exaggerated, the retail sector is seeing shifts in how firms operate in terms scale, location, and concentration of establishments (Hortaçsu, and Syverson 2015). This research seeks to understand how retail dynamics have changed in Southern California and highlight the implication for sales tax revenue and the built environment.

Since fine grained data on e-commerce are scarce, this research will use city-level California State Board of Equalization taxable sales data across the six county southern California region to examine longitudinal changes across nine retail categories. This will illustrate how sales patterns have changed between categories that are more or less susceptible to e-commerce substitution. This data will then be combined with longitudinal business establishment data from Reference USA to determine the relationship between the birth, death, and churn (Meltzer and Capperis, 2016) of retail establishments and taxable sales across our sample of nearly 200 cities. Using GIS and parcel-level land use data we evaluate the role of the type of retail land use (e.g. strip centers, regional malls, and town centers) involved in this dynamic. By linking the dynamics of physical retail businesses with taxable sales, this research will fill a gap in e-commerce research by providing an analysis of the changing retail dynamics in a region which contains 6% of the U.S. population. This work will help researchers and planners understand the relative stability of different retail types as it relates to tax revenues, neighborhood change, and related transportation impacts.

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Key Words: economic development, municipal finance, built environment, retail location

TRACK 3 - ENVIRONMENTAL PLANNING & RESOURCE MANAGEMENT

ROUNDTABLE: RESILIENCE - A NEW PATH FORWARD FOR CLIMATE CHANGE ADAPTATION?

Abstract ID: 220

Roundtable

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In the last decade, resilience has rapidly risen in prominence to become an important concept in urban planning practice and academic discourse. Large, high-profile funding opportunities such as the U.S. Housing and Urban Development (HUD) \$1 billion National Disaster Resilience Competition and the Rockefeller Foundations 100 Resilient Cities demonstrate the support and interest in resilience at the city scale. Increasingly, cities are using resilience rather than adaptation in the context of preparing for the impacts of climate change. The shift from adaptation to resilience may have important implications for how cities plan for climate change.

The concept of resilience has evolved in multiple disciplines, including ecology, engineering, and psychology, where it has different meanings. The “fuzzy” definition of resilience may allow it to bring together diverse actors that may not traditionally participate in climate change efforts. Resilience may also be better suited to reorient planning to address underlying causes of vulnerability than adaptation. However, there have been few studies on how resilience is translated into planning. As resilience emerges as a new planning domain, it is critical to not only characterize resilience plans but also understand how they differ from adaptation and other plans cities may adopt.

The panel combines academic thinkers who approach adaptation from different theoretical approaches with practitioners of climate adaptation. It seeks to understand from both pragmatic and critical perspectives the similarities, differences, and tradeoffs between resilience and adaptation. What are the benefits of framing efforts to prepare climate change as resilience? What are the drawbacks? How is resilience translated into practice? In light of the importance of climate change adaptation for cities, it is important to reflect on the pathways available to cities to prepare for climate change and the tradeoffs of these different approaches.

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Key Words: urban resilience, climate change, adaptation

ROUNDTABLE: TOWARDS A MORE EQUITABLE REDEVELOPMENT FOR POST-HURRICANE MARIA PUERTO RICO

Abstract ID: 238

Roundtable

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In the wake of Hurricane Maria's destruction in late September 2017, the prevailing sentiment among Puerto Ricans is that the island is being left to its own devices. With a dramatically-slashed disaster relief loan, prolonged infrastructure issues (primarily with its aging electric grid), and ever-present island-wide budgetary issues, Puerto Ricans sense a concerted effort to empty out the island for a future development sans Puerto Ricans, especially given the pressures to leave the island (Meléndez & Vargas-Ramos, 2014). In this sense, the insufficient response to Hurricane Maria is viewed as an extension of numerous environmental and social injustices experienced by the island (Dietrich, 2011). Furthermore, Puerto Ricans' effective second-class citizenship and complex political status has further complicated recovery efforts (Vargas-Ramos, 2013).

Understanding how myriad relational injustices affect Puerto Rico's physical environment is the starting point for the discussion (Ranganathan, 2017). Roundtable participants will bring a diverse background of viewpoints through which the question of equitable recovery and reconstruction will be discussed. Perspectives (perhaps sometimes conflicting) from hazards planning, Latinx planning, and resilient urban design, among others, will inform debate on the following questions:

1. What would an "equitable" recovery and reconstruction look like for Puerto Rico?
2. What are the major barriers prohibiting equitable recovery and reconstruction post-Hurricane Maria?
3. What are promising Puerto Rican movements or similar case studies that provide positive models for recovery and reconstruction?
4. How can a recovery vision for Puerto Rico be constructed using community-based efforts supported by a mix of external support mechanisms?
5. How do you build a long-term disaster risk reduction strategy for Puerto Rico?

From this, the roundtable seeks to inform future research and action in Puerto Rico by highlighting the major barriers to equitable recovery and reconstruction after Hurricane Maria.

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Key Words: Puerto Rico, Hazards Planning, Environmental Justice, Equity

MOTIVE (MODEL OF INTEGRATED IMPACT AND VULNERABILITY EVALUATION OF CLIMATE CHANGE): THE PRESENT AND FUTURE

Abstract ID: 242

Roundtable

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This forum intends to discuss the present and future of a research project that constructs the Model Of Integrated Impact and Vulnerability Evaluation of climate change (MOTIVE). MOTIVE began in 2014 as a 7-year project (2014-2020) along with the ‘National Climate Change Adaptation Plan’ (NCCAP) every 5-year term in order to minimize potential damages from climate change, secure national safety and property, and moreover turn it to be used as opportunities in Korea. Because establishing and implementing the adaptation plan in a cost-effective and efficient way requires reliable scientific information to figure out the impacts and vulnerabilities stemming from various climate change issues scientifically and assess adaptation measures applied. The main purpose of MOTIVE is similar to the modeling research around the world such as the Climate Change Integrated Metrology for Cross-sectoral Adaptation and vulnerability in Europe (CLIMSAVE), Joint UK Land Environment Simulator (JULES) of UK, and Integrated Climate Assessment–Risks, Uncertainty and Society (ICA-RUS) of Japan.

MOTIVE has supported numerous scientific measures on climate change adaptation effort of South Korea. This roundtable briefly introduces four research results that are found from diverse planning fields, which include public health, heat waves, forest firing and housing price, and land use adaptation options. After short presentations, participants and audience will discuss the current stage of this MOTIVE project and the future of this project to consider what is missing and needs to added. The main presentation topics include:

1. Health-MOTIVE: Health impact assessment tool for climate change (presented by Ho Kim; Suji Lee; and Soo Hyun Lee): Health-Motive is an easy to use health-effect assessment program aimed for use by decision makers in Korea as it complies with local government. The program includes a subset of recent data pertaining to air pollution (O₃, PM₁₀), climate (temperature, precipitation), demography, health (for example mortality and malaria data), and specific relative risks from a disease based on statistical analysis. Results are displayed in the form of tables, graphs, and maps with municipal-level divisions. The output from Health-Motive will be useful for policymakers and assist in designing appropriate public health policies to minimize the impact of future climate change on human health.
2. Projection of future hot weather and the potential population exposure in Korea (presented by Changsub Shim; Jihyun Seo; Jihyun Han): Heat waves, often caused by consecutive severe hot weather events, are responsible for the majority of the medical costs associated with climate change in South Korea. This study obtained a regional climate change scenario (RCP4.5) for South Korea, with a 7.5×7.5 km² horizontal resolution and extending up to 2100, by dynamically downscaling from the results of the Community Earth System Model (CESM) with the Weather Research and Forecast (WRF) model. By analyzing hot weather events (daily maximum temperature greater than 33°C) in the summer season (June–August), with a focus on changes in their extent and frequency, this projection of extensive hot weather events starting from the middle of the 21st century suggests the need for urgent government long-term measures and enforcement to ensure an early response to extreme weather events in Korea.
3. Forest Fire and Housing Prices - A Case Study of the Urban Forest Fire in Pohang city, South Korea (presented by Haeryung Kim and Heeyeun Yoon): Urban forest fire has become one of the disaster types that has drawn public attentions. The increasing dry weather condition by climate change induces larger and long-lasting forest fires. This research applied to revealing the effect of an urban forest fire on real estate market values using a case of Pohang city in Korea because in real estate markets, homebuyers’ perception of such natural disaster risk is reflected on housing values. It is expected to find out price discount effect for properties near urban forest fire, which could be applied for the preparation of countermeasures and the political decision making.

4. Land use adaptation options mitigating climate change impact (presented Eun Joo Yoon and Dong Kun Lee): Climate change adaptation has been addressed only at the policy level, while relatively little is known about how to change the actual space composition to adapt to climate change. The study intends to suggest land-use adaptation options based on multi-objective genetic algorithms that are the most popular optimization tool in addressing multi-objective problems in land-use planning, and also provide immediate feedback to stakeholders. Considering the flexible structure of the optimization model, it is expected that stakeholders can generate other land-use options efficiently by adjusting certain model parameters, such as the weighting combination, and select options depending on their preference to address relevant problems.

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Keywords: MOTIVE, climate change, decision support tool, climate vulnerability, genetic algorithms

ROUNDTABLE: AN ENVIRONMENTAL PLANNING FOR THERMAL EXTREMES - BUILDING CAPACITY FOR A SMART AND CONNECTED APPROACH TO CREATING MORE COMFORTABLE CITIES

Abstract ID: 576

Roundtable

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This roundtable examines capacity building approaches for management of thermal extremes. City officials are increasingly creating agendas that pursue both smart city initiatives and environmental planning policy related to thermal extremes (both hot and cold). Yet, it is unclear as to how the two agendas may improve the quality of our urban thermal environment and for whom. As the nation's leading cause of weather-related deaths, extreme heat and cold substantially impact human well-being in the United States. The impacts of heat and cold are unevenly distributed in urban areas as a result of variability in infrastructure and social factors that influence risk.

Regardless of season, not everyone who lives in a city experiences thermal extremes in the same way (Huang et al., 2011). For example, variations in human thermal comfort among city neighborhoods can be greater than the difference between a city and its surroundings. Even within neighborhoods, landscape differences and indoor thermal comfort variations between households likely result in uneven thermal exposure. In addition, personal health, access to health services, economic status, and demographic factors can modify a person's capacity to cope with thermal extremes (Gronlund et al., 2016). Many different agencies, organizations, and individuals are involved in the management of extreme heat and cold events through a wide range of preparedness and response activities. Improved coordination of actions and utilization of data resources would increase the return on public and private investments made to minimize adverse impacts of heat and cold and lead to reduced instances of weather-related mortality, morbidity, discomfort, and lost productivity. Grimmond and colleagues (2010: 259) suggest agencies have a high “[n]eed to develop tools that allow assessment of the best, or the ranking of, social,

economic and environmental decisions for urban climate management”. To date, urban climate or thermal management has been a nebulous concept in practice (Stone, 2012), and understanding what cities are doing is critical to developing an environmental planning for managing thermal extremes. The management of the thermal environment involves addressing both physical and social exacerbators of thermal comfort (heat/cold), which includes physical infrastructure along with community resources available to help people deal with those extremes. This roundtable convenes experts from different bioclimatic regions working with government agencies on a broad framework for management of thermal extremes. The purpose of the roundtable is to:

1. identify information gaps, who needs what data, and the feasibility of an environmental planning for thermal extremes;
2. provide examples of university-city environmental planning processes for managing thermal extremes in different bioclimatic regions; and
3. discuss challenges and opportunities for advancing an environmental planning for thermal extremes.

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Key Words: Urban Heat Island Mitigation, Management of Thermal Extremes, Thermal Comfort, Environmental Planning, Extreme Cold

ROUNDTABLE: PLANNING LIVABLE COMMUNITIES—INSIGHTS FOR POLICY AND PRACTICE FROM HUD’S SUSTAINABLE COMMUNITIES INITIATIVE (SCI)

Abstract ID: 1158

Roundtable

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As the centerpiece of the Obama Administration’s Partnership for Sustainable Communities (PSC), HUD launched SCI in June 2009. Perhaps one of the federal government most ambitious regional and urban planning experiments, SCI sought to infuse principles and policies of equitable development and sustainability through a series of regional planning grants, sustainable communities challenge grants and a robust suite of capacity building activities. With only 2 years of congressional funding, SCI allocated more than \$250 million through 143 grants and leverage an additional \$175 million of additional public and private funds. The SCI experience offers important lessons in capacity building, sustainability, and collaborative planning. Our roundtable will examine SCI’s legacy and explore how future governmental agencies, nonprofit institutions, philanthropy and community-based organizations could adapt the SCI model. Many of the proposed participants in this roundtable are authors of articles that appeared in the November 2017 special edition of HUD’s *Cityscape Journal* devoted to SCI and planning livable communities.

Citations

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Key Words: Urban Sustainability, HUD Capacity Building, Equitable Development, Collaborative Planning, Regional sustainability

PRE-ORGANIZED SESSION SUMMARY

PLANNING AND DESIGN WITH URBAN TREES AND GREEN SPACE: STRATEGIES, BENEFITS AND CHALLENGES

Summary ID: 26

Abstract ID: 401

Abstract ID: 402

Abstract ID: 403

Abstract ID: 404

Urban ecosystems play an essential role in achieving some of the main goals of urban planning and design such as sustainability, climate change adaptation and mitigation, and public health in high density urban areas (Gómez-Baggethun & Barton, 2013). To study ecosystem services, both scientific modeling and policy analysis should be conducted together for informing planning and design regulations. Studies show that urban green vegetation can mitigate urban heat, air pollution, and storm water (Lovell & Taylor, 2013). Our session includes a range of explorations of urban green infrastructure, its benefits, and its costs. Presentations in this session discuss the impacts of trees on heat mitigation and thermal comfort. We also discuss how trees and tree planting initiatives can mitigate air pollution. In addition to exploring the air quality and microclimate benefits of trees, we explore the impact of trees on outdoor water usage. The presentations in this session come together like pieces of a puzzle to paint a big picture of costs and benefits of urban trees and surface vegetations.

Objectives:

- To discuss the impact of urban trees on mitigating air pollution and urban heat
- To discuss the dependency of trees on active irrigation as well as reducing water usage in relation to surface vegetation maintenance
- To explore how planning and design policies can address the above objectives and their complexities

QUANTIFYING THE CONNECTION BETWEEN URBAN LAND USE AND WATER USE - SCENARIO BASED PLANNING FOR WATER BUDGETS DURING TIMES OF SCARCITY.

Abstract ID: 401

Group Submission: Planning and Design with Urban Trees and Green Space: Strategies, Benefits and Challenges

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This research contributes to water resource resilience planning, to increase community scale capacity to prepare, plan, absorb, recover from and adapt to the effects of our changing climate on water supplies (Cutter, Burton, & Emrich, 2010). Acknowledging that increasing population densities in urban areas create greater vulnerability, there is also an opportunity for community-scale changes that can mitigate these impacts. While not all hazard risks can be avoided, mechanisms should be in place to minimize effects. To address these circumstances, this paper explores the determinants of urban water use by modeling urban tree transpiration and comparing those results with water use data for the City of Denver. From a water management perspective, understanding transpiration rates of urban trees is fundamental to improving the selection of water-conserving species (Bush et al., 2008). Moreover, efficiencies in water use, infrastructure and land uses are essential for resilient urban development and redevelopment, thus linking urban forests and their ecosystem services to the planning and management of water. This study will inform sustainable urban land use design, as a key component to building resiliency into natural resource planning and mitigating the effects of water scarcity and drought events.

The primary research question is: Will creating a drought tolerant urban forest composition improve urban forest water use efficiency and improve resilience to drought events? I hypothesize that modeling transpiration rates of various tree species in the Denver Urban Forest will allow for improved decision making on tree replacements that require less irrigation; while improving water resource resiliency in times of drought.

This study interprets the extent to which outdoor irrigation drives urban water demand and models the capacity of changing landscaping practices, particularly those involving non-native trees and woody vegetation, to make up for diminishing municipal water supply. In doing so, I will analyze best practices in urban landscape irrigation needs and regulations for cities across the US West (Gober, Sampson, Quay, White, & Chow, 2016; Hale et al., 2015).

Methods:

Estimates of species specific tree transpiration rates will be derived using an empirical model called Etree (Litvak, McCarthy, & Pataki, 2015). The parameters within Etree will be modeled in ArcGIS. The Etree variables are derived using open data sources:

- FEMA LIDAR (2015) DSMs (digital surface models),
- Denver Tree inventory (over 200k trees; Denver Parks & Recreation 2015)
- Local weather data (Wunderground PWS)

This is a less robust, but more user-friendly approach to determining urban tree water use. The transpiration values are then assigned to each tree within Denver's urban tree inventory (using Arc GIS). The second phase of the study compares the transpiration rates of the tree inventory species with water use data from Denver Water to gain a clearer understanding of outdoor irrigation of trees by species. This analysis informs tree replacement strategies to create an urban forest that requires less irrigation water. Together, these results are used in scenario planning for variations in weather extremes and the effects of changes in water supply on urban ecosystems. While many Western cities have water conservation programs and municipal regulations used in times of scarcity (Mansur & Olmstead, 2012), apart from some arid southwestern cities (Holway, 2009), most urban areas don't have strict landscape ordinances. The results of this study will contribute to drought resilient land use policies and ordinances for open spaces and parks and landscaping guidelines for new developments.

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Key Words: Water Scarcity, Resilience, Land Use, Water Management

DEVELOPING AND EVALUATING A SPATIAL DECISION SUPPORT TOOL FOR AN URBAN GREENING ORDINANCE

Abstract ID: 402

Group Submission: Planning and Design with Urban Trees and Green Space: Strategies, Benefits and Challenges

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Denver voters recently passed a green roof ordinance ballot measure that is among the most far-reaching in the country. Initially written to require developers of new buildings greater than 25,000 square feet to install either green roofs or solar panels on a portion of the roof, since its passage the city has empaneled a group of experts to modify the law to make it more flexible. Specifically, the law is being adapted to allow for a variety of different possible greening strategies on properties beyond just green roofs, with the understanding that at many sites not only are green roofs cost-prohibitive, but lower-cost greening solutions may actually be far more effective, such as planting of trees and other vegetation at grade, among many others. If this approach is followed, the result would be nationally groundbreaking: a general greening ordinance that requires all new buildings to adopt some menu-based greening strategy that is most suitable for the site and that meets some minimum point total. The question remains, however, how to determine at each site which type of green investment is most suitable and most needed, from the perspective of the tentative suite of desired benefits articulated by the working group: mitigating urban heat, stormwater, and climate change; and maximizing green amenity value. Ideally, a tool could be developed that would help commercial land owners select the most appropriate greening practices for their sites, and help city managers simulate how the urban landscape might look and function after those choices were ultimately implemented.

Previous spatial decision support tools have been developed to help in optimally siting urban trees (Locke et al. 2010, Morani et al. 2011) as well as in evaluating the flow of ecosystem services from urban green infrastructure under different spatial scenarios (Kremer et al. 2016). Building on these previous techniques and based on the author's advisory work with the Denver ordinance working group, this paper describes a methodology that would automate the determination of which greening practices would be acceptable under the ordinance at each commercial parcel, based on a menu of acceptable practices (e.g. tree planting, green roofs, green walls, rain gardens, pervious pavement, etc). Not only would this approach identify minimum required actions, but in cases where multiple approaches are allowed, it would also identify the practice that would be most cost-effective in achieving the goals mentioned above.

It does this by classifying urban parcels based on suitability, additionality, and benefits maximization. The suitability dimension considers factors like the amount of available planting space at grade, based on the concept of "potential and realized stewardship" area (Troy et al. 2007), with the understanding that expensive green roofs or walls would be reserved for parcels with minimal at-grade planting opportunities. The additionality dimension considers what green elements already exist, using LiDAR and other remote sensing data, to ensure that any investments do not replace, but rather reinforce and add to existing green infrastructure. The benefits maximization dimension considers how to maximize the provision of the environmental benefits mentioned above for locations where there is high need. Based on these GIS algorithms, commercial parcels in the city of Denver are classified based on their ideal greening strategy and areas/counts in each category are totaled, in support of that city's nascent ordinance. The same is then done for Baltimore, an eastern city with very different urban morphology and no such ordinance and results are compared in terms of how many parcels and how much area is classified under each greening strategy in each city.

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Key Words: Green ordinance, green infrastructure, GIS , site selection

HOW SHOULD LANDSCAPING REGULATIONS OF DESIGN GUIDELINES AND ZONING CHANGE TO ACCOMMODATE HEAT MITIGATION STRATEGIES?

Abstract ID: 403

Group Submission: Planning and Design with Urban Trees and Green Space: Strategies, Benefits and Challenges

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Urban heat is being intensified by climate change impacts. While urban heat island effects make cities warmer than their surroundings, extreme heat events will be more frequent and intense in the changing climate. To make cities more resilient in the face of such events, a series of integrated social, environmental, and physical planning efforts is required. Urban trees and climate responsive urban design can improve urban microclimate variables.

Our knowledge of how built form elements, including trees, mitigate urban heat is still evolving. Studies with high accuracy measurements and simulations of microclimate variables show that trees mitigate site scale ambient temperature up to 1°C (Middel et al., 2014). Although ambient temperature might not be dramatically affected by trees, thermal comfort and mean radiant temperature (MRT) can be significantly improved by trees (Lindberg et al., 2008).

The literature on planning and design policies addressing urban heat is still very thin. One area that is fairly well discussed is cool roof policies that are adopted in building codes (Rosenfeld et al., 1995). Furthermore, cities in hot and arid regions have started to adopt heat strategies in their climate action plans. Nevertheless, climate action plans are mostly advisory and they are not connected to regulatory planning and design tools. In this regard, zoning and design guidelines are the baseline for shaping the built environment form. This includes landscaping regulations managing private development projects (Punter, 1999).

The main research question here is: how should planning and design regulatory tools be modified for creating a more climate responsive urban form. To answer this question, I analyzed two urban redevelopment projects (Belmar in Lakewood, CO and 29th St Mall in Boulder, CO) in the Denver metropolitan area. Given that in both projects heat mitigation strategies were not adopted intentionally, the regulatory systems in both sites were scrutinized to understand how different choices affected urban microclimate. I used ENVI-met and SOLWEIG simulation models to simulate microclimate variables such as wind circulation, ambient temperature, and mean radiant temperature. To compare the heat performances, five policy scenarios were developed for comparison of policy choices in both sites. To explore planning processes and institutional differences, I interviewed the main stakeholders of both projects including city staff, developers, designers, city council members, and engaged citizens.

The results show that landscaping choices in Belmar performed more effectively in heat mitigation. Although the ambient temperature was not strongly affected by trees and built form elements, mean radiant temperature was

mitigated by trees and landscaping regulations. In Belmar, using trees to create a more walkable space was a core value. The developer planted mature trees, instead of small trees which would have had a lower survival rate. Also, I found that form-based zoning along with PUD (Planned Unit Development) that was used in Belmar provided a better foundation for fine scale landscaping regulations. Form-based code has a modular structure and landscaping codes were built in as a part of the main planning code. Trees and landscaping in Belmar can mitigate urban heat more effectively compared to 29th St in Boulder, CO. Design choices that made Belmar more successful in heat mitigation were made to achieve walkability and mixed-use urban center objectives. The zoning regulations in Boulder do not provide a structure for adopting fine-scale site regulations. Reviewing the planning process in both sites show that a regulatory framework that can accommodate fine-scale landscaping regulations, such as form based code, provides a better foundation for heat mitigation.

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Key Words: Urban Heat, Urban Trees, Landscaping Regulations, Zoning, Design Guidelines

ADDRESSING AIR POLLUTION WITH URBAN TREES: OPPORTUNITIES AND REGULATORY BARRIERS IN DETROIT, MICHIGAN

Abstract ID: 404

Group Submission: Planning and Design with Urban Trees and Green Space: Strategies, Benefits and Challenges

LARSEN, Larissa [University of Michigan] larissal@umich.edu, presenting author

In 2009, the U.S. Environmental Protection Agency (EPA) estimated that 45 million people live, work, or attend school within 300 feet of a major roadway (4 or more lanes), a railroad yard, or airport (<http://www3.epa.gov/otaq/nearroadway.htm>). This statistic means that 14% of the US population is exposed to elevated air pollutants (using a current population estimate of 321,000,000). The primary air pollutants from vehicles (including diesel engines) are PM_{2.5} and NO_x. Elevated levels of these pollutants from cars, trucks, and other motor vehicles have human health impacts that include increased asthma onset and aggravation, impaired lung development in children, and more frequent early term or low birth weight babies (Finkelstein et al. 2004, Boehmer et al. 2013). While changes in the vehicle efficiency standards have lowered air pollutant levels, the EPA hopes to use tree buffers along roadsides to reduce air pollution concentrations. The positive aspects of trees extend beyond aesthetics to social and environmental benefits. Some environmental benefits include decreasing the urban heat island, increasing the probability of on-site stormwater retention, providing habitat, and mitigating air pollution (Larsen, 2015). Despite the announcement of significant tree planting programs in many North American cities, Nowak and Greenfield (2012) determined that many U.S. cities are losing their tree canopy. Over a five-year period, the urban canopy decreased in 17 of 20 U.S. cities. Detroit lost approximately 3.5% of its tree cover while its percentage of impervious surface increased between 2005 and 2009. Detroit's tree canopy of 16.5% is well below guidelines for temperate cities. The specific approach that I used in this project was based upon a similar analysis conducted for New York City in 2011. Unlike Morani et al., I used only PM_{2.5} and NO₂ criteria pollutants. First, in this presentation the audience will learn about how I combined air pollution data with demographic data in Geographic Information Systems (GIS) to prioritize tree planting locations. Second, the audience will learn what specific city and state regulations block tree planting along

roadways. Finally, the presentation will end with a summary of how I, working with a group of graduate students, am trying to change these regulations.

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Key Words: Trees, Air Pollution, Zoning Ordinance, Detroit

PRE-ORGANIZED SESSION SUMMARY

GROUP SUBMISSION: PUERTO RICO AND HURRICANE MARIA: PLANNING FOR A JUST, EQUITABLE AND SUSTAINABLE RECOVERY

Summary ID: 38

Abstract ID: 625

Abstract ID: 626

Abstract ID: 627

Abstract ID: 1263

On September 20, 2017, Maria, a category 4 hurricane with sustained winds of over 140 miles per hour, devastated the island’s infrastructure, transportation network, agriculture, natural environment, housing, and communications systems. Help was slow in reaching the island. Puerto Rico as an unincorporated territory of the U.S. qualifies for FEMA Assistance. However, with a poverty rate nearly double that of Mississippi, failing infrastructure that has been neglected for more than a decade and a public sector that has been increasingly dismantled in response to the debt crisis of over \$72 billion, the island was already in a state of emergency long before the storm hit. A week after Hurricane Maria, when it was clear that the preparations Puerto Ricans had taken were inadequate, San Juan Mayor Carmen Yulín Cruz stated in a press conference: “We are American Citizens; we can’t be left to die.” A number of actors, from the government to the grassroots have proposed solutions, but do these solutions promote resilience and sustainable development? How can recovery be effective and equitable? The purpose of this panel is to lay the foundations for such inquiries.

Objectives:

- Learn about pre-existing conditions of communities in Puerto Rico, the impact of the hurricane, and recovery trajectories.
- To identify built environment and infrastructure challenges faced by disaster-affected communities of Puerto Rico that require an sustainable, equitable and just approach to address them.
- To understand the socio-ecological-technical nature of these challenges through an interdisciplinary examination of their historical antecedents, concurrent recovery issues, as well as the needs and desires of local communities.

RELATIONAL APPROACH TO ENVIRONMENTAL INJUSTICES IN PUERTO RICAN RECOVERY

Abstract ID: 625

RIVERA, Danielle [University of Colorado Boulder] danielle.rivera@colorado.edu, presenting author

In the literature on environmental justice, an “injustice” has historically been defined as the maldistribution of risks, reflecting a distributive justice framework (Bullard, 1990). However, a number of environmental justice scholars have recently called for new approaches to theorizing “justice” that merge environmental justice research with more expansive justice theories (Jacobs, 2018; Ranganathan, 2017; Schlosberg, 2007). These perspectives, in the words of Malini Ranganathan (2017), take justice first and environment second, emphasizing the systemic sources of environmental racism.

This paper presents an experimental study conducted in Northern Puerto Rico in 2017 and 2018 to understand the physical planning issues facing Puerto Rican communities after Hurricane Maria through a relational justice lens. This framework for examining the immensely fraught reconstruction of Puerto Rico takes into account its colonization, suppression of indigeneity, mass migration, debt concerns, and second-class citizenship (Dietrich, 2011). The work constitutes an early exploration into a long-term project examining Puerto Rican reconstruction efforts and community organizing.

The paper ultimately highlights the benefits of using a relational justice framework for analyzing environmental justice in post-disaster Puerto Rico, highlighting key aspects of this approach and how it alters narratives around disaster response. Placing the issues within a wider historic narrative and understanding the role of the diaspora becomes central to the discussion, particularly given Puerto Rico’s fraught relationship with the United States mainland. Ultimately, the paper joins in other similar calls to center environmental justice studies within historical contexts and relational frameworks (Jacobs, 2018; Ranganathan, 2017).

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Key Words: Puerto Rico, Environmental Justice, Relational Justice

POVERTY, INEQUALITIES AND THE STATE: AN OLD TALE THAT HURRICANES IRMA AND MARÍA REVEALED TO WORLD IN AN UNEMBELLISHED FORM

Abstract ID: 626

Group Submission: Puerto Rico and Hurricane Maria: Planning for a Just, Equitable and Sustainable Recovery

ENCARNACION, Angeliz [The University of Texas at Austin] encarnacion.angeliz@utexas.edu, presenting author

Many scholars have highlighted the inextricable link between poverty, hazards and disasters (natural and human-caused) that results in unequal burdens across vulnerable populations (poor, homeless, and others). Yet, unpacking how “processes of systemic oppression” set these communities at the forefront of these events aftermath, remains an important task in the disaster planning literature (Jacobs, 2018). Hurricanes Irma and María stroke Puerto Rico in September 2017 exposing the visible traces of economic and social inequalities in an unembellished form. Accordingly, the University of Puerto Rico Census Information Center at the Cayey campus (2017) estimated an 8.8 % increment in the island-wide poverty rate (from 43.5 % to 52.3 %). The existence of

chronic poverty and inequalities in Puerto Rico is not new, but it has been excluded from the official discourse and debates at the federal and state level for many decades (Colon Reyes, 2005; Rivera, 2017). The effects of the recent disasters offer a prime opportunity to explore the role of the state historically and the way that institutional structures (including the Puerto Rico Planning Board) have managed poverty and inequalities conflicts. In this context, this paper aims to trace back the systems of oppression that deny vulnerable populations the right to be prepared, protected and to recover from catastrophes. The research is based on an historical institutional analysis that contextualizes to what extent and in what ways hurricanes Irma and María exacerbated inequalities. This historical analysis is significant for the formulation and implementation of equitable reconstruction plans lead by Puerto Rican authorities and will also contribute to envision new directions for disaster planning research agenda.

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Key Words: Disasters, Poverty , inequalities, urban planning

FORCES ON THE GROUND: DISASTER RECOVER(IES), PLANNING AND THE GRASSROOTS

Abstract ID: 627

Group Submission: Puerto Rico and Hurricane Maria: Planning for a Just, Equitable and Sustainable Recovery

TORRES-CORDERO, Ariam [University of Illinois at Urbana-Champaign] ariamlt2@illinois.edu, presenting author

On September 2017, Hurricanes Irma and María struck the islands of Puerto Rico (PR), causing catastrophic damage and triggering what has been described by US and international media as a humanitarian emergency. Hurricane María (HM) has been recorded as the worst natural disaster in PR's history, crashing virtually the entire electric power grid and all communication systems, while wrecking much of the islands' infrastructure. For weeks, PR remained isolated, uncommunicated, and almost completely dark.

Reflections about PR's disaster recovery processes after Hurricanes Irma and María signal a growing distance between the government-led recovery endeavors and underserved populations' struggle to survive and recover. For months, the islands' state government operated in emergency mode, struggling to do even the essential: save lives, clear roads, provide clean drinking water and restore the electric power grid. Concurrently, many local residents organized at a grassroots level to help vulnerable populations that government-sanctioned recovery efforts ignored. Whether pooling resources to collect and distribute food, water and electricity, or creating brigades to clear pathways and help rebuild houses, many residents have engaged in recovery processes that are placed almost entirely outside the purview of the state.

Grassroots recovery practices have served as recovery infrastructure, providing access to basic survival needs, materials for reconstruction, and developing a communication structure, including social media (i.e., Facebook and Whatsapp), to connect people from all over the islands and the US mainland. This brings us to ask: how do these practices relate to official or government-sanctioned recovery endeavors? How do both "separated" processes speak to each other? To what extent disaster recovery researchers and planners identify, understand and engage with grassroots recovery practices?

Disaster recovery literature only provides a partial view of a plural, complex, fast-changing and to some extent contradictory processes. Little attention has been paid to understanding and engaging with communities and grassroots recovery practices that occur almost entirely outside the purview of official, sanctioned processes. Further, little attention has been paid to the points of intersection between unofficial – and sometimes unsanctioned– processes and the government-sanctioned recovery work. As such, and since there is no consensus on what ‘recovery’ means (Olshansky & Chang, 2009), and no “grand theory of post-disaster recovery” (Olshansky et al., 2012, p. 177), this research sets out to explore and engage with different configurations of recoveries, as described by different grassroots groups and underserved populations.

This research is an ongoing multi-method ethnographic attempt to advance disaster recovery scholarship, responding to the field’s need for case studies and ethnographic qualitative data. Through an inductive qualitative approach, we analyze PR’s disaster recovery processes as an effort to allow context to drive not only descriptions of the multiple recoveries but also to interpret the empirical findings. Our methods include ongoing interviews with leaders and members of several grassroots recovery groups and community-based organizations, participant observation and involvement in Puerto Rican diasporic organizing in U.S. mainland, virtual participant-observer reflections based on pictures and videos posted on social media, online archival research – including academic studies and government reports – and news media.

Preliminary findings suggest that people operating as recovery infrastructure are necessary in post-disaster environments. For example, one grassroots group reached more than 100,000 people across 45 municipalities (out of 78) within five months of HM. Grassroots recovery groups have also proven to be flexible in terms of recruiting different volunteer bases and changing “mission” objectives, depending on the changing needs of people. Preliminary findings also suggest that certain grassroots formations are able to maneuver outside political and bureaucratic structures to secure ready supplies that get stuck in logistical bottlenecks.

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Key Words: Disaster recovery, Planning, Grassroots, Hurricane, Ethnography

INTEGRATING GENDER EQUITY INTO SMALL-SCALE COFFEE FARMING AND LIVELIHOOD RECOVERY IN POST IRMA & MARIA PUERTO RICO. RAMÓN BORGES-MÉNDEZ, PHD & CYNTHIA CARON, PHD.

Abstract ID: 1263

Group Submission: Puerto Rico and Hurricane Maria: Planning for a Just, Equitable and Sustainable Recovery

BORGES-MENDEZ, Ramon [Clark University] rborgesmendez@clarku.edu, presenting author

In light of ecological uncertainty and economic stagnation, the current post-disaster context in Puerto Rico provides an opportunity to think strategically about the coffee sector’s reconstruction and socially inclusive growth that would focus on the role of women not just in production, but also all along the coffee supply chain and within the coffee regional economy. In most of the world, including Puerto Rico, small-scale farmers produce 70% of the coffee supply. A high percentage of small farmers and field, and sorting workers are women (up to 90% in some African countries). In the coffee supply-chain, however, women are typically concentrated as disadvantaged producers at the bottom of the chain, earn very low wages, occupy few leadership positions in

commercial operations, in addition to performing unpaid work in rural households. Given the fundamental role women play in small coffee farming and production, we will investigate ways to integrate women into the multifaceted process of reconstructing the coffee local and regional economy in PR. Taking a feminist line of inquiry is fully compatible with international standards and practices in agricultural livelihoods, disaster mitigation, and local/regional development planning research.

In 1898, Puerto Rico was the 6th largest coffee producer of the world. Throughout the 20th century, however, due to the expansion of sugar-cane monopoly agriculture, urbanization, natural disasters, and misguided agricultural policies, local production has declined. Nevertheless, in 2012 coffee was the fifth most important revenue stream Puerto Rico's agricultural GNP. The coffee industry now faces additional setbacks following hurricanes Irma and Maria, which damaged almost half of the coffee trees in the coffee region of the island. The coffee region (and industry) is geographically located in the central-west highlands of the island, specifically in ten contiguous municipalities, which are also some of the poorest in the island. Some of these municipalities, show pre-Maria unemployment rates close to 25%, which have been steady for almost a decade. The inability to produce a significant coffee harvest over the next decade will exacerbate the current fiscal crisis of the coffee region, the island's overall economy and maintain poverty levels for rural coffee small holders--already under siege by monopolistic consolidation in the industry by multinational companies. Reconstruction of the coffee industry also is under threat by climate change. Warming and drying trends are likely to accelerate after 2040 and could result in top producing municipalities losing 60-84% of their production suitability by 2070. In our research, we expect to identify programmatic opportunities that would facilitate collaborations between universities in PR with other universities in the mainland, as well as with US Federal Government agencies such as USDA, FEMA, NSF, NIFA, NOAA.

For Prof. Caron, this project brings two of her research foci together. She has examined gendered relations of land access and agricultural productivity in India, Zambia, and Uganda. This project would allow her to compare and contrast her feminist analysis of banana value-chains in Uganda to that of coffee. Secondly, this research on how disasters present opportunities to 'build back better' aligns with her on-going research on post-disaster recovery and reconstruction following the 2004 Indian Ocean tsunami. For Prof. Borges-Méndez (a native of Puerto Rico), first, this research is natural extension of his long-standing policy work on the impact of the 2008 recession and of the intensification of the Puerto Rican debt crisis on Puerto Ricans in the mainland and the island. Secondly, this research represents a direct professional and personal commitment to improve the prospects of reconstruction efforts in the island, especially of food systems (dairy and coffee), and of economic development pathways for the debt-ridden economy of the island.

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Key Words: Puerto Rico, Gender, Post-Disaster Reconstruction, Coffee

PRE-ORGANIZED SESSION SUMMARY

CLIMATE CHANGE AND ENVIRONMENT MODELING I: MODEL OF INTEGRATED IMPACT AND VULNERABILITY EVALUATION OF CLIMATE CHANGE (MOTIVE)

Summary ID: 41

Abstract ID: 710

Abstract ID: 711

Abstract ID: 713

While causes and effects of climate change are complicated within both our ecological and socio-economic systems, it is clear that we are being influenced to our daily activities. Various direct/indirect and visible/invisible impacts of climate change appear broadly in the form of natural disasters, water resource shortage, and poverty, increasing threats to every sector at all the levels of global, regional, national and local governments. Based on the research projects conducted with the Model Of inTegrated Impact and Vulnerability Evaluation of climate change (MOTIVE) launched in 2014 as a 7-year project (2014-2020). The MOTIVE work is similar to the various global modeling research such as CLIMSAVE and JULES of UK, and ICA-RUS of Japan. Based on the main objectives that are to develop an integrated model evaluating the impacts and vulnerabilities of climate change and support the initiation of scientific measures on climate change adaptation effort of South Korea, this session provides various research findings conducted. This session can contribute to successfully establishing a new MOTIVE-type adaptation measure model for the US and other countries.

Objectives:

- Global climate change and local environmental and adaptation modeling
- Multi-disciplinary collaborative modeling practice

MEASURING PROBABILISTIC ECONOMIC IMPACTS STEMMING FROM VARIOUS DISASTERS ASSOCIATED WITH CLIMATE CHANGE: APPLYING THE KOREAN FLEXIBLE ECONOMIC MODEL

Abstract ID: 710

Group Submission: Climate Change and Environment Modeling I: Model Of inTegrated Impact and Vulnerability Evaluation of Climate Change (MOTIVE)

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This study suggests a new framework that empirically quantifies the future, long-term economic impacts of various potential risk events stemming from climate change in South Korea. Assessing the long-term economic risk impacts has been one of most challenging work because of various limited modeling methods. For example, a key limitation of classic Input-Output (IO) model include fixed coefficient matrix in IO which makes no substitution effects. Utilizing secondary data, including various scenarios, the framework is used to identify the technological changes in production that adopt simulated results stemming from a major disaster. Gordon et al (2009), Park and Richardson (2014), and Park et al. (2017) suggested a new, innovative approach to constructing unknown IO coefficients of the future. The approach could successfully be built on both the demand- and supply-driven models, advancing the RAS method and estimating a new coefficient matrix. This approach is a resilient IO model that reflects substitution effects and understood as a quasi-dynamic economic impact model. Required data set to meet the target for the future assessment include an updated, new input-output table consisting of final demand and value added in the target year and input data for specific events related with climate change in the future. Based on the datasets prepared and socio-economic scenarios developed by Korea Environment Institute, this study analyzed a research question: what are the probabilistic economic impacts of health and social work industry sector stemming from Heat Wave? Years targeted are 2030 and 2050. This new framework, which provides estimates of economic impact adaptation process and resilient results, refines the often substantially overstated impacts provided by the application of conventional economic models. Findings include the followings: 1) the industry with which large losses are expected is Wholesale and Retail Trade; 2) if considering the entire scenarios, the Agricultural, forest, and fishery goods sector may experience larger losses in 2050; 3) in the future scenario cases, because socio-economic systems that recover direct losses quickly in the health and social work sector can be introduced, the effect on other industries may reduce; 4) this is also similarly found from low Type 1 multiplier that shows the effect to the losses in other industries diminishes, implying that a resilience society is expected to appear in the future.

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Key Words: Flexible input-output model, Climate change, adaptation policy, quasi-experimental model

A STUDY ON THE IMPACT OF CLIMATE CHANGE ON THE RICE FARMING SYSTEM IN KOREA USING SYSTEM DYNAMICS MODELING

Abstract ID: 711

Group Submission: Climate Change and Environment Modeling I: Model Of inTegrated Impact and Vulnerability Evaluation of Climate Change (MOTIVE)

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Changes in agricultural systems due to climate change are one of the most important issues in the world in terms of food security (Challinor et al., 2014). In particular, since rice is a major crop used as a staple diet by nearly half of the world's population (Gibson and Kim, 2013), it is necessary to predict and manage the sustainability of the rice farming system to cope with climate change. To analyze the impact of climate change on the rice farming system, a comprehensive approach is needed that takes into account socio-economic and environmental changes as well as crop productivity (Rasmussen et al., 2012). Therefore, in this study, a system dynamics model including the main components of the rice farming system and their feedback effects, was developed and plans for maintaining the sustainability of the system were suggested. The system dynamics model is comprised of five major sectors such as rice production, water resources, cultivated area, economic factors, and soil fertility, and net income, irrigation and crop productivity connecting each sector are included in the model. In order to compare the regional impacts of climate change, each of the eight provinces of Korea was set up as an independent rice farming system. The RCP (Representative Concentration Pathways) 4.5 and 8.5 scenarios were used as climate change data sets, and the effects of three government policy scenarios on the sustainability of future rice farming systems were tested: R & D to improve rice productivity, increase in agricultural subsidies, and expansion of irrigation facilities. The simulation results demonstrate that the rice farming system in Korea will continue to deteriorate and will decay more rapidly in the RCP 8.5 scenario. Although the rice productivity due to climate change will not change significantly, the costs of pest control will increase, and consequently, the economic efficiency of rice production will be lowered. This trend is expected to be similar across all provinces and more prominently in regions with higher mean temperatures. The simulation results of policy test show that improving crop productivity is the most effective way to maintain the rice farming system, and other policies are predicted to have little effect. Although there are regional variances, it is predicted that the sustainable period of the rice farming system will increase by more than 5 years whenever rice productivity is improved by 10%. Overall, the system dynamics model enables prediction of various future scenarios by simulating the dynamics of the components of the system and their interactions. The developed model can be used as a decision support tool to assess the impact of climate change on the sustainability of rice farming system and to evaluate various measures to adapt to climate change. Although the model is applied to the rice farming system of Korea, it will be possible to analyze other agricultural systems using the developed model structure and approach.

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Key Words: Crop productivity, Sustainability, RCP scenario, Policy evaluation

DEVELOPMENT OF META-MODELS TO SOLVE POLICY ISSUES REGARDING CLIMATE CHANGE IN THE CONSERVATION AREA

Abstract ID: 713

Group Submission: Climate Change and Environment Modeling I: Model Of inTegrated Impact and Vulnerability Evaluation of Climate Change (MOTIVE)

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Climate change impacts in the forest ecosystems could vary (Kirilenko and Sedjo, 2007). These include forest growth, natural disaster, biomass, distribution of forest species, and forest carbon. The impacts are complicate as one impact can influence the other and also react each other (Kurz et al., 2009). Meta-models are computationally-efficient or reduced-form models that emulate the performance of more complex (original) models to deliver fast run times (Holman and Harrison, 2011). Therefore these can be used to overcome computational difficulties of physically linked models in representing interlinked impacts of climate change. This study aims to develop meta-models to solve policy issues regarding climate change in the conservation area and to evaluate the integrated impacts of climate change on the forest.

This study developed and linked 5 meta-models which were meta-forest fire model, meta-landslide model, meta-Ko-D-Dynamics model, meta-Ko-D-Hytag model, and meta-FBDC model. From the 5 complex (original) forest models (forest fire model, landslide model, Ko-D-Dynamics model, Ko-D-Hytag model, and FBDC model), input and output datasets were gathered first. The main input datasets were non-climate and climate data under RCP 8.5 climate change scenario provided by Korea Meteorological Administration. Meta-models were developed using artificial neural networks (ANNs) and were calibrated and validated using outputs of the 5 forest models. The most suitable ANN designs were selected on the basis of the variability explained (R²) and the root mean square error (RMSE) to improve its accuracy. The output datasets were annual forest fire probability, landslide probability, species distribution, forest growth and forest carbon uptake in the South Korea for the meta-forest fire model, meta-landslide model, meta-Ko-D-Dynamics model, meta-Ko-D-Hytag model, and meta-FBDC model respectively, detailed 1-km resolution for the period around 2030-2080. In particular, the results of meta-FBDC model, forest carbon uptake, are the final output solving policy issues regarding climate change in the conservation area. These represent integrated impacts of climate change in the conservation area as the meta-FBDC model is the final linkage of the 5 models.

The models could be used to provide reliable scientific information and to assess adaptation measures. These have its strength on solving policy issues by delivering the results fast with much reduced run times. Various adaptation measures therefore could be easily assessed using the models. The models are expected to be used in the establishment of climate change adaptation plans in conservation area in more efficient way.

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Key Words: climate change of conservation area, meta-models, integrated evaluation of climate change impacts

DEVELOPMENT OF CLIMATE CHANGE IMPACT AND VULNERABILITY ASSESSMENT MODEL FOR ECOSYSTEM MANAGEMENT IN SOUTH KOREA

Abstract ID: 1334

Group Submission: Climate Change and Environment Modeling I: Model Of inTegrated Impact and Vulnerability Evaluation of Climate Change (MOTIVE)

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Recently, concerns about impacts of climate change on biodiversity and ecosystems have drawn much attention due to habitat loss of native species, the change of species distribution and expansion of invasive species. The objective of this study are to develop the vulnerability index of species and to assess the climate change impact and vulnerability of species and its habitat in South Korea. We developed the vulnerability index with the distribution change of plant species, and created hotspot and vulnerability maps using the output of an ensemble model of SDMs (Species Distribution Models) adopting the adaptability of species using dispersal ability (unlimited, long, middle, short dispersal). We selected 44 national climate sensitive indicator species plant species, 16 national alien invasive species and 216 national climate change adaptation plants with three range types which are endemic, northern and southern limit in South Korea. Bioclimatic variables were generated using HadGEM3-RA climate data which was created by Korean meteorological agency. Landuse, forest fire and landslide data were incorporated to build the assessment model. RCP4.5 and 8.5 climate change scenarios was used to predict the future distribution in 2030, 2050 and 2080. The results showed that the vulnerability of each species was ranked and changed according to climate change scenarios and adaptation ability and then we can set the priority of conservation plan for vulnerable species. Vulnerable habitats of existing species were detected. Current hotspots of climate sensitive species were located in north-eastern and south coastlines. Central mountain ranges will be new hotspots in the future. Current hotspots of alien invasive species were located in central and south-western regions. They will expand to south coastal line and north- western regions in the future. Current hotspots of plants are located in north-eastern region, central mountain ranges and Jeju island. The future hotspots of plants became small in same regions and changed under future climate change scenarios according to their range types. North-western region and north-eastern coast will be new refugia of species. Therefore, we can make appropriate adaptation policies to conserve vulnerable species and habitats using these results.

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PLANNING FOR CHANGE: HOW DO LOCAL GOVERNMENT-PLANNING EFFORTS IN THE US PLAN FOR FOOD AND WATER IN A CHANGING CLIMATE?

Abstract ID: 17

Individual Paper Submission

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Land-use planning decisions, through zoning, development, and land allocation, impact the availability of and access to water and food in cities and their surrounding regions across the United States (Page and Susskind 2007). Consequently, considerable planning literature has focused on demonstrating the critical links between land-use decisions and water-resource management (Wiering and Immink 2006). More recently, as a result of Pothukuchi and Kaufman's (2000) landmark article calling on planners to pay attention to food, the field of planning has also begun to recognize food systems as a planning issue (Pothukuchi and Kaufman 2000, Raja et al. 2008). While studies of food and water have gained prominence in planning scholarship and practice (Page and Susskind 2007), the links among food, water, and land-use planning in a changing climate have received much less consideration.

This study focuses on the critical links among food, water, and land. Two research questions anchor the study:

1. How do local governments use planning tools to address food and water issues, especially in drought conditions?
2. How do local governments incorporate considerations of food systems and water resources in drought conditions into formal plan documents?

First, I analyze data from a national survey of American planners to understand how local governments use planning implementation tools to respond to water and food issues in drought conditions. Planning implementation tools encompass a range of actions available to local governments to enact strategies, policies, and actions captured in plans or other strategic documents. In this study, planning implementation tools include provisioning of easements, land trusts, legal land protections, density bonuses, development incentives, zoning ordinances, grants, loans, tax incentives, free or reduced-price utilities, public lands and licenses, and publically sponsored programs. I then use a plan-evaluation framework to measure the degree to which local governments integrate food and water considerations into plans prepared by local government and quasi-local government agencies in Doña Ana County, a drought-affected community in New Mexico. The plan evaluation discusses contradictory policies for food and water in plans that undermine resource management in drought conditions. The presence of such contradictory policies undermines the long-term sustainability of water and food resources and highlights the importance of understanding their interconnections.

I find that many local governments across the United States are not implementing planning tools to protect water resources or to help farmers adapt to climate change. Local governments that do take action, predominantly use zoning to regulate land use. In addition, the study reveals that local governments attend to water more than to food issues.

I recommend, on the basis of the results, that planners pay attention to the connection between land use and the food-water nexus. Developing closer working relationships with the water and agricultural community can help local governments better understand the interconnections across the food-water nexus. At a minimum, planners must be cognizant of these interconnections, to reduce unintended impacts of land-use decisions on the sustainability of water and food resources. I also recommend the development and application of new planning tools to address complex feedback that arises from a changing climate. New challenges emerging from climate change require innovative planning strategies.

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Key Words: land-use planning, water resources, drought, agriculture, urbanization

DOES GREEN INFRASTRUCTURE PROMOTE EQUITABLE DEVELOPMENT? THE MEDIATING ROLE OF SOCIAL CAPITAL IN ASSESSING IMPACTS

Abstract ID: 58

Individual Paper Submission

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Planners, policymakers, and elected officials increasingly view investments in green infrastructure, parks and other green development as opportunities for spurring economic growth, increasing environmental quality, and providing social and recreational amenities in urban areas. However, as planners and city leaders focus on these impacts of green projects, research has proposed that equity concerns--such as access for low-income and marginalized groups, affordability, and displacement--are often not adequately addressed, leading to 'environmental gentrification.' At the same time, several works have argued that networks of stakeholders have the potential to support more equitable development, thereby counteracting the potential for gentrification. To date, research has not fully examined the conditions under which more equitable outcomes for green infrastructure projects might be supported and the role of social capital development in addressing these concerns.

To address these concerns, this study seeks to clarify the mechanisms through which green infrastructure planning might support social capital development surrounding housing affordability, gentrification and displacement, and community benefits concerns. Further, it seeks to clarify the mechanisms through which social capital impacts green infrastructure planning and implementation, and policy development surrounding housing affordability, gentrification, and community benefits. The research will examine these interrelationships in two case cities with a prominent focus on planning for green infrastructure, high levels of segregation by race and income, and variation in political context and in project scale and form. Cases include the Atlanta Westside neighborhoods of Vine City, English Avenue, Washington Park, Bankhead, and Grove Park, and East of the River Washington D.C. neighborhoods of Anacostia, Fairlawn, Buena Vista, Barry Farm, Congress Heights, and St. Elizabeth's, areas which have engaged heavily in green infrastructure planning. In clarifying interactions between social capital and green infrastructure planning processes and outcomes, the research will enhance our understanding of how social capital might support an increased focus on equity concerns in green infrastructure planning, as well as on the importance of contextual factors such as state and local political context.

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WILDFIRES AND ENVIRONMENTAL JUSTICE IN CALIFORNIA'S WILDLAND-URBAN INTERFACE

Abstract ID: 61

Individual Paper Submission

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As climate change makes California hotter and dryer, the state's notorious wildfires are becoming more frequent and severe. Meanwhile, the distribution of ecological and social vulnerability is changing. Because wildland-adjacent homes command high prices, market pressure continues to push development and ecological disturbance into the expanding wildland-urban interface (WUI), rendering an increasing area vulnerable to wildfire. Meanwhile, since the late twentieth century, low-income people of color have increasingly been moving from central cities to older inner-ring suburbs in search of affordable housing. However, these inner-ring suburbs are, by definition, distant from the flammable WUI. Managing wildfire requires investing public resources in risk mitigation, fire suppression, emergency services, and post-fire recovery. Consequently, an increasingly diverse suburban population may be footing the bill to protect affluent wildland-adjacent neighborhoods, whose relatively wealthy residents may be putting themselves in more physical danger than they have acknowledged.

This paper will synthesize insights from urban planning and ecology to address the following questions: how do residents of areas burned by wildfire compare with the rest of California, how has this changed since the 1970s, and what are the implications for environmental justice? Four time periods will be examined: the 1970s, 1980s, 1990s, and 2000s. For each, the proportion of residents who are nonwhite and the proportion who are below the poverty line will be measured at the census tract level, using decennial census data. Census tracts that intersect the boundary of any fire during that decade (as mapped by the state's Fire and Resource Assessment Program) will be classified as wildfire areas. Using t tests, we will determine if wildfire areas significantly differ from the rest of California in mean poverty rate and proportion of nonwhite residents. In preparation, we have conducted a preliminary case study of Orange County in Southern California. Our results indicate that wildfire areas have consistently lower poverty and fewer nonwhites than the rest of the county. In addition, these populations have increasingly diverged since the 1970s. We expect to find similar patterns across California, given that Orange County's increasingly diverse population and expanding WUI make it prototypical of California suburbs.

By expanding this analysis to cover all of California, our proposed paper will give a broader picture of how climate change, development, and the suburbanization of poverty are reshaping the landscapes of ecological and human vulnerability to wildfire. The results will have significant implications for environmental justice. If low-income communities of color continue to have little access to open space, then public investment in wildfire management in the WUI will primarily benefit affluent residents. As California grows increasingly diverse, such an imbalance could imperil future political support for wildfire management, threatening the survival of these ecosystems. By analyzing suburbanization's changing demographics and ecological impacts through an equity lens, this paper will clarify the need for long-term regional planning to ensure wildlands are protected in a socially equitable manner that ensures all residents' future enjoyment of this natural resource.

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Key Words: climate change, environmental justice, suburbanization of poverty, wildfire, wildland-urban interface

USING GREEN INFRASTRUCTURE (THE GOODS AND SERVICES OF NATURE) IN A LAND USE PLANNING FRAMEWORK TO BUILD RESILIENT RURAL COMMUNITIES

Abstract ID: 67

Individual Paper Submission

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Planners have important roles to play in addressing the health and liveability aspects of life in rural communities (Caldwell, 2008; Frank and Reiss, 2014). This paper makes an argument that nature/natural systems, or green infrastructure (GI) can be leveraged to plan and build resilient rural communities. There are a number of interrelated ideas associated with the topic: a healthy ecological foundation is required as the basis on which human endeavour can occur using Cato's (2009) strong environment sustainability definition; and the elements embedded within the goods and services of nature are often unrecognized or under-appreciated as to how they benefit humankind, (Corvalán, Hales, & McMichael, 2005).

This paper will provide an overview of recent PhD research on the topic of GI planning in rural southern Ontario. This geographic context has been selected as it is a land use conflicted landscape, comprising various human-condition objectives from diverse governance organizations as well as in consideration of various private and public interests, i.e., a land base used extensively for development, resource activities (agriculture, forestry, aggregate extraction) and natural areas which are limited in extent and variety.

The research was conducted within a mixed method qualitative assessment approach examining the utility of a GI planning framework for use within rural municipalities. A variety of research tools involving a literature review, surveys, key informant interviews and various discussion forums were employed to examine the question "Can a planning systems framework be devised acknowledging the goods and services of nature as a mechanism to build resilient rural communities?" The work has also included a consideration of the following: a clear definition of GI planning, how it can be used in addressing community issues and challenges, what are some of its antecedents, how is it used in various parts of the world, and what are examples of GI program and action elements being used in rural Ontario communities today.

The information from the GI element research is categorized using themes from the European literature: community strategic initiatives; education, recreation and tourism; local food production; soil quality enhancements; biodiversity protection and enhancement; climate change adaptation/mitigation mechanisms; water and stormwater management; woodlands and trees; and other measures, e.g., degraded land rehabilitation efforts (European Environment Agency, 2011). A conceptual planning framework is formulated and is adapted from Rouse and Bunster-Ossa (2014). The GI planning framework is a systems design mechanism illustrating how a strong community foundation can be formulated. The framework clearly outlines the integration benefits of networking traditional built 'grey' infrastructure facilities with the multi-functional GI features of nature that are present in any community.

The research findings will be of interest to planners, policy makers and researchers who are intrigued by the idiosyncrasies of acknowledging, integrating and deriving additional utility from nature/natural system assets in our rural communities. The findings are illustrative of the potential collaborative and co-ordinative attributes of nature within a community. Based on practices found in many locales of the world today, a GI planning framework can be shown to be a useful device to structure conversations and activities around the competing land use interests of public/private sources. The planning framework provides a systematic approach for governments, special interest groups and citizens to work together, and provides utility to addressing issues that cross various municipal operational boundaries. While the beauty and 'priceless' value of nature is at the core of GI planning, the framework moves the planning agenda beyond this to leveraging additional value for human life and enterprise.

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Key Words: green infrastructure, nature/natural systems, rural planning, resiliency

BEYOND CLIMATE-INDUCED MIGRATION: THE INTERACTIONS OF SOCIAL RESILIENCE, VOLUNTARY RESETTLEMENT AND THEIR IMPLICATIONS FOR PLANNING FOR CLIMATE CHANGE

Abstract ID: 72

Individual Paper Submission

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There is an increasing need for planning for climate change to explore with more consciousness of the interaction of climate change resilience and climate-induced migration in rural areas of developing countries. Due to the complexities of each phenomenon and other priorities regarding general research, the explorations have been focused on each topic independently. Nevertheless, in the last decade, there is an increase of study that combines both, focusing on the complexities that each provides to the system. This research evaluates the interaction of social dimensions of resilience and voluntary resettlement after a slow onset disaster. The emphasis is on the social capital aspects that are part of migration agency, by considering a critical single-case study research in Jiquilisco, El Salvador.

Jiquilisco is poor compared to averages in El Salvador and has experienced repetitive losses associated with climate change, most of them related to flooding, landslides, pollution, and droughts. Nevertheless, its residents have been reluctant to relocate. This research considers what is the role of social resilience in voluntary-resettlement after slow onset disasters? The objective is to understand the importance of social capital in the decision-making process to resettle. This study derives from semi-structured interviews with multiple sources of evidence and stakeholders. The data gathering and analysis consisted of the constant comparative method and theoretical sampling.

The research finds two main simultaneously complex and complementary results, first the decision-making process to resettle could be both an outcome of environmental disasters, but also cause a surge of environmental pressure on other cities and regions. Second, bonding and linking is prevalent among its residents, bonding but varies based on age, education, and social class, and strong social ties are essential reasons why residents stay. Linking, on the other hand, is also widespread with ‘ad-hoc’ community organizations and entities to preserve their rights and demand actions from the government to increase their adaptive capacity. Although focused on specific topics like food security and risk assessment, planning for climate change is not part of their agenda.

By understanding this complexity of the social ties and how is impacting the decision to relocate, the practice of the planning field can go beyond the mere inclusion of topics like relocation and resettlement programs in several international policy reports. In cases where social ties are active, a promising approach is to use advocacy planning to take the lead when promoting tools of planning for adaptation to climate change rather than relocation ‘per se.’ Even though, the plans may suggest relocation, the social resilience of communities plays a crucial role in determining whether to resettle or to stay.

In this sense, while planning for climate change, planners also need to understand the reasons behind why people decide to move or to stay to promote attuned actions with coastal communities. Different policies have been considered as adaptation measures and are part of the identification of possible projects, programs and policy actions of public investments and infrastructure. (UN-Habitat, 2011, 2014; UNEP, 2015) These actions were suggested depending on the threat level, the sensitivity of people, places, and institutions, but were considered especially for high hazard areas and informal settlements in which a “planned retreat” or relocation strategies should be part of the plans. (UN-Habitat, 2014, pp. 27, 63, 96).

The findings suggest the need to move away from explicit calls for resettlement of climate-impacted populations and instead provide the services that people want to stay in their locations, based on their reasons for staying. This one case study illuminates these complex interactions of social resilience and voluntary resettlement and are relevant in the many communities impacted by climate change.

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Key Words: Resilience, Climate-Induced Migration, Social Capital, Voluntary Resettlement, Planning for Climate Change

GREEN INFRASTRUCTURE ADAPTATIONS AND AFFORDABILITY: THE CHALLENGE FOR ECONOMICALLY MARGINALIZED COMMUNITIES

Abstract ID: 98

Individual Paper Submission

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As part of the ongoing recovery from catastrophic flooding associated with Hurricane Harvey, Houston and other communities along the Texas Gulf Coast must consider the implementation of adaptations that are both just and affordable. Rapid development in the region over the last 50 years has increased the percentage of impervious surfaces and exacerbated flooding issues because there is less non-developed space to support stormwater absorption. Green infrastructure for stormwater management is often recommended as a sustainable, low-impact solution to localized urban flooding and larger scale inundation; many cities have initiated efforts for their installation. Several green infrastructure design/planning projects are the results of partnerships between universities and communities, which provides the opportunity to amplify solutions to flood related issues through service-learning. However,

there is a concern that urban green space solutions are not equitably available for all, particularly in marginalized communities. Service-learning projects provide an opportunity for making community design schemes more inclusive through university-community partnerships. However, design implementation remains challenging due to the high costs of proposed systems. This paper demonstrates how service-learning projects can sometimes leave socially vulnerable communities with unaffordable sustainable design solutions. Using landscape

performance modelling, we calculate projected costs for a set of green infrastructure proposals developed during a service-learning project in a vulnerable, underserved neighborhood in Houston, Texas. This paper argues that, while the solutions proposed can benefit the neighborhood in the long term, shortcomings include installation and maintenance costs, which create additional environmental and economic burdens for these already marginalized communities.

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Key Words: green infrastructure, service-learning, environmental justice, site planning, resilience

FISCAL VULNERABILITY TO SEA LEVEL RISE: TYPOLOGIES OF RISK, TAXATION, AND TIPPING POINTS IN COASTAL MASSACHUSETTS

Abstract ID: 124

Individual Paper Submission

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Studies of local governments consistently reveal that inadequate funding is an impediment to climate adaptation planning and implementation (Carmin, Nadkarni, & Rhie, 2012). In this paper, we examine how future climate change will further impact local tax revenues, and which cities will be most affected. Fiscal stress due to climate change will affect local capacity to adapt, thereby shaping not only local but also regional vulnerability.

Assessments of local vulnerability to climate change have focused on the exposure of institutional and physical assets, sensitivity of different socio-demographic groups, and magnitude of damages associated with different climate hazards (e.g., Hamin, Gurrán, & Emlinger, 2014; Risky Business, 2014). Although studies recognize that vulnerability and adaptive capacity are unevenly distributed within and across municipalities (Cutter, Mitchell, & Scott, 2000), none have systematically examined how municipal finances will be affected by climate change.

In response to this gap, we present research assessing the fiscal vulnerability of municipalities in coastal Massachusetts to sea level rise. We overlaid six NOAA sea level rise scenarios with spatial information on municipal boundaries, building footprints, tax parcels, and state Department of Revenue data on local property values, tax rates, and tax assessments. We find that at six feet of sea level rise, 99 municipalities in Massachusetts will face direct impacts. In the twenty municipalities with the greatest tax exposure, sea level rise would directly touch buildings or inundate more than 25% of property parcels that currently generate 7 to 24% of the total municipal budget. As a percentage of municipal own source revenues, this percentage rises to 12 to 43%. By absolute value, Boston, Cambridge, and other urbanized cities in Boston Harbor have the largest tax rolls at risk to sea level rise, with a major increase in exposure between 4 to 5 feet of sea level rise. Residential municipalities, particularly those with expensive coastal real estate like Nantucket, Barnstable, and Falmouth, are also at risk. In some municipalities, mostly commercial or industrial properties face inundation, while in others residential properties do, pointing to the need for context-specific coalition building and responses.

This study presents a first snapshot of how one aspect of climate change (sea level rise) will add to the long-term fiscal stress of municipalities. Local governments are responding to current fiscal stress by applying for grants, deferring capital investments, and reducing tax sharing (Aldag, Warner, and Kim, under review). Significant fiscal stress may also affect municipal bond ratings. Vulnerable municipalities may therefore experience a vicious cycle of disinvestment in protective infrastructure that exacerbates climate impacts and property devaluation, even as they compete against each other for scarce federal and state resources. Fiscally, the incentive for vulnerable communities will be to recoup or anticipate their losses by incentivizing post-industrial waterfront development or raising tax assessments on residential properties. Tipping points later in the century may negate the tax base in low-lying areas added over the next fifty years.

Efforts to catalyze local adaptation have prioritized technical assistance and capacity building. This study shows that looming fiscal realities may inhibit investment in adaptation and paradoxically lead to development in at-risk areas. The next generation of local and regional adaptation should therefore consider fiscal and governance reforms that encourage and enable cities to “do the right thing.” The spatial distribution of the most vulnerable municipalities suggests that there are opportunities for regional fiscal strategies, land use policies, or even consolidation. This research is part of a larger project to integrate physical, social, and fiscal vulnerability assessments and to compare these vulnerability profiles across states with different state, county, and local policies on taxes and levels of fiscal stress.

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Key Words: climate adaptation, vulnerability, sea level rise, fiscal stress, municipal finance

LOW-CARBON CITIES IN CHINA: A STATE DISCURSIVE PROJECT IN SHENZHEN

Abstract ID: 212

Individual Paper Submission

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As the role of cities in addressing climate change has increasingly been recognized over the past two decades (Bulkeley & Betsill, 2013), the idea of low-carbon cities has gained great recognition in practice as well as academic and policy discussions. In many developing countries witnessing rapid urbanization, this idea has become a popular way of imagining a future urban world. Furthermore, ‘low-carbon cities’ have constituted a dominant discourse under which urban development and governance is approached. It is unclear, however, how the concept of low-carbon cities is operationalized on the ground and how the general discourse of decarbonization influences the conventional growth-oriented urban institutions.

The goal of this paper is to better understand the the relations between discourse, socio-political contexts, and institutional arrangement for building low-carbon cities. Focusing on the Shenzhen International Low-Carbon City (SILCC), China, the paper addresses three main questions: (1) How is the idea of a low-carbon city operationalized? (2) What is the role of the state in this process? (3) How does the discourse of decarbonization alter development practice and the associated urban institutions? In answering these questions, the paper reveals

the particular obstacles and opportunities faced by cities as they increasingly engaged with addressing climate change. It also explores the progressive potentials within the emerging environmental discourse of carbon reduction to promote urban sustainability.

The research uses a case study design and the findings are mainly based on three field trips as well as 40 semi-structured interviews with related local government officials, professionals, developers and industrial interest groups, community residents and organization members, etc. The case analysis follows Hajer's (1995) argumentative approach to discourse analysis. In particular, the analysis builds on the concept of "story-line" to examine how particular discursive orders in the SILCC were established, maintained, transformed, and translated to practice activities (Hajer, 1995).

I argue that the low-carbon city is a state discursive project. Rather than an established material goal, a low-carbon city is an evolving process in which the discourse of carbon mitigation introduces a new package of values, parameters and governing logics into development practices and redefines the legitimacy and accountability of urban development. By virtue of the interpretive flexibility within the discourse of decarbonization, the state takes a strategic position to retouch the relationships between the economy, the environment and the society.

Being situated at the intersection of the works on sustainability policy, urban development politics, and environmental discourse, this paper aims to add to an accumulating body of literature on urban-scale solutions to climate change in general and urban low-carbon transitions in particular. More specifically, it interrogates how 'carbon rationing' in urban governance—a process of strategic calculation driven by the instrumental goals of cutting carbon emissions—has profound implications for the local development regime under the developmental state context (While et al., 2010).

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Key Words: Low-carbon cities, Environmental discourse, Urban development politics, China

POSITIVELY RESILIENT? PUBLIC PERCEPTIONS OF URBAN RESILIENCE AND IMPLICATIONS FOR PLANNING

Abstract ID: 218

Individual Paper Submission

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Cities are undergoing rapid economic, social, and environmental changes, while grappling with a wide array of risks and hazards, from climate change to natural disasters. For decades, academics and policymakers have been working to develop plans and policies to better cope with these threats and changes. These efforts have often been couched in terms of building sustainability, hazard mitigation, disaster risk reduction, reducing vulnerability, or adaptation. More recently, these efforts have been framed as a need to build resilience. One of the main explanations for the concept's growing popularity offered in the literature is that resilience has a better social connotation and is more positive than related concepts (McEvoy, Fünfgeld, & Bosomworth, 2013; Miller et al., 2010). Empirical evidence supporting this claim is lacking (Weichselgartner & Kelman, 2015). Moreover there is no consensus on how resilience is defined. Previous work has shown that definitions of resilience differ significantly within the academic literature and among US local government practitioners, but it is still unclear

how these ‘expert’ conceptualizations compare with the broader public’s (Meerow & Stults, 2016). This study uses two survey experiments to test 1) the widely stated, but largely unsubstantiated claim that resilience has a more positive connotation than other concepts; 2) whether the public is more likely to support policies aimed at increasing a city’s capacity to deal with challenges when they are framed in terms of ‘resilience;’ and 3) how the public conceptualizes resilience. Specifically, we test support for policies and conceptualization of four terms that are commonly used in the literature: making cities “more resilient,” “less vulnerable,” “more adaptive,” and “more sustainable.” Survey 1 was conducted on a convenience sample (n=500) of US-based adults drawn from Amazon’s Mechanical Turk crowdsourcing platform. Survey 2 was conducted on a broad national sample of US adults (n=1000) fielded by Survey Sampling International (SSI).

Overall, we find significant differences in policy support and perceived importance, which we trace back to variations in how the concepts are interpreted. Most surprisingly, the results suggest that respondents are significantly more supportive of these efforts when the term “sustainable” is used in comparison to the term “resilient”. We find no differences, however, in perceptions of how positive these two terms are. Analyzing open-ended questions about the meaning of these terms reveals that they evoke different associations. This leads us to hypothesize that the term “sustainable” may elicit more support because people are more likely to think about protecting the environment in that condition. We test this intuition in the second experiment by manipulating whether the supposed city efforts are couched in environmental terms. Our key quantities of interest then are: 1) whether the dynamics observed in Study 1 replicate, and (2) whether they are constant across the environmental manipulation. The results of the second experiment confirm our hypothesis. When the question prompt does not mention the environment we see the same difference in responses between the “sustainable” and “resilient” conditions, with respondents being more supportive when the term “sustainable” is used. However, when the prompt mentions the environment, this difference disappears and there is no significant difference in support for the measure between the “resilience” and “sustainable” conditions. These findings have implications for environmental and hazard planning. The study confirms that framing likely impacts public support for plans and policies, but it calls into question claims that resilience is inherently a more appealing frame.

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Key Words: resilience, adaptation , vulnerability, sustainability, environmental planning

A 3ES REPORT CARD FOR THE 100 LARGEST US CITIES AND METRO AREAS, 2000-2015

Abstract ID: 219

Individual Paper Submission

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Much has happened since Scott Campbell published his 2003 interrogation of the nexus between sustainability and planning. Perhaps the most significant development is that the concept of sustainability has been systematically broadened to add progress toward equity and economic prosperity to original core concept of environmental and natural capital sustainability. These days, whenever planners speak of sustainability, it is usually in the context of “the 3Es” (environment, economics, equity).

Under this paradigm, how much more sustainable are American cities and metropolitan areas today than when Campbell published his seminal JAPA article in 2003? This paper will use the double-decile difference method

(3D) as applied to multiple measures of economic prosperity, economic and racial equity, and natural resource use and pollution levels among the 100 largest U.S. cities and metropolitan areas to identify which are the most and least sustainable, and which have improved or backslid the most since 2000. As a reminder, the 3D method sorts places (e.g., cities, MSAs, census tracts) into deciles along some measure or combination of measures, and then determines how the various decile ranks have changed over time. The advantage of the 3D method is that it can be used to robustly identify rankings and changes in rankings over time even when the underlying indicators have changed, as is typically the case with economic indicators not denominated in constant dollars (Landis 2016). Among the economic prosperity indicators we will examine (for each city and metro area) are median household income, poverty rates, labor force participation and unemployment rates, housing cost burdens, and college graduation rates. Among the environmental and natural resource measures we will examine are rates of resource-to-urban land conversion, wetland loss, residential energy consumption rates, air and water pollution levels and standard violation incidence, and CERCLA cleanup activity. Among the equity measures we will examine are Gini coefficients, segregation indices, various socio-economic measures, and pollution exposure levels, all disaggregated by race and ethnicity. These individual measures will be combined into summary environmental, economic, and equity indices, and then compared across the 2000-2015 period. Additional statistical analysis will be undertaken to identify the degree to which the observed performance levels follow particular spatial or other patterns. Of particular interest will be any correlations between cities and metro areas that have undertaken sustainability planning and/or programming efforts and observed improvements in their environmental, economic, and equity performance levels.

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Key Words: Sustainability, Environment, Economic development, Equity

DECENTRALIZED WATER INFRASTRUCTURE FOR GROWING URBAN NEIGHBORHOODS: ENVIRONMENTAL, SOCIAL, AND FINANCIAL IMPLICATIONS

Abstract ID: 225

Individual Paper Submission

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There is continued concern over the long-term sustainability of conventional centralized water infrastructure. The alternative, decentralized water-conserving technology, such as rainwater harvesting and greywater recycling, has been widely discussed. However, the lack of knowledge around the financial, social, and environmental consequences of city-wide applications of decentralized technology impedes mainstream acceptance of the technology. To bridge the knowledge gap, this study investigates financial, social, and environmental impacts of decentralized technologies for urban water system administrations. We then describe a simulation model that traces dynamics in urban land use, population, water demand, and effectiveness of decentralized technologies. To develop this simulation model, we employ a variety of data sources, including actual household water bills in Atlanta between 2013-2015. The model is applied to a low-income urban neighborhood in Atlanta, where an average household spends over three percent of their annual income on water bills. With this simulation model, we estimate the reduction in water demand and water bills, as well as financial health of an urban water infrastructure system after the introduction of technology (rainwater or greywater system) at a decentralized scale (individual or shared scale). We also evaluate the cost of combining centralized and decentralized water technology, incorporating construction and operation costs obtained from the City of Atlanta's Department of Watershed Management. To account for future uncertainty, we test both slow and rapid development scenarios for our study area. The results of our analysis indicate that decentralized water infrastructure can reduce total

neighborhood water demand by 21-47%. The reduction in potable water consumption leads, in turn, to lower water bills for households and business establishments. Significantly, our simulation indicates a shared system can be operated without harming the financial health of urban water system despite the reduction in revenue from water bills. Overall, our study suggests that decentralized water infrastructures can be both effective and efficient tools for cities to meet growing demands for water and pressures placed on conventional centralized systems without increasing the cost burdens for water on households and businesses.

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Key Words: Sustainable Urban Water Management, Fast Growing Urban Areas, Decentralized Water Infrastructure, Water Demand Simulation, Cost-Benefit Analysis

CREATIVE RESILIENCE: COMBINING URBAN AND MILITARY ADAPTATION CAPACITY IN NORFOLK, VA

Abstract ID: 294

Individual Paper Submission

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At the best of times, federal progress on climate change, whether mitigation or adaptation, has been slow in the United States. As the threat of climate change has become more severe, cities and regions have attempted to fill this void. These efforts have gained more urgency in the wake of the Trump administration's attack on federal environmental capacity and withdrawal from the Paris agreement. While cities are making notable efforts, legitimate questions remain about just how much they can accomplish on their own and to what extent they are hampered by a lack of federal support. This leads to the overarching question: in the context of a low federal commitment to addressing climate change and inherent limits to the capacity of localities and regions to accomplish adaptation, what "back door" federal opportunities can urban leaders leverage to reinforce their own adaptation efforts and elevate a broader adaptation agenda?

One such "back door" that has received little attention in the context of urban studies and planning is the Department of Defense. For at least fifteen years now, the DoD has been taking climate change seriously, factoring climate risks into scenario planning, facilities planning handbooks and building codes. At the same time, think tanks have developed expertise to promote a "climate security" policy agenda both inside and outside of the federal government. In this context, the city of Norfolk, Virginia, home to the largest naval base in the world, has become ground zero for urban/military collaborations for adaptation planning. This raises the following questions: How and why do municipal and military leaders collaborate on adaptation? Does the adaptation occurring alter or overcome commonly understood limits to adaptation? What are the policy and planning impacts of a climate security discourse?

This research is undertaken through a case study method comprised of over 30 semi-structured interviews with urban and military stakeholders, participant observation of multiple conferences from the urban and military perspective, and content analysis of policies, plans and media. Analysis is conducted through a multi-step coding and discourse analysis process attending to discourses, subject positions, and practices.

While there are clear risks to military influences in urban planning, in this case, urban/military collaborations have led to some progress on adaptation. In Norfolk, stakeholders have engaged in a unique adaptation process developed from the ground up; though this appeared to result from a federal mandate, it was in fact initiated by a group of local “champions.” Subsequently, those same leaders have adapted a long-standing, widely-replicated military planning process to directly address current flooding impacts. In one surprising result, the historically antagonistic cities of Norfolk and Virginia Beach are now productively cooperating on adaptation planning. In this sense, the military presence appears to be facilitating more inter-municipal cooperation at the local level, tempering one significant barrier to adaptation planning. The “climate security” angle also has a tangible local impact; as widely respected military personnel advocate for climate action, they engage a broader public.

This military role in adaptation planning has direct implications for a number of American cities with a significant defense presence. But, more importantly, this research is relevant to other forms of intergovernmental adaptation planning and lessons from this context could be instructive for multilevel planning between localities and national organizations such as hospital systems with a vested interest in adaptation. Practice and scholarship of multilevel adaptation planning will benefit from a deeper understanding of urban/military collaborations.

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Key Words: adaptation, resilience, multi-level governance, climate security

COMMUNICATING ABOUT FLOOD RISKS WITH REAL ESTATE MARKET ACTORS

Abstract ID: 300

Individual Paper Submission

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A “science-push” model of expert advising inspires much scientific information about coastal flood risks and sea-level rise. Such an approach attributes failures to heed scientific warnings to ignorance, stupidity, or irresponsibility. This paper offers a contrasting “demand-pull” perspective by focusing on the needs, interests, and capabilities of different coastal decision-makers; investigating what decision-makers in coastal real estate markets want to know about; and asking how they understand coastal flood risk. By focusing on the demand for sea-level rise and coastal flood risk information, the paper aims to improve the effectiveness of this type of scientific communication.

With funding from the New Jersey Sea Grant Consortium, we employed a mixed-methods approach that touched many risk information users. We convened an expert group to characterize the scientific consensus on flood risks in coastal New Jersey, and they produced a concise, insightful report. Then we convened a group of professional stakeholders and policymakers to identify local, state, and federal policy implications of that report; they wrote their own companion report. With these twin baselines, we conducted separate focus groups with professional planners, real property appraisers, and realtors, and one with a mixed group of professionals. Next, we conducted focus groups with recent home buyers in three coastal communities: Asbury Park, Toms River, and Union Beach, NJ, which suffered significant but disparate impacts during Hurricane Sandy in 2012. We took a deep dive into one town, Union Beach, to understand how public policies interacted with real estate market transactions prior to

and following the hurricane. Finally, we quantified the extent to which housing prices incorporated flood risk information using hedonic regression analysis of recent property sales.

Key findings include the following. The econometric model confirms that houses located in floodprone areas sell for lower prices, all else equal. Home buyers experience confusion in interpreting coastal flooding risk data. There are two distinct residential coastal real estate submarkets in NJ – seasonal and year-round. Recent events such as Superstorm Sandy have served to exacerbate this difference. Nearly all seasonal home purchases in desirable coastal communities are transacted in cash, do not require flood insurance (there is no mortgage) and are treated as likely to flood (e.g., nicer interior finishes are reserved for upper floors). Year-round buyers are more concerned with flooding risk, confused by multiple and changing flood-related regulations, and fear that flood insurance will become unaffordable. Among realtors and appraisers, “sea level rise” can be an off-putting term and planners encounter resistance to the use of this phrase and also “flooding risk.” All parties agree it is okay to discuss recent flooding or repeat flooding in communities where this is “a fact of life.” Realtors and planners are aware of the Community Rating System while appraisers are not. There are serious institutional barriers to successful information sharing. For example, planners have parcel elevation data but are not allowed to enter it into the databases used by property tax assessors; the assessors do not otherwise use such data.

The relevance of this work to planning is its (1) identification of the distinct information needs of different participants in real estate transactions, (2) demonstration that professional silos hinder the effective flow of information, and (3) confirmation that “official” information is more important than accurate information at almost every step in the transaction process.

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Key Words: real estate, flood risk, coastal hazards, risk communication

PREDICTING FLOOD RISK INCREASE DUE TO URBAN GROWTH: THE CASE OF TAMPA, FLORIDA

Abstract ID: 324

Individual Paper Submission

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Rising sea levels due to climate change will make U.S. coastal cities more vulnerable to floods. Growing populations and urban expansion can worsen climate change conditions and enlarge hazard impacted areas. When open space land uses are converted to urban land uses, flood risk can increase due to increased floodplain areas and impervious surfaces. Land use change is the result of interaction between human activity and natural resources (Agarwal et al., 2002). Understanding historic land development processes in order to better predict future circumstances helps support urban planning for potential flood risk mitigation.

This research examines flood vulnerability for future urban growth in the lieu of sea-level rise using Tampa, Florida, USA as a study site. It seeks to answer the question: how much urban land will be at flood risk by 2040 and 2100 when considering sea-level rise and projected urbanization?

Drawing from 16 proven determinants, proximity (e.g. waterfront, residence) and density (e.g. slope, population density) variables, for urban growth from the literature, this research employs two analytical methods to identify variable relationships between driving factors for urban change: logistic regression and drop-one experiment (Brown et al., 2013; Pijanowski et al., 2002). Future land use is forecasted using the Land Transformation Model (LTM), a GIS based artificial neural network prediction tool for analyzing relationships between spatial predictor drivers and predicted cell change (Pijanowski et al., 2002). The sea-level rises floodplains by 2040 & 2100 are spatialized using a rising sea level of 0.62m & 3.21m predicted by the National Oceanic and Atmospheric Association by adding to the base elevation of the 100-year floodplains (Berke et al., 2015). Future flood impacted areas are calculated from the forecasted land use change 2040 and the sea-level rise 2040 & 2100.

Due to spatial autocorrelation, systematic sampling methods were utilized with a 330m distance to minimize spatial dependency. The logistic regression result shows that population density and distance to school, significant level at 5%, are negatively related: the less are population density and school distance, the more probable is urban growth. Distance to waterfront and slope are negatively related, and distance to residence is positively related, significant level at 10%. The drop-one model result shows that slope and race variables are the most influential factors, with distance to waterfront and park variables the least. Forecasted model calibration outputs are measured to validate the accuracy of the prediction model: PCM 52.5%, Kappa 49%, Overall Agreement 93%, and Area under the ROC Curve 75%, with all levels showing an acceptable or good level of prediction. The projected 2040 sea-level rise in the extreme scenario case (+ 0.62m) permanently occupies 8.9km², 3% of Tampa's area. When sea-level rise and the 100-year floodplain are combined, 107.9km², 35% of the land in Tampa is under high flood-risk: existing urban 43.7km², future urban 12.8km², and undeveloped area 51.4km². When examining the projected 2100 sea-level rise (+3.21m), 141.2km², 46% of land, which is 33.3km², 11% more land than the 2040 sea-level rise case, is under flood-risk (existing urban covers 68.3km², future urban 15.3km², and undeveloped area 57.6km²). Results suggest that, when predicting sea-level rise and future urban, the Tampa Comprehensive Plan must prepare their hazard mitigation plan for both the permanently inundated existing and future urban areas with increasing flood risk.

This study contributes to the improvement of understanding land change driving factors and predicting urban growth methodology and flood risk. The results will help city officials and communities to identify flood vulnerable areas, to guide direction for urban growth, and finally to establish a more resilient urbanized area.

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Key Words: land change, growth driving forces, land transformation model, sea-level rise, flood vulnerability

THE IMPACT OF HURRICANE MARIA ON COMMUNITY FLOOD EVENT PLANNING AND MANAGEMENT FRAMES: THE CASE OF SAN JUAN, PUERTO RICO

Abstract ID: 349

Individual Paper Submission

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The passage of Hurricane Maria in Puerto Rico has transformed how communities and individuals perceive and manage urban flood risk. The Rio Piedras watershed, located in the San Juan, Puerto Rico metropolitan area is of particular interest given its high population density, its proximity to critical infrastructure, including Puerto Rico's main port and airport, and a history of flood management through channelization and other engineered measures. Our research explores how Rio Piedras watershed community leaders reframed flood event planning and management at the community level after the passage of Hurricane Maria, considering the event's impact on livability.

We consulted twenty-five community leaders using a semi-structured interview format. Data was collected during two time periods: pre-hurricane (January to May, 2017), and post-hurricane (February to June, 2018). Interviews were transcribed and translated for content analysis, with an emphasis on identifying flood event planning and management frames at the community level, and the subsequent reframing as a result of Hurricane Maria.

Preliminary findings reveal that younger community organization participants considered local green infrastructure solutions as a critical way forward. Older participants still emphasized the role of government in flood event planning and management for San Juan area at-risk communities, even though there was a recognition of government led tried and not-so-true engineered solutions implemented at the local and regional levels.

Community leaders' flood event planning and management frames, including the role of green infrastructure, are of particular interest given the insufficiency of current engineered measures to minimize vulnerability due to hurricane damage and a history of implementation of short term local coping strategies. Hygienic versus green city imaginaries will be used to explore the extent to which community leaders adhere to hygienic, engineered visions of the city or advocate transitioning towards strategies that consider ecological processes and functions. Bottom up, ecologically inclusive approaches will increasingly become a key component of flood event planning and management strategies given current financing constraints for engineered infrastructure and an increase in the frequency and severity of extreme storm events in the Caribbean.

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Key Words: flood risk, flood management, green infrastructure, livability

PLAN INTEGRATION FOR RESILIENCE SCORECARD: ASSESSING FLOOD VULNERABILITY AND THE NETWORK OF PLANS IN NIJMEGEN, NETHERLANDS

Abstract ID: 381

Individual Paper Submission

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Different community plans (land use, transportation, environmental) guide growth and development in hazard areas, and thus the integration of multiple and independent plans can significantly impact future community vulnerability to hazards. The Netherlands is one of the most flood-vulnerable countries on earth, with 55 percent of housing located in areas subject to flooding. Although massive coastal engineering projects have largely eliminated the threat of flooding from the sea, significant dangers remain with respect to riverine flooding. To address this in the near- and long-term, the Dutch government has begun to take a new approach—making more room for water rather than continuing to increase the size of dikes. However, a lack of coordination between this “Room for the River” initiative and a community’s network of spatial plans may increase the vulnerability of people and the built environment. Little is known about the degree to which plans are coordinated with the “Room for the River” program and the ultimate influence of plans on flood vulnerability.

This study explores the influence of plan integration on community resilience to flooding in the Dutch city of Nijmegen, the site of the largest “Room for the River” project in the Netherlands. The research questions examined are:

- (1) How well-integrated are “Room for the River” program policies throughout the Nijmegen network of plans?
- (2) How does this integration affect vulnerability to flooding at the neighborhood scale?

A three-phase process is used to evaluate plan integration and flood vulnerability in the City of Nijmegen (Berke et al. 2015): (1) delineate planning districts (e.g, neighborhoods, downtown, ecologically sensitive areas) and hazard zones; (2) determine the level of vulnerability; and (3) determine scores that measure the degree to which plans integrate hazard vulnerability reduction in different districts.

Findings show that the policies of the “Room for the River” initiative are integrated throughout the City of Nijmegen’s network of plans regarding flood vulnerability reduction and natural area protection. However, national, provincial, and local plans and policies are not consistent in reducing vulnerability at the district level. These inconsistent policies are aimed at increasing density and economic development in neighborhoods that are already highly vulnerable.

The Plan Integration for Resilience Scorecard provides scholars and planning practitioners with a new method to assess how networks of plans influence community vulnerability, and to determine the degree to which plans target the most vulnerable geographic areas. It can be used to support the “Room for the River” program’s goal of aligning with local development priorities while expanding the floodplain to reduce national flood risk. The scorecard is recommended to help communities self-evaluate their plans and make revisions to improve integration of vulnerability reduction in local networks of plans.

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Key Words: Plan integration, Flood resilience, Land use planning, Hazard vulnerability, Nijmegen, the Netherlands

ENVIRONMENTAL JUSTICE AND THE PROVISION OF STORMWATER INFRASTRUCTURE: FINDINGS FROM HOUSTON

Abstract ID: 422

Individual Paper Submission

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Land use planning and capital investment in infrastructure work together to generate development patterns. The resulting development patterns may interact with the natural environment to influence the hazard exposure of neighborhoods. Stormwater management infrastructure is intended to mitigate flooding by managing runoff and streamflow of stormwater in an area (e.g. watershed and/or neighborhood). Yet recent research has revealed the unfair distribution of stormwater infrastructure across neighborhoods based on the racial/ethnic composition, suggesting discrimination in the provision of infrastructure (Hendricks, 2017; Mandarano, et al., 2017). However, current research is limited by the types of infrastructure considered.

This research builds on work by Hendricks (2017) to examine the distribution, capacity, and condition of stormwater infrastructure, including not only the roadside open ditches but also buried grey infrastructure, across diverse neighborhoods. Specifically, we address following questions: 1) How is the distribution of roadside open ditches and buried grey infrastructure associated with neighborhood socio-economic composition?; and 2) Does neighborhood socio-demographic composition relate to the adequacy (capacity and condition) of stormwater infrastructure?

This research examines a specific case site: the City of Houston, Texas. Perhaps the largest, most diverse, and most exposed city in the U.S., Houston has been suffering from local flooding problems for the past 30 years, due to its location in a coastal, low-lying area, making it a strong case for examining the equitable distribution of stormwater infrastructure. Our data comes from GIS shapefiles provided by the City of Houston GIMS website (<http://www.gims.houstontx.gov/PortalWS/MainPortal.aspx>). The dataset includes existing location, size, and condition information of roadside open ditches and buried grey infrastructure, including culverts, inlets, and such on. We merge it with ACS census block data, the smallest unit at which demographic characteristics are available. We examine the provision of infrastructure, its condition and adequacy (size, as appropriate for population density), and use bivariate correlations and regression to answer the research questions.

Our review of environmental justice and social vulnerability literature leads us to the following hypotheses: 1) Socially vulnerable neighborhoods have more open ditch systems and less grey infrastructure for stormwater management, when controlling for density; 2) Low-income neighborhoods and neighborhoods of color have more poorly maintained open ditches and culverts; and 3) Socially vulnerable neighborhoods are more likely to have infrastructure which does not meet the city standard. The expected findings of this research have substantial implications for how the reduction of hazard risk for vulnerable populations may be achieved. Understanding the distribution and adequacy of stormwater infrastructure will be helpful to develop land use plans and capital improvement plans to reduce and make more equitable the impacts from flooding.

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Key Words: Stormwater infrastructure, Environmental Justice, Vulnerability, Hazard mitigation, Flooding

BRIDGING POLICY ADOPTION AND POLICY IMPLEMENTATION – AN EXPLORATION OF LOCAL GOVERNMENTS’ SUSTAINABILITY ACTIONS

Abstract ID: 424

Individual Paper Submission

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Scholars of the policy process have long argued the distinctions between policy adoption and policy implementation. Different interests and information are involved in these two stages, and more scholarly attention is needed on the connections that bridge adoption and implementation. The specific characteristics of the policy add complexity to the discussion. To address these gaps, we take four issues – waste management, water conservation, energy conservation within governments, and energy conservation at the community level, and group local policies under these four issues according to their levels of complexity and innovation. We empirically explore factors that influence adoption and implementation in these four policy areas. Our data come from a national survey we conducted with the International City/County Management Association of all municipalities and counties in the United States in 2015. The survey measured the adoption of 6 policies in water, 10 in waste management and 15 in energy at the government level and 10 in energy at the community level. The survey also measured performance in these four sustainability policy areas. 1899 counties and municipalities responded.

We conduct regression models for each of these four policy domains comparing factors leading to policy adoption and policy performance. We also control for the state fixed effects to account for the variances at the state level. Our preliminary results show that factors that influence sustainability policy adoption are more related to local government characteristics such as goals, sustainability staffing and fiscal capacity. By contrast, the implementation of policy is more of a political process that involves voices of different stakeholders - pressure from the residents, pressure from the advocacy groups and pressure from the business. Within each policy arena we find adoption of the more complex issues is driven by the capacity of government while the adoption of the easier policies is more likely to be influenced by the local voices. Lastly, we find local governments with sustainability goals are more likely to take actions in the areas that requires more innovation (such as energy usage), while performance measures are more common in policy adoption in more traditional areas (such as water and waste). Our study bridges the gap between policy adoption and policy implementation, and shows goal setting and technical capacity are most important in promoting innovation, while citizen pressure and performance measurement are more common in more traditional policy areas. Our work enhances scholarly understanding by providing further empirical information on the patterns of policy process.

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Key Words: Policy adoption, Policy implementation, Local government, Sustainability, Plan implementation

EFFECTS OF AUTONOMOUS VEHICLES ON VEHICULAR EMISSIONS

Abstract ID: 427

Individual Paper Submission

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Autonomous vehicle (AV) technology is in its final stages, and related experts predict that AVs will be commercialized within 10 years. Although many researchers have proposed a prospect for changes in the behavior of our lives and the effects on the industrial economy due to the introduction of AVs, there is a lack of research on the environmental impacts, especially on the effects of vehicular emissions to air pollution. The introduction of AVs is expected to bring about fundamental changes in traffic demand, supply, and driving behaviors. These changes will cause total and spatial changes in vehicular emissions, and these changes are important both in terms of Environmental Sustainability and Environmental Equity. Therefore, before the introduction of AVs, thorough investigation should be conducted on factors that cause changes in total amount of emissions and whether the increased emissions caused by these changes are concentrated in a specific region or class.

In this study, we analyzed the effects of driving behavior changes on the total amount and spatial change of vehicular emissions by AV introduction. The changes in driving behavior were considered as two factors: 1) increase in road capacity due to reduction of distance between vehicles; and 2) increase in traveling speed limit due to increase of driving stability. Simulations were conducted by using a virtual transportation network with increasing the traffic link capacity from 0% to 50% and increasing the speed limit from 60 km/h to 140 km/h, respectively.

The simulation results are summarized as follows. First, as link capacity of the virtual transportation network increases, the average link speed increases and the amount of vehicular emissions decreases. Second, as the link capacity increases, the vehicular emission reduction rate becomes larger as the amount of link emission is higher. When the link capacity increased by 50%, the standard deviation of link emissions decreased by less than a half compared with 0% increase. These results show that the introduction of AVs has the mitigation effect on vehicular emissions caused by road congestion. Third, the amount of vehicular emissions shows a concave curve shape as the traveling speed limit increases. The amount of vehicular emissions decreases as driving speed limit increases, but it tends to increase when the speed limit exceeds 95 km/h. Fourth, when observing changes in vehicle emissions per individual link, links with increasing link emissions continue to increase, and links that decrease tend to continue to decrease as link speed limits increase. This is due to the fact that traffic volume is dispersed to the paths with longer distance without traffic congestion as the speed limit increases. Lastly, the standard deviation of link emissions is the smallest at a speed limit of 110 km/h, but the effect is not significant.

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Key Words: Autonomous vehicles, Vehicular emission, Air pollution, Driving behavior change, Virtual network simulation

TRENDS IN UNDERLYING LAND USES ASSOCIATED WITH CONSERVATION EASEMENT PARCELS

Abstract ID: 440

Individual Paper Submission

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Congress originally intended to encourage private property owners of all incomes to preserve natural and scenic resources with significant public benefit, using the federal tax deduction for the easements that meet specific but malleable criteria (i.e., in purpose, placed in perpetuity, and held by qualified easement holders). There is a small but growing body of research that has been examining private land conservation motives, particularly as conservation easements have been increasingly and ubiquitously used throughout the U.S. These studies are limited by small sample sizes (Ernst & Wallace, 2008; Farmer et al., 2011; Brenner et al., 2013) or by the conservation easement holder typology (Rissman et al., 2007). Their findings are disparate but suggest that the federal incentive has some impact (although it may not be the primary motivating factor) in the landowner's decision to place a conservation easement. In central upstate New York, Brenner et al. (2013) found that the land uses on a property, particularly "recreation and wild food prospecting, are among the most powerful and significant predictors of landowners' willingness to conserve conservation easements" (30), as well as owning a large parcel of land.

To continue contributing to the literature on private land conservation motives, our team tested the Brenner et al. (2013) findings and broadened their geographic scope by eight counties in four states, California, Colorado, Minnesota, and South Carolina. Using a fine-scale dataset of easements, their characteristics, their locations, and their underlying parcel values, we conducted a pre- and post-approach in ArcGIS on the conservation easements parcels (and adjacent ones, within a buffer for land use types) in these four counties over a decadal period (1997 – 2008, when data permitted). We determined the underlying land uses of the conservation easement parcels, as well as their size, both before and after the easement placement to ask if there is a consistent and statistically significant pattern/trend that emerges in conservation easement parcel size and underlying land uses, regardless of location or state. These results were also refined by analysis solely on donated easements, or easement holder type, where there was a sufficiently statistically significant sample size.

While our findings do not isolate individual motivations, which can only be ascertained through landowner surveys and/or interviews, they contribute to the growing body of private land conservation motivations by testing an existing finding in one geographic location. They also further distinguish spatial patterns in the conservation easement placement. The results can inform planning policy, particularly since planners can more directly influence the parcels and zoning within their jurisdictions than broader federal tax policy.

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Key Words: conservation easements, federal tax policy, land uses, private conservation motivation

POTABLE WATER REUSE IN THE INLAND SOUTHWEST: UNDERSTANDING PUBLIC PERCEPTIONS

Abstract ID: 472

Individual Paper Submission

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In the face of increasing population, development pressures, and climate change, many regions around the world face freshwater shortages. Planned potable water reuse can improve the sustainability and reliability of water supplies by generating high-quality drinking water from wastewater (USEPA, 2012). While technically feasible, project implementation faces challenges associated with public acceptance and education (e.g., Dolnicar et al., 2010; Hurlimann and Dolnicar, 2010). Though most potable reuse research has focused on large coastal communities, the US Department of Interior predicts that “hot spots” of conflict over water in the arid West are “highly likely” in numerous inland communities. Potable reuse options may be different in these two contexts, not only in terms of the technologies used, but also in the communities’ knowledge of and attitudes toward the required technologies (e.g., Ormerod and Scott, 2013). Furthermore, little is known about the level of public knowledge on various related topics, such as water scarcity, climate change, and the urban water cycle. Due to the impact that information and education may have on acceptance of water reuse, it is important to consider the information the public receives on the topic during planning and implementation, and the sources from which that information comes (Wegner-Gwidt, 1991). Significant knowledge gaps exist regarding these issues for the arid, inland context, making it difficult for inland water planners to understand the feasibility of potable reuse for their communities.

Our study aims to fill these gaps using a large (n=4,000) survey, which was preceded by focus groups, debriefing sessions, and pretesting to hone the survey instrument. We used Albuquerque, NM, as a case study, with water utility customers as our sample population, and collaborated with the Albuquerque Bernalillo County Water Utility Authority. Our main objectives were to determine public acceptance of two types of potable water reuse and whether or not the type of educational materials provided to respondents affected their level of acceptance. We tested educational materials with three different themes, which have been linked to increased acceptance of reuse in the water reuse and water communication literatures: 1) water scarcity and reliability of supplies, 2) the environmental benefits of wastewater reuse, and 3) the urban water cycle and current unplanned reuse practices. A fourth set of materials (no educational information) served as a control. Aside from acceptance of reuse, the survey also collected data on the population’s climate change perceptions, water use at home, level of trust in various entities, and demographic data. The response rate for the survey was 46%. Preliminary data analyses using R Studio and Excel indicate that there is: little difference in acceptance levels across the different educational materials, a relatively low level of trust in the local government and media, a high level of trust in academic researchers and public health professionals, and relatively high levels of awareness of climate change and water scarcity issues. Also, our population had a much higher overall acceptance of potable water reuse as compared to populations from other studies found in the literature. It appears that several factors may have predictive power in the likelihood to accept potable water reuse. Water planners in New Mexico and other arid inland regions can use the final results of this survey to make informed decisions on public communication and education processes, which are necessary to the success of water reuse projects. This research was supported by the National Science Foundation (award 1345169).

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Key Words: Potable water reuse, water scarcity, public perception, community survey, education

RACIALIZATION IN INFRASTRUCTURE REBUILDING: LESSONS FROM SEWER SYSTEM UPGRADES IN SAN FRANCISCO, CA

Abstract ID: 504

Individual Paper Submission

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This research examines how the rebuilding of crumbling wastewater infrastructure systems across the country presents an opportunity to advance racial justice. Critics of technocratic planning methods of the past argue that the next wave of wastewater systems should be less centralized, both in their management and design. Christian-Smith and Gleick's (2012) call for a soft-path to water, for example, involves creating more system efficiencies by better matching resource management to users' needs. These ideas are echoed in Sedlak's (2014) Water 4.0 concept, which proposes greater engagement on the part of homes and neighborhoods. Yet, despite the well-documented environmental burdens created by wastewater infrastructure in low-income communities of color, these frameworks pay minimal attention to the potential role of marginalized communities in the rebuilding process. This research suggests that the repair of wastewater infrastructure is a site for critical engagement due to its potential to reproduce patterns of racial exclusion, as well as well as an opportunity to create infrastructure that is socially just. It builds on environmental justice theory's insights on the politics of scale (Swyngedouw and Heynen 2003; Sze et al. 2009) to draw conclusions on how the involvement of low-income communities of color in the planning process reshapes our understanding of the future role of wastewater infrastructure in cities. I posit that there is a scalar mismatch between the goal to decentralize wastewater planning to individual service users and neighborhoods and the risk of gentrification and displacement low-income residents of color face.

In San Francisco, wastewater planning's racialized history and efforts to avert patterns of exclusion have converged. Eighty percent of the city's wastewater is treated in Bayview-Hunters Point, a historically African American neighborhood. At the same time, the city's utility is the first in the country to adopt an environmental justice policy. The attempt to correct-course the sewer system is complicated by citywide gentrification and displacement trends. In this research, I illustrate how the physical renovation of the treatment plant involves turning a burden into an asset in a gentrifying neighborhood and ask how scalar bounds of the infrastructure are conceptualized and enacted. How does planning conceptualize the relationship between infrastructure upgrades and their implications for residents, and how are these conceptualizations racialized? How does the involvement of longtime Bayview Hunters Point residents in the planning process rescale the implications of the upgrades to consider citywide and regional "African American out-migration" (Wilson 2012) trends? What practices avert emergent forms of racial inequity through infrastructure rebuilding?

I find that the transformation of environmental burdens into assets represents a shift in how infrastructure planning can support social justice—it is at once a stimulator of gentrification and a potential averter of displacement. Empirical data is derived from semi-structured interviews with public works officials, leaders of community-based organizations, and consultants from technical services firms; participant observation; and in-depth analysis of policy documents. My findings provide insight on how infrastructure rebuilding is implicated in larger citywide and regional trends, helping build theory on the link between infrastructure and racialization.

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Key Words: Wastewater, Environmental justice, Infrastructure, African-Americans, Gentrification

SUSTAINING COLLABORATION THROUGH INEVITABLE DISRUPTIONS: NAVIGATING TURNOVER IN LONG-TERM ENVIRONMENTAL MANAGEMENT COLLABORATIONS

Abstract ID: 505

Individual Paper Submission

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Collaboration in environmental planning and management contexts has become not only ubiquitous but increasingly mandated (Cheng 2006; Monroe and Butler 2016). As it has become more widely practiced, collaboration in environmental management has become an increasingly long-term endeavor. Environmental problems require notoriously long-term solutions to restore ecosystems and build resilience, opportunities to address uncertainties through learning and adaptive management efforts, and collaboration through implementation and monitoring to hold management agencies to account for the agreements established in planning phases (Margerum 2011). Some collaborative groups have now spanned decades.

In such contexts, collaborative groups will face inevitable disruptions. Principally among these disruptions is the simple reality of turnover. Collaborative groups that span many years inevitably face turnover due to retirements, promotions, fatigue, personal reasons, and numerous other events in people's lives. Agencies and organizations enter into collaborative arrangements, but often they depend on the individuals and relationships of specific participants in the collaborative to come to agreement and get things done. Others have written about the importance of trust and relationships in shaping collaborative accountability to ensure that agreements are adhered to by participating organizations (Weber 2003; Romzek et al. 2012). In a context that depends so extensively on relationships and trust to ensure accountability, turnover can test the collaborative's ability to effectively influence agency and organizational decision-making processes to ensure environmental management goals can be achieved.

In this paper, we examine this question through a series of comparative case studies of collaborative groups participating in the Collaborative Forest Landscape Restoration Program (CFLRP). Established in 2009, CFLRP is unique among federally mandated collaborative environmental management programs in that it requires collaboration through planning, implementation and monitoring and it comes with a budget allocation to support implementation of projects for a 10-year period and multi-party monitoring for 15 years. The program applicants had to demonstrate that they had undertaken successful collaborative projects before, so in most cases, the collaborative groups were well established and have now been engaging in new forest restoration work for 8 years on top of their previous collaborative work. In these cases, collaboration is required, but the authority and responsibility for restoration work rests on the US Forest Service on national forest lands.

Our research spans the first eight years of the program and identifies cases where turnover has been impactful to the group. Through analysis of transcripts from more than 120 interviews over time, we examine how they handled turnover of key personnel and participants to draw out lessons for collaborative sustainability and resilience. Turnover partly stems from the longstanding practice of the US Forest Service to move personnel from place to place to ensure that objectivity could be retained and collusion minimized. Our interviewees pointed to numerous staff positions changing, new forest supervisors cycling through, and a lot of "actings" [temporary

personnel] filling in. Changes in collaborative leadership likewise was experienced by several collaboratives and was particularly impactful when founding leaders or facilitators moved to another region and the collaborative had to recover their footing with new facilitators, new coordinators, and even a restructuring to account for the loss. In our cases, we seek to identify how participants reconstruct lines of communication, build trust and relationships among new parties, and reestablish a process for engaging in dialogue and making decisions that can sustain collaboration in the face of disruptions over the long-term.

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Key Words: collaboration, turnover

USE OF DEEP MAPPING FOR CO-PRODUCTION OF KNOWLEDGES IN PLANNING: LESSONS FROM COVER CROPPING IN NORTH CENTRAL ILLINOIS

Abstract ID: 510

Individual Paper Submission

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Planning, and particularly environmental planning and community development, calls for co-production of knowledges, in order to recognize many different voices and build relationships between people and organizations in changing environments. Actor network theory is an ontological framework for exploring the co-production of knowledges in material and natural worlds that has been used in studying scientific and technological systems and environmental change but is rarely applied in urban planning (Rydin, 2012). This paper draws on a case study of adaptation of cover cropping in agriculture from the perspective of actor network theory and a related methodology of deep mapping to make recommendations for planners on the use of deep mapping in understanding and participating in co-production of knowledges.

Actor network theory is often critiqued for its neglect of broader state politics and global markets, but it is useful in the context of knowledge production, community development, and agriculture because of its ontological orientation that draws in non-human actors as equal contributors to emergent adaptation strategies (Rydin, 2012; Schneider, Steiger, Ledermann, Fry & Rist, 2010). Actor network theory uses research tools, such as spatio-temporal maps and descriptive narratives (or deep mapping), to represent the activity of network building among key actors (Latour, 2005; Read & Swarts, 2015).

In this paper, I explore deep mapping as a methodology and performative activity to explore and represent the interactions among farmers, agricultural institutions, local ecologies, as well as the larger climatic and economic forces (Springett, 2015). Exploring such interactions in different cropping systems through actor network theory and deep mapping exposes the various actors, knowledges, and practices involved in network formation among a certain agricultural system (i.e., cover cropping). Following Read and Swarts' (2015) use of the theory, I ask the research question, how did cover crops come to be? To answer such question, I compare cover crop farming with conventional farming in the Vermilion River Watershed in Livingston and Ford County, Illinois. Doing so allows me to understand how co-production of knowledges and network building differ amidst a divergent adaptation strategy.

Initial findings from farmer and agricultural personnel interviews and field day visits suggest that economic and social factors are not causal indicators for farming behaviors, nor do such factors alone inspire

innovation or create new knowledges. Instead, a more nuanced form of knowledge production—through experimentation, tradition, collaboration, and scientific rigor—better describes the emergence of cover crops in my watershed. Soils, hydrologic features, climate, and farm policies also take active roles in the formation of the landscape and knowledge networks. To capture such intricacies, deep mapping uses farmers’ narratives, farmer created drone footage, farmer identified artifacts, and co-created visual representations of the landscape.

The purpose of this paper is to show that actor network theory offers important tools, such as deep mapping, for research on knowledge networks, community development, and agriculture. Through exploration of the particular case of cover cropping in north central Illinois, I demonstrate that deep mapping is also useful for exploring network building and knowledge co-production in community planning and development scenarios, especially in the context of environmental change.

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Key Words: knowledge co-production, actor network theory, deep mapping, community development, conservation agriculture

THE PROCESS OF ECOLOGICAL PLANNING: A NEW MODEL FOR INTER- AND TRANSDISCIPLINARY SOCIAL-ECOLOGICAL COLLABORATION

Abstract ID: 519

Individual Paper Submission

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In recent years, scholars across disciplines have increasingly focused on the overlap and integration of urbanism (planning, design, landscape architecture, etc.) with natural science (ecology, hydrology, geology, etc.). The reason is readily apparent. In an interconnected world dominated by wicked social-ecological challenges and opportunities, both built environment professionals and biophysical scientists must find new inter- and transdisciplinary ways of theorizing and conducting their work. Within urban and regional planning, this imperative has generally fallen under the broad heading of ecological urbanism or ecological planning.

While its general meaning is straightforward, there remains a pressing need to define ecological planning in clear, precise, and actionable terms. A particular challenge in this regard has been to understand ecological planning process: the phasing over time of actions and interactions by real collaborative teams. In the words of Nassauer and Opdam (2008), there is a “great need” to understand “the impact of different forms of scientific knowledge on the planning process” (p. 643).

What defines the process of ecological planning? At ACSP 2018, I will present the results of rigorous qualitative research aimed at answering this question. As Nassauer and Opdam (2008) explain, it is a question that must be addressed by diagramming (visually) how the workflow of science and urbanism can integrate and intersect. Several recent scholars have taken this approach, including Steiner (2008), Childers et al. (2015), Felson et al. (2013), Hinnert et al. (n.d.), and Nassauer and Opdam themselves. Each of these process models is a box-and-arrow diagram, which shows the relationships between actions and/or actors in a stepwise fashion. Each one reveals much about how science and the built environment can fit together. However, these and other existing

process models also exhibit two consistent drawbacks: 1) a graphic format that struggles to convey the underlying depth, clarity, and complexity of thought, and 2) an emphasis on uniqueness, based upon a small set of complicated case studies, as opposed to broader interdisciplinary consensus-building and synthesis.

In contrast, this research employs semi-structured interviews with 18 ecological planning experts from both academia and professional practice, including ecologists, biologists, geologists, engineers, planners, designers, landscape architects, and real estate developers. Coupled with these interviews are online and in-person interactive diagrams: a firsthand picture of each participant's workflow process. Through methods of transcription, coding, content analysis, and graphic design, the final research product synthesizes these individual insights and diagrams into a new model of ecological planning process. This model uses a unique graphic format that is more dynamic, flexible, aesthetic, and comprehensive than existing box-and-line diagrams, and that is more thoroughly grounded in a broad expert consensus. Within this new definition of ecological planning process, conference attendees will find specific and important roles for themselves (as planning scholars and practitioners) to fulfill: collaborating in inter- and transdisciplinary teams at the intersection of science and urbanism, both creating social-ecological knowledge and reciprocally shaping the form and function of the built environment.

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Key Words: ecological planning, ecological urbanism, process model, semi-structured interview

LOCAL KNOWLEDGE LANDSCAPES: UNDERSTANDING CURRENT PROGRESS AND ONGOING NEEDS TO BUILD RESILIENCE IN COASTAL CALIFORNIA

Abstract ID: 534

Individual Paper Submission

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Theoretical Context and Questions

There is strong agreement in the climate adaptation literature that some transformations in infrastructure systems, social systems, economic systems, and governance systems are needed to build long-term resilience (Kates et al., 2012). Moreover, many recognize that local governments will be on the leading edge of these resilience building efforts (Meerow et al., 2016). While authors such as Moser and Tribbia (2007) note that we need more than just information to create such changes, the current literature does not sufficiently address the specific strategic intervention points that will allow local jurisdictions to achieve these transformations. In this context our research explores three critical questions regarding knowledge systems and sea level rise planning: 1) What is the current quality of each region's sea level rise planning efforts? 2) What regional differences lead to various level of progress? and 3) Where are the knowledge opportunities for intervention?

Approach & Methods

In this project we address this knowledge gap with special attention to empirical data and research into 'on-the-ground' practice. Specifically, in our project, we develop a quantitative assessment framework build on prior

work by Woodruff and Stults (2016) and Baker et al. (2012) to determine the current quality of sea level rise planning efforts and identify the opportunities for intervention. We use a mixed methods approach to characterize seven aspects – written plans, physical infrastructure projects, public awareness, social justice, governance, and use of science – of resilience building progress at the local government level. We used web searches, written surveys, and group and individual interviews with key sea level rise stakeholders to gather and analyze the quality and content of local progress.

Preliminary Findings and Contributions

Our preliminary findings show that while regions are making planning progress, the extent and quality of that progress varies widely. Some regions are leading the way in terms of high quality vulnerability assessments, while others are stronger in terms of implementation of policy changes. Additionally, while there has been progress on public engagement, we find that all regions struggle with engaging vulnerable populations. We also find that regional variations are primarily driven by resources available, public pressure for action, and the presence of local champions. This work contributes to the literature on climate adaptation planning and local practice, by proposing a method for quantitative comparison of coastal communities in the context of sea level rise. Moreover, by closely examining local progress on sea level rise adaptation planning, we shed new light on critical areas for strategic intervention to develop resilience in the face of climate change.

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Key Words: climate change, coastal management, knowledge systems, resilience, transformations

NEEDS ASSESSMENT OF WATER-RELATED DECISION SUPPORT TOOLS

Abstract ID: 555

Individual Paper Submission

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Communities face a range of water-related issues, from flooding and stormwater management to drought and insufficient quality water. Uncertainty associated with climate change exacerbates these issues, and we need tools to make effective development decisions based on current and future climate events (Quay 2010). Geospatial models and scenario planning tools are becoming an indispensable part of a planner’s toolkit because of their ability to visualize and analyze the potential impacts of water on populations, natural resources, and infrastructure (Nay et al. 2014).

NOAA’s Office for Coastal Management funded the American Planning Association to conduct a needs assessment of water-related decision support tools (DSTs) to help planners make land use decisions. The goal of the study was to identify needs of practicing planners that are not being addressed by existing DSTs, so that new DSTs can be designed to fill the gap. Based on this goal, the study addresses three questions: i) Which key issues

are not addressed by the existing water-related DSTs?, ii) Which aspects of DSTs make them useful and what are the challenges associated with using them?, and iii) If new DSTs are created, on which water issues should they focus on and what should be their features?

The needs-assessment methodology was as follows: first, we reviewed existing needs assessments of water-related DSTs in both the grey and academic literature. Second, we convened a one-day stakeholder workshop (n = 38). The stakeholders included APA members working in planning practice (users), members representing national organizations (subject experts), and DST designers (software developers). The workshop involved large and small group facilitated discussions on pre-selected questions. Third, we conducted a survey of practicing planners and professionals working on water-related issues to understand their needs and perspectives regarding DSTs.

The literature review, workshop, and survey provided several insights about how to support planners in their water-related work. There are a wide range of existing DSTs related to water (The Trust for Public Land 2015). However, this study shows that they are not user-friendly, do not allow analysis at different scales, and cannot be integrated with other tools. The end-users want DSTs that allow integration of existing tools (e.g., FEMA floodplain maps), increase awareness of existing DSTs especially related to flooding and green infrastructure, and provide additional training on how to use DSTs.

The study also demonstrates that practicing planners spend only a part of their working time on water-related efforts and they want tools that can be easily used to analyze issues related to flooding, green stormwater infrastructure, and water supply. Based on their feedback, we recommend development of two types of tools: 1) Tools to understand flood impacts from multiple sources (e.g. coastal and riverine flooding). This can help planners better understand potential flood impacts on existing and proposed development; and 2) Tools to understand the impacts of low-impact development (LID) or green infrastructure interventions on stormwater management. These tools could support analysis of existing and proposed site conditions and impacts of LID and related changes on impervious cover. In addition to being a standalone tool, such tools could also be added to the existing DSTs such as National Stormwater Calculator and Stormwater Management Model.

The challenge for the future tool development is to create DSTs that are user-friendly but are simultaneously multifaceted and can be used to perform more than just one type of analysis.

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Key Words: Water, Decision Support Tools, Flood, Climate Change

CLIMATE ACTION PLAN IMPLEMENTATION: A LONGITUDINAL STUDY OF KEYS TO SUCCESS

Abstract ID: 585

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In this study we identify the keys to successful implementation of community-wide climate action plans in the U.S. In addition, we examine how implementation has evolved and matured as climate action planning becomes institutionalized. The emergence of climate action plan (CAP) development has been a frequent subject of research over the last five to 10 years (e.g. Bassett & Shandas 2010; Stone et al, 2012; Shi et al. 2015). These efforts describe the content, context, quality, and need for such planning. Because most CAPs are less than 10-years old, there have been few opportunities or efforts to evaluate implementation and effectiveness. In 2012, the authors conducted a survey, plan assessment, and follow-up interviews with cities that had adopted a CAP. In this research, the survey, plan assessment, and interviews are repeated 5 years later with an added focus on implementation methods, lessons learned, and effectiveness.

Surveys on CAP implementation were sent to 105 U.S. communities in 2012 (representing the known population of CAPs at the time) and there was a 48% response rate. A revised survey focused on changes and lessons learned was sent in 2018 to the 50 respondents from the 2012 study. The initial survey identified keys to success for plan development and implementation including cultivation of broad based community support, diverse funding sources, and institutionalization of climate planning. This initial study was limited, though, because most communities were very early in the implementation phase and had little to report. This follow-up study offers a new perspective on climate planning as there are now cities with six or more years of implementing their plan. Many of the measures in a CAP have prolonged implementation periods, as well as lengthy period of time needed for intended outcomes to be observable. This research seeks to identify lessons learned through prolonged pursuit of climate planning goals. The research seeks to discover where have these cities experienced the most success and to what factors do they attribute this effectiveness. In addition, how these plans and the implementation of them have changed over time will be assessed.

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Key Words: Climate Change, Climate Action Planning, GHG reduction, implementation

FLOWING VALUES: COST RECOVERY, CONSERVATION, AND SOCIAL EQUITY IN U.S. DRINKING WATER PROVISION

Abstract ID: 612

Individual Paper Submission

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Central theme: In the United States, a sophisticated system of drinking water delivery has developed over more than a century that provides healthy, high quality of water to a majority of residents. But the benefits of that high quality system are not felt by all citizens. Recent experiences in Michigan and Kentucky illustrate that water shutoffs and threats of water system privatization leave many low income and minority communities with inadequate or unhealthy supplies (Vanderwark 2012). Most research into the environmental justice issues around drinking water have been important, but limited, case studies (e.g. Butler, Scammell, & Benson 2016). Many of these have started to show that while drinking water quality makes the headlines, the cost of water to customers is an increasingly important issue (e.g. Colton 2017). At the same time, local governments, which own the majority of public drinking water systems in the US, must wrestle with keeping operations financially solvent and recognize the growing importance of water conservation in increasingly resource constrained regions. In this paper, the authors describe the characteristics of those communities that seek to protect low-income residents from water shut offs and those that seek to implement a range of water conservation measures.

Methodology & findings: Using a 2015 survey of local governments from across the country (n=1,899) in a pair of logistic models, we find that government-owned utilities are more likely to both protect residents from water shutoffs and increase water conservation efforts. However, state regulators of publicly-owned utilities, public utility commissions, seem to push these local operations towards full cost recovery at the expense of social equity and environmental conservation. Suburbs tend to have a higher likelihood of implementing shutoff protections versus urban areas, where such protections are more important to low-income families. Local governments that experienced a drought are more likely to conserve water. Communities with social equity expressed as an explicit planning goal are more likely to protect low income households, yet having environmental protection as a priority does not increase conservation. The research points to the importance of publicly-owned water utilities in balancing the three dimensions of sustainability and the struggles utilities face as they are held to high cost recovery standards. It also indicates the importance of communities articulating social equity goals to provide a framework for decision making around the provision of public services.

Relevance: Engineers and water system managers often oversee infrastructure, but planners are often tasked with coordinating local land use and sustainability policies (Andrews, Popper, Lowrie, and Stiles, 2018). Yet, even in small- to medium-sized municipalities, the provision of basic services is a complex task with pressures to balance fiscal solvency, social equity, and environmental protection. As pressures increase to privatize water systems, local governments need to understand the value of municipally-owned operations versus those owned by investors.

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Key Words: drinking water, infrastructure, local government, sustainability , social equity

TRANSFORMING INCINERATORS INTO COMMUNITY AMENITIES? THE SEOUL EXPERIENCE

Abstract ID: 656

Individual Paper Submission

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This paper explores the possibility that pairing desirable community amenities with polluting, industrial, or otherwise unwanted sites such as waste incinerators, may have the potential to mitigate or even compensate for negative local impacts. The environmental justice literature shows that polluting sites tend to disproportionately affect low income and disenfranchised communities. Could this be reversed by linking positive amenities to polluting sites? The South Korean experiment with building community amenities (recreation centers, pools, gyms etc.) at waste incinerators may provide answers to this intriguing question.

Municipal waste incinerators are typically considered Locally Unwanted Land Uses (LULUs) because of the toxic air pollutants they emit and the truck traffic they generate. Yet, many nations, in particular in Northern and Western Europe, as well as Japan and South Korea rely heavily on incinerators for waste management. Modern incinerators are typically waste-to-energy facilities, generating heat and power fed back on the grid or distributed via district heating infrastructure. Air quality and public health impacts – the major concerns being heavy metals

and dioxin emissions- are mitigated via strict regulatory standards and through Best Management Practices, mainly high temperature combustion, filters and scrubbers.

Despite these advantages and BMP advances, incinerators continue to pollute (it is not unusual for incinerators to fail emissions standards), and are necessarily associated with garbage truck traffic. In addition to well-documented health and environmental impacts, incinerators –as other LULUs- can negatively affect neighborhoods' reputations and lower local land and housing values.

In this context, we explore the unique case of South Korea, the only country to our knowledge that associates positive community amenities to the construction of waste incinerators to mitigate their negative impacts. The Seoul Metropolitan Area (SMA) hosts about 50% of the South Korean population, and 17 of its 49 waste incinerators. In 2013, nearly 2 million tons of waste were incinerated in these facilities (about 59% of the waste generated nationwide). These incinerators generate heat (1790 GJ) and electricity (120,000 Mwh) distributed to local communities at a discounted price or put back to the grid. Some of these incinerators were built to include swimming pools, gyms and community recreation centers, thus transforming them into community assets. This has the potential to compensate for the negative health impacts of incinerators that may persist (even though they are assessed as negligible in Government studies) and for the negative impacts incinerators may have on neighborhood perceptions and local property values.

We explore the impact of these innovative strategies on the effects incinerators have on local land and property values. We hypothesize that the transformation of LULUs into community amenities may minimize or even render positive the impacts of incinerators on local land values and housing market. We also hypothesize that given these compensation mechanisms, the populations of incinerator impact zones may not be disproportionately socio-economically disadvantaged compared to those in the rest of the metropolitan area, i.e., we may not be seeing environmental injustices in incinerator siting patterns in Seoul.

To test these hypotheses, we employ difference-in-differences (DID) analyses using land prices, property tax values, and socio-demographic characteristics at the district, or gu, level for 2000 and 2010. We ran two DID models, one testing the difference between districts affected by incinerators built with amenities (treatment group) and those without incinerators (control group); and the other testing the difference between districts affected by incinerators built with amenities (treatment group) to those built without community amenities (control group). We present the results of this analysis and its implication for planning practice, not only for incinerators, but potentially for other types of polluting facilities as well.

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Key Words: incinerators, environmental justice, amenities, impact mitigation, property values

TRANSFERRING GLOBAL CLIMATE CHALLENGES TO LOCAL PRIORITIES IN A DEVELOPING CONTEXT: A CONTENT ANALYSIS OF LOCAL-CARBON ACTION PLANS OF 55 CHINESE CITIES

Abstract ID: 801

Individual Paper Submission

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Climate change poses a global threat to the long-term sustainability of the human society. With international collective action largely stalled and nations struggling to fulfill their greenhouse gas reduction commitments, cities are increasingly recognized as the groundbreaking force in addressing climate change. Cities are better positioned to adopt locally-tailored, innovative measures to achieve the congruence of local priority and global sustainability. An emerging literature has sought to identify motivations of local climate policy adoption and assess the quality of local climate plans. Most studies, however, have drawn from empirical analysis of cities in Western Europe and North America, which are primarily post-industrialized, democratic countries with greater local autonomy and less pressure on industrial growth. Relatively little knowledge has been offered with respect to local climate actions adopted by cities in China, which not only is the world's biggest greenhouse gas emitter but also face severe environmental problems in multiple fronts on its own.

This paper presents a content analysis of local low-carbon action plans adopted by Chinese cities, an equivalent of local climate action plans. Unlike in Western cities where climate actions tend to be locally initiated, in China, the National Development and Reform Commission in 2010 started a low-carbon city pilot program (LCCP) to stimulate local actions to address global climate change and achieve low-carbon development. This program to date has included 70 cities over three phases (2010, 2012, and 2017), which were required to make and implement a low-carbon city action plan. We collected the action plans for 55 pilot cities through a combination of online search engine (for publicly released plans) and government information disclosure request. We conduct quantitative content analysis to assess the quality of these plans including policy areas, targets, projects, and policy instruments. A preliminary analysis has revealed that only a small number of cities have specifically included global climate change as an organizing concept for the plan.

Further analysis thus seeks to investigate the relationship between global climate change awareness and the quality and of the action plans. Specifically, we seek to test the following hypothesis: cities with greater awareness of global climate change – i.e. using climate change as an organizing concept, as well as analyzing the impacts of climate change to local development – are more likely to develop a low-carbon action that is more comprehensive – i.e. involving not just the industrial and energy sectors but also residential building, transportation, and daily life consumption, and more feasible – i.e. with specific targets, actions, and projects in each policy area. In addition, we also test whether plan quality is associated with the city's economic and environmental conditions as well as prior experience of international cooperation, particularly collaboration with international organizations and developed countries.

Our research offers an empirical assessment of local climate action plans of Chinese cities and, by comparing with similar plans in Western cities, contributes to the international literature on the role of local cities in addressing the global challenge of climate change.

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Key Words: Climate Change, Action Plan, Plan Evaluation, Content Analysis, China

DECISION SUPPORT FOR URBAN CLIMATE ADAPTATION PLANNING ACROSS SCALES: LESSONS FROM NORTH AMERICAN CITIES

Abstract ID: 820

Individual Paper Submission

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Despite the growing number of urban adaptation planning initiatives for responding to the effects of changing climate (e.g. sea-level rise) and extreme events (e.g. drought and flooding) on built environment, water quality and resource protection, and public health, recent research suggest there exist significant barriers related to implementation uncertainties that hinder translation of adaptation plans into actions (Bierbaum et al., 2012; Biesbroek et al. 2013; Carmin et al, 2012; Preston et al. 2010). This paper argues that overcoming the implementation uncertainties will require decision support tools that generate better and well-informed choices of specific urban climate adaptation options. Thus, it becomes imperative to understand what determines the choices of urban climate adaptation options across a variety of scales.

This paper presents evidence drawn from a systematic review of urban adaptation planning initiatives between 2008 and 2013 across North American cities. The modified Driver-Pressure-State-Impact-Response model published by Rounsevell, Dawson, and Harrison in 2010 provided a robust framework for structuring relevant data from specific cases for analysis using descriptive statistics and binomial logistic regression to generate objective and generalizable outcomes.

The review findings suggest that anticipation of economic benefits, perception of risks to management and conservation of urban natural resources, need to protect and support of human and social systems, and improvement of policy and regulations were significant predictors of the choice of specific adaptation options (namely enhancing adaptive capacity; management and conservation; and improving urban infrastructure planning and development) across a variety of scales. This does not imply that other factors such as information and knowledge; perceived funding and economic opportunities; evidence of climate change effects have insignificant relationships with the choice of adaptation options, only that the review did not find evidence to support such claims.

These findings offer useful guidance to future design and development of decision support tools that could generate viable robust adaptation options while taking account of uncertainties surrounding implementation of effective climate adaptation actions, especially in regions where urban adaptation plans are weak or absent.

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Key Words: Climate Adaptation Planning, Planning and Decision Support, Cities

THE POLITICS OF SCALE IN SPATIAL PLANNING PRACTICE

Abstract ID: 866

Individual Paper Submission

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The politics of scale asserts that scale is socially constructed and politically contested. The scales chosen for diagnosing water quality degradation, for the application of wastewater management policy, or for the construction of green infrastructure are negotiated outcomes of planning and policy-making processes. Even when “natural” alternatives (i.e., watersheds) are present, the complexity of social-ecological systems provides a plethora of scales that are all, more-or-less, natural (Milz, Zellner et al 2017). Thus, stakeholders and decision-makers are required to sift through all these various scales and the interactions that ripple across them. Therefore, the politics of scale relies on the spatial judgments of stakeholders, and scale becomes the product of their “...incessant judgment, subject to critical argument” (Rittel and Webber 1972, p. 162). A scale once adopted becomes reified through practice as planners and policymakers work together using that scale to guide their deliberations.

In spatial planning practice, selecting one scale over another, while reducing the conceptual complexity of the problem, may blind planners and policy-makers to dynamics and solutions at other scales (Cohen & McCarthy 2015). Moreover jumping to the conclusion that a single scale was chosen via a contested political process dominated by powerful interests provides limited advice for practitioners faced with complex problems. However, viewed as an institutional re-design process (Simon 1996; Ostrom 2005), planning and policy-making processes are fertile ground for exploring the unfolding dynamics of the politics of scale. Moreover, understanding these process, in detail, can demonstrate how doing scalar politics need not be an exercise in futility—planners and policy-makers can get scale right without having to pick the right scale.

This paper explores how spatial judgments impact planning and policy-making by studying how a group of stakeholders relied on a pair of cognitive strategies to consider cross-scale relationships (Walker, Gunderson et al 2006). Analysis of video data from community planning workshops dissects the spatial judgments of stakeholders on Cape Cod, Massachusetts as they developed a “regional” or “area-wide” wastewater management plan. Detailed analysis of their deliberations shows a much more complex and dynamic portrait of their scalar politics than one would presume via a casual reading of their adopted plans and policies. This paper demonstrates the wide range of spatial judgments stakeholders may be capable of applying as they make plans for complex social-ecological systems.

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Key Words: Spatial Planning, Scale, Institutional Analysis and Design, Water Quality, Spatial Scale Mismatches

MEASURING ENERGY AND AIR QUALITY IN PUBLIC HOUSING SITES DURING HEAT WAVES

Abstract ID: 873

Individual Paper Submission

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Earth's warming climate gradually increases the likelihood of extreme heat weather events, which can lead to intensified urban heat island effects, higher demand for energy, and worsened air quality both outdoors and indoors [Horton, 2014, IPCC, 2014, Wilby, 2007]. With more intense and frequent heat waves, there is a growing concern for vulnerable populations such as the elderly, and especially those elderly residing in highly urbanized or industrialized areas, with inadequate living conditions and poor access to resources [Belanger, 2015, Zanobetti, 2012].

Our work examines how senior public housing sites perform under heat waves, relative to energy, air quality and well-being. We draw from an empirical study conducted in Elizabeth, NJ, which has the worst air pollution in the state. Our sample consists of 24 apartments and their senior residents, located within 3 different sites; each belongs to a different neighborhood and can be separated from the rest in terms of surroundings, building envelopes, and the residents' profiles. The first 2 include conventional multifamily buildings while the 3rd includes a LEED-rated residential building. Our data come from interviews with the residents (household conditions, socio-demographics, health, heat coping actions) and from sensors installed in the seniors' apartments and outdoors (temperature, humidity, CO₂, PM, ozone, window operation, occupancy, A/C use). Additional information includes apartment and building envelope attributes (number of windows, floor area, height, orientation, HVAC systems etc). All data were gathered during April-October, 2017.

In this paper, we argue that a number of social-ecological factors, such as the local climate and the site characteristics including building systems, social context and individual agency, may jointly affect the heat coping processes; however, some components may be more important determinants to energy use and air quality indoors. The premise that the site defines the seniors' behavior, which may contribute equally or more than infrastructure performance and the outdoor climate suggests that we take an in-depth analysis of the spatio-temporal patterns underlying the variables of interest.

The results of our multi-level regression models illustrate how adaptable different population segments are to heat waves as a function of personal, building and site level, and local climatic characteristics. The outcomes support our hypothesis and suggest that 1) energy use relies heavily on outdoor temperature and building/site attributes, with interestingly low values on the LEED-rated site with central A/C and an overall better building envelope, and that 2) air quality variables like PM and CO₂ have significant links to behaviors, such as smoking, lighting candles/incense, having pets and inadequately ventilating; those are mainly observed in the residents of the two conventional sites, who take more adaptive actions, both indoors and outdoors.

Our findings highlight the importance of human agency in the heat adaptation process, as it is not just about the infrastructures and the adjacent physical environment, but also how people end up using them. They further imply the need for integrated solutions to the heat waves problem across scales; from changes to residents' habits, to building envelope modifications and building operations, and to outdoor space alterations. We provide guidance for communities who seek to transform their built environments along with informing individual behaviors, and we highlight the value of joint collaborations among residents, infrastructure designers, and public officials.

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Key Words: Heat Waves, Air Quality, Energy, Seniors, Buildings

SCENARIO-BASED STORMWATER MANAGEMENT PLANNING SUPPORT SYSTEM FOR COMBINED SEWER OVERFLOWS (CSOS): A CASE STUDY IN CINCINNATI, OHIO FOR A SINGLE CSO POINT

Abstract ID: 874

Individual Paper Submission

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Combined sewer systems (CSSs) are designed to discharge excess untreated water to natural water ways when the combined flow exceeds the capacity of the wastewater treatment system that still serves as a common urban conveyance method in many cities around the world, especially in old towns (Liao, Zhang, Wu, He, & Chen, 2015). Combined Sewer Overflows (CSOs) contain pollutants that can cause serious environmental problems and public-health risks (U.S.EPA, 2014). Green Infrastructure (GI), which can infiltrate, store, and/or detain stormwater at different levels, has been integrated with existing Gray Infrastructure (GrayI, such as gutters, pipes, and drains conveyance and storage facilities) to overcome CSO problem in urban areas (Carpenter, Todorov, Driscoll, & Montesdeoca, 2016). However, there lacks an objective-oriented planning framework from the angle of whole watershed or sewershed aiming at eliminating CSOs. Although the GIs present many advantages on managing runoff, the combination of GIs and GrayIs for solving CSO problems cannot be overlooked. Moreover, the existing spatial units in stormwater simulation, such as catchment areas, place barriers in GI implementation and public participation. Variations within a catchment for spatial distribution, attribution, ownership, and management of GIs are not clearly informed.

To address above gaps, we developed a scenario-based Stormwater Management Planning Support System for CSOs (SWPSS-CSO). The goal of the SWPSS-CSO is to provide a platform for coordinating the installation of GI and GrayI to eliminate/reduce CSOs of a specific watershed or sewershed. The analysis is parcel-based and provides GI's exact amount (retention volume or pervious area), location, associated ownership, costs of construction, and maintenance. Researchers, planners, utility managers, community leaders, and the general can use the SWPSS-CSO to participate in GI planning process to address runoff control and enhance community quality.

The SWPSS-CSO was developed using CommunityViz (v5.0), a planning support extension of ArcGIS, and applied to CSO #488 sewershed in Cincinnati, Ohio as a case study. It consists of three components: scenario generation, scenario modeling, and scenario comparison. One baseline scenario and three alternative scenarios are developed. The baseline scenario presents a sewershed with existing CSS without any GI installation. The three alternative scenarios represent an increasing use of GI by adding practices to the preceding scenario: 1) installation of rain barrels and green roofs on private parcels; 2) installation of porous pavement on private driveways and paved parking; and 3) installation of porous pavement on sidewalks and retention basins on public-owned land. The suitability analysis of each type of GI is based on drainage area, slope, hydrologic soil group, stream buffer, and roof type (U.S.EPA, 2004). Runoff, time of concentration, and peak flow rate are simulated using USDA TR55---Urban Hydrology for Small Watersheds (NRCS, 1986). Results show the third alternative scenario has the best performance among four scenarios by mobilizing 97.25% private parcels and 27.59% public

parcels to attend GI installation, reducing almost 41% runoff comparing to the baseline scenario, and dropping the peak flow rate to 226.19 cfs, under rainfall event of 5-year recurrence interval. However, to eliminate the CSO problem, tanks (GrayI) are needed with 22.57 ac-ft storage capacity. Although GrayIs still play important roles in controlling CSOs, GIs can add meaningful capacity to the stormwater system.

The SWPSS-CSO can further be applied to test more scenarios for other watershed or sewershed, such as scenarios for extreme rainfall event related with climate change, future land cover change, and new types of GI. In addition, the SWPSS-CSO is an open system that allows users to customize objectives, models, indicators, and parameters for runoff-related decision-making needs.

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Key Words: CSO, stormwater management, green infrastructure, scenario planning, planning support system

PLANNING IMPLICATIONS OF CLIMATE CHANGE: A CASE STUDY FOR LOS ANGELES COUNTY, CALIFORNIA

Abstract ID: 878

Individual Paper Submission

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Intensifying climate change calls for attention on who will be affected by climate change in cities and how (Reckien et al., 2017). While planning is increasingly paying attention and contributing to the rapidly increasing literature on climate change adaptation and mitigation, it has paid little attention to understanding vulnerability to heat and its intervention measures. Yet, heat is far more deadly and damaging to health than any other weather event. Climate scientists have been developing and exploiting numerical models to project climate change, e.g., rising temperatures, however, their efforts have not yet been successfully translated into planning practice. Also, the usage of climate change information by planners and policymakers has barely occurred.

Integrating heat projections with demographic and socio-economic data, this study analyzes potential impacts of climate change at a micro-level geography and presents critical planning issues that need to be addressed in the era of climate change. We employ a high-resolution (1.24x1.24 mi or 2x2 km grid) climate data that includes the projected changes in 6.56-foot (or 2-meter) surface air temperature and the number of extreme heat days (daily maximum temperature greater than 95°F) between the baseline period (1981–2000) and the mid-21st-century period (2041-2060) in Los Angeles County, California. The climate data is based on a hybrid dynamical–statistical climate downscaling model (Sun et al., 2015; Walton et al., 2015). This climate data considers a “business-as-usual” scenario, i.e., Representative Concentration Pathway RCP8.5 scenario, in which greenhouse gas emissions continue to increase throughout the twenty-first century (Meinshausen et al. 2011).

We found a significant micro-level geographic heterogeneity in surface air temperature and the number of extreme heat days associated with climate change. The inland regions in the study area are expected to face more severe impacts than the coastal area by mid-century. This implies that increasing suburbanization may aggravate the impacts of climate change. Also, we found that low-income minority populations in the Los Angeles County will be more significantly impacted by extreme heat events. The increases in surface air temperature and the number of extreme heat days are much more likely to happen in suburban and exurban areas with a high concentration of low-income and Hispanic populations if current geographic distributions of these populations continue.

The study presents substantive planning and policy implications. Temperature increase and extreme heat days may not occur uniformly. The micro-level climate change data can provide information about potential impacts and indicate areas where more serious impacts will concentrate. Therefore, this high-resolution data should be part of planning data analyzed for local and regional long-range comprehensive plan making. Heterogeneous locational impacts of climate change may require a new dimension on equity planning and environmental justice. Surface air temperature increases, in particular extreme heat days, will have more negative impacts on the quality of life among disadvantaged community members. Mitigation and adaptation strategies should be specifically developed for this disadvantaged community. Finally, to improve climate sustainability and justice, certain local areas may need to be discouraged for developments. Continuing suburbanization and new development in exurban areas may need to be discouraged, while local areas with the least impacts may need to develop inclusive development strategies. This would require regional approaches in planning for future development and the retrofitting of existing built environments in the era of climate change.

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Key Words: Climate change, Extreme heat days, Equity planning, Environmental justice

ENVIRONMENTAL JUSTICE IN WAREHOUSING LOCATION ACROSS CITIES: INSTITUTIONAL PERSPECTIVES

Abstract ID: 884

Individual Paper Submission

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In response to the growing demand for goods movement, the warehousing industry has experienced an unprecedented expansion in the major metropolitan areas. Such strong and widespread growth has profound environmental and social implications. An increasing number of recent research revealed that warehouses are disproportionately located in minority neighborhoods, and it becomes a rising environmental justice problem that calls for a systematic examination. It is increasingly evident that the spatial inequity exists not only at the neighborhood level, but also between municipalities. The existing research, however, failed to present how municipal institutional factors play a role in the dynamics that cause the environmental inequity. After all, local governments make siting decisions, and their interventions and policies have strong and long-term effects on land

use patterns. These effects are too critical to be ignored in evaluating the environmental justice problem in warehousing location.

In this study, I first identified local public policy elements that affect the location choice of warehousing facilities by reviewing relevant literature and interviewing planners, warehousing developers, and regional agency staff. Then I evaluated the relationship between these policy elements and warehousing development using qualitative city-level data from the Los Angeles region. In this step, I decoupled the local institutional factors from other factors in the warehousing location choice by comparing municipalities which have similar socioeconomic characteristics but different trajectories of warehousing development. With this research design, I was able to recognize how divergent policy making contributes to the gaps in warehousing intensity between municipalities.

Results showed that land use policies (e.g. industrial zoning, land parcel division rules), job related policies (e.g. job creation initiative, job density requirements), financial incentives (e.g. tax rates, financial incentives), and environmental regulations (e.g. building design, buffering between conflicting land uses, landscaping) are the major policy elements that impact warehousing development. There is, however, no evidence showing that local policies have played a major role in linking low-income and minority population with warehousing related externalities so far.

However, as the growing warehousing related environmental threats have caused more and more concerns among local residents, local policies would potentially become a major drive towards environmental inequity in warehousing location. More affluent and educated residents are more likely to organize and lobby the local authorities for anti-warehousing policies. Variations in demographic and socioeconomic characteristics including income, race, and education attainment may eventually be translated into variations in warehousing related policy making and intensity of warehousing development. The currently significant gap in warehousing externalities between municipalities may even widen, making the environmental justice problem more severe.

What should local governments do to cope with the problem after all? First, they should get familiar with how warehousing development is affected by local policies, and how warehousing causes environmental hazards. Second, local governments need to review the current policies, evaluate their socioeconomic resources and capacities, and make practical plans to balance the benefits and costs from warehousing development. Third, local governments may need to work together to reduce the spatial inequity in warehousing location. Regional collaborations can help address the problem. Cities can learn from each other and adopt the most appropriate policies according to their own circumstances. Finally, local governments may consider establishing a policy discussion forum where residents, environmental agencies, regional organizations, and the private sector can sit together to generate policies that are both acceptable to all parties and effective in achieving the shared goals.

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Key Words: Warehousing development, Environmental justice , Local municipalities , Policy making, Qualitative

SOURCE WATER PROTECTION PLANNING IN THE MIDWEST

Abstract ID: 945

Individual Paper Submission

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Amendments to the U.S. Safe Drinking Water Act in 1986 and 1996, required states to create source water assessment programs and conduct source water assessments for all public water systems using groundwater wells (1986) and surface water sources (1996). Source water protection involves keeping drinking water sources clean and fit for human consumption. Impacts from increased urban development, population growth, and climate change all directly challenge the future of drinking water quality and quantity in cities. Connections between land uses and water quality have been well documented, as have participatory planning efforts to protect water quality at the watershed-level (Sabatier et al., 2005; Conroy, 2011). At the same time, studies in planning and environmental management literature have noted a disconnect between water management and land use planning, especially under jurisdictional fragmentation, challenging management efforts (Kim et al., 2015).

While the regulation of drinking water protection in the U.S. is not new phenomenon, there is limited research into the planning and implementation processes utilized by local planning departments and water utilities (Lindsey & Schoedel, 1997). US EPA and state guidance stress collaboration and participation of state and local agencies and stakeholders during the assessment and planning processes (US EPA, 2002). However, it is unclear who is actually involved in the protection planning process, and what collaborative efforts, if any, take place. It is also generally unclear what specific integration (across water and land use management) is necessary to protect drinking water, and what role planners serve in larger institutional and governance processes to protect drinking water sources. As such, this study builds on previous work and asks: how do water and land use governance structures interact during the source water protection planning process?

The methodology for the study includes two parts: a document analysis and survey. The study sample (n=256) includes a total of 128 public water suppliers, as well as their municipal planning department counterparts in five Midwestern states: Ohio, Indiana, Illinois, Michigan, and Wisconsin. These suppliers use either groundwater, surface water, or a mixture of both, but do not withdraw water from the Great Lakes and do not purchase water from another utility or private company. First, I review the most recent source water assessments, protection plans, and associated local comprehensive plans and land use ordinances to examine the elements of protection plans, understand organization across plans/ordinances, and to inform the survey instrument design. Next, I survey water utility managers and city planners to examine the most recent assessment and protection planning processes, analyze connections and integration across local planning efforts, and examine local opportunities for and barriers to successful source water protection.

Results from this research are expected to inform planning practice related to “land-water nexus” and collaborative planning, including identifying explicit points of planning intervention into source water protection. Additionally, the work is most relevant to the recent update to the APA Water Policy Guide that calls for an integrated approach to water management and related policies.

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Key Words: water management, source water protection, governance, collaborative planning

CHARACTERIZING LONG-TERM CHANGES IN URBAN GREEN INFRASTRUCTURE: A COMPARATIVE STUDY OF THE COLUMBUS AND ATLANTA METROPOLITAN AREAS

Abstract ID: 953

Individual Paper Submission

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Urban growth has been coupled with the erosion of open green spaces. The environmental footprints of sprawling developments include the loss of ecological and social services provided by urban green spaces (UGSs), such as mitigation of extreme temperature and air pollution, reduction of surface run-off, and habitat conservation (Lynch, 2016). However, beyond the simple loss of greenness, metropolitan areas have expanded their built-up surfaces in different ways, leading to heterogeneous distributions of urban green spaces (Wheeler, 2015). Using spatial metrics, Debbage et al. (2017) find that urban forms of major US metropolitan cities differ significantly in terms of the contiguity of impervious surfaces. Even though sprawl driven by low-density residential suburbs has generally decreased among most US metropolitan areas, particular metros continued sprawling development for commercial and industrial uses, further fragmenting their green spaces (Debbage et al. 2017). Nowak & Greenfield (2012) analyze the land-cover composition (trees/shrub, grass, agricultural land, built-up surface, water) of 20 major U.S. cities in 2005 and 2009, finding that cities have very different surface layouts with a wide range of variations in vegetation quantities. As more and more cities seek ways to promote sustainable urban development, the quantitative modelling of the spatiotemporal configuration of UGSs is critical for the development of effective greening strategies and judicious land development.

Using time-series satellite images from 1975 to 2015, this study quantitatively characterizes the long-term spatiotemporal changes in urban green spaces in two metropolitan areas – Columbus (OH) and Atlanta (GA). Metro Atlanta is the tenth largest metropolitan area in the U.S., but the city has the highest tree/shrub cover (53.9%) among major US cities (Nowak & Greenfield, 2012). Metro Columbus, ranking 33rd in the nation, is one of the fast growing regions in the U.S., with its suburbs having expanded quickly during the last few decades. Their changing patterns of UGSs are compared to identify similar and divergent trajectories in terms of green space management. The metropolitan scale represents the functional boundary of socioeconomic activities where housing-job-shopping locations are enclosed. Therefore, the long-term impacts of urban developments on UGSs can be best understood at this scale.

We develop the necessary data from 1975 to 2015 using Landsat (4, 5, 7 and 8) satellite multispectral images. To measure the amount and quality of UGSs and other land cover features, we use a set of spectral indices derived from Landsat images: (i) vegetation: NDVI, SAVI, DVI, EVI; (ii) impervious surfaces: NDSI, MNDSI; (iii) buildings/built-up area: NDBI, IBI, VIBI, BCI, NBUI, BUI; (iv) soil: NDSI, RNDI, BI, NDBI; (v) water bodies: NDWI, MNDWI.

These indices represent the levels/intensity of greenness (e.g. trees, shrub, short vegetation, and their health), imperviousness, built-up areas, bare soil, and water, all measured at 30m grid cells (Li et al., 2017). We collect this intensity information per cell for each year and the resulting multi-year database is used to carry:

- (1) Gradient analyses of green spaces and other land covers changes over time and space;
- (2) Clustering analyses, where pixels of similar/close values are regrouped into larger patches;
- (3) Landscape metrics analyses, using area, shape, edge, contiguity, and interspersed metrics;
- (4) Green-space accessibility analyses by interfacing Census of Population data for 1980, 1990, 2000, and 2010, with existing green infrastructure.

The results will highlight the spatial changes in green spaces over time and their substitutions with other land covers in both metro areas, as well as changes in their accessibility and exposure. Similarities and differences will be linked to the histories and policies of Columbus and Atlanta, providing insights for green infrastructure planning.

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Key Words: Urban green spaces, Spatiotemporal changes, Spectral indices, Landscape metrics, Greening strategies

SPATIAL VARIATIONS IN FLOOD RISK ASSESSMENTS: A COMPARISON OF ANALYTICAL APPROACHES

Abstract ID: 956

Individual Paper Submission

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Empirical evaluations of direct observations of flood damages are often used to identify factors that influence household vulnerability to floods. The National Flood Insurance Program (NFIP) provides the most complete information available today on flood-related damages in the United States. Risk and planning researchers who rely on actual flood damage records to guide development, insurance and disaster mitigation decisions typically conduct observational studies of flood insurance claims. Given limitations with data quality or availability, such studies are often forced to make assumptions about the representativeness of available records for a given area of interest (e.g., zip code, county, etc.) in the hopes that the sample is sufficiently representative of the level of risk experienced by all structures in that geography. Flood damage researchers recognize that this methodological limitation may lead to biased results and have called for increasing the granularity of flood damage data for flood risk studies. However, it is yet unknown the impacts of this limitation on the accuracy of flood risk assessments. This paper reports on two different approaches to assess and compare the spatial distribution of flood risk in 540 residential neighborhoods in Harris County, Texas after a major flood disaster event. The comparisons between analytical approaches are made in terms of operational results, and respective advantages and shortcomings with respect to local planning and insurance decision making. Flood insurance data from the NFIP are used for both analyses. The first approach, following the commonly used approach of observation-based studies, summarizes total flood insurance claim payments of residential property damages for each geography of interest, in this case, neighborhoods. The second and less well-known approach uses flood insurance policy and claim information to derive direct measures of flood risk for each neighborhood. Results from both approaches are used to rank and map neighborhoods by levels of risk. Neighborhood and city-wide descriptions of flood risk are then compared using descriptive analyses and visual mapping methods. Each analytical approach provides a different view of neighborhood flood risk with distinct spatial variations across the entire urban landscape. This second approach is considered a more promising and accurate method because it restricts the empirical analysis of flood risk to only those cases with full information concerning damage or absence of damage. Findings from this work suggest that the selection of different flood risk assessment approaches can thereby potentially affect important community disaster decisions, mitigation investments and resilience outcomes.

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Key Words: Flood risk, Observation-based studies, Measurement, Analytical bias, Local decision-making

IMPACT ASSESSMENT OF THE FEDERAL NATURAL AND CULTURAL RESOURCES (NCR) RECOVERY SUPPORT FUNCTION (RSF)

Abstract ID: 962

Individual Paper Submission

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The management and stewardship of the Nation's lands, waters, and public trust resources requires skillful public service supported by sound science based in experience (Driscoll et al, 2012). Thoughtful impact assessments of current public policy programs can provide this support. In 2011, the Federal Emergency Management Agency (FEMA) released the National Disaster Recovery Framework (NDRF) which provides technical support in the form of Recovery Support Functions (RSFs) to local communities affected by disasters (National Disaster Recovery Framework, 2016). This includes the Natural and Cultural Resources (NCR) Recovery Support Function (RSF) which is coordinated by the Department of Interior (DOI) and aims to "preserve, protect, and restore the affected community's natural and cultural resources and historic properties in a way that is inclusive, sustainable, and resilient" (NDRF, 2016, p.32).

Since the program's inception, the DOI's Office of Environmental Policy and Compliance (OEPC) has helped provide technical assistance to help affected states, tribes, and local communities recover natural and cultural resources impacted by 2011 wildfires in TX, 2012 Hurricane Isaac in LA, 2013 floods in CO, 2014 floods in NM Santa Clara Pueblo, and the 2014 mudslides in WA. There has however, been no formal assessment of the effectiveness of the program in promoting effective recovery and local resilience to future disasters, which makes it difficult to correct inefficiencies in the program and improve its effectiveness, or to learn from its experiences to improve other recovery policy programs.

In this study, we use key informant interviews and surveys of NCR field coordinators, state and local officials in the case studies described above to identify the extent to which the NCR RSF program has facilitate local recovery and resilience. We report on findings on the influence of NCR RSF activities on long-range thinking, networking and coordination, use of creative sources of funding, improved planning culture and capacity, and in meeting local needs in target communities. The results of the study can help the DOI, OEPC and its federal and non-federal partners to better understand the impact and success of NCR RSF recovery efforts led by the DOI and FEMA and provide valuable case studies to inform planning and improve the performance of future disaster recovery operations under the NCR RSF and other allied efforts at multiple scales. This study is funded by the National Park Service and the University of Utah.

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JUSTICE BURNING: INCINERATORS AND THE LANDSCAPE OF ENVIRONMENTAL JUSTICE IN THE U.S.

Abstract ID: 974

Individual Paper Submission

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Environmental justice (EJ) solidified as a concept and a movement with the observation that hazardous wastes were most often stored or treated in communities of color that had little political power.^[i] Since that time solid waste management has remained a flashpoint for EJ study and political action. Throughout the 1980s, waste-to-energy (WTE) incinerators were proposed across the United States to solve local disposal crises as old municipal landfills closed. Most of these proposed incinerators were never built as a result of public opposition, some of which was explicitly part of the environmental justice movement. Incineration has remained highly controversial in the United States, but there have been few recent studies of the spatial landscape of incinerators that are still operational.

This is problematic because incinerators with advanced pollution control have recently surfaced again as a potential source of renewable energy as well as a long-term solution for solid waste management, particularly as recycling markets have destabilized.^[ii] Despite renewed interest, critics charge that incineration conflicts with material reuse and recycling, and will always result in toxic pollution in some form. In addition, the history of environmental injustice suggests that the impacts of waste management infrastructure in general, and incinerators in particular, are never evenly distributed.^[iii]

This research seeks to update our spatialized understanding of incineration, given the changes in the landscape over the last several decades. Using a comprehensive, longitudinal data set of incinerator locations over three decades, this project will investigate whether local demographic characteristics have predicted facility commissioning and closure in the years since the rise of WTE in the 1980s. In other words, are the landscapes of injustice the same as they were thirty years ago when EJ research was just beginning?

Following the methodological approach of Laurian and Funderberg,^[iv] in which they examined incinerator plant openings in France, initial descriptive regressions will test associations between planned incinerator plants and actual plant openings, and the socio-economic characteristics of surrounding neighborhoods. Building on Laurian and Funderberg, we will also include plant closure and plant planning, thus examining both the politics of siting, and the politics of plant maintenance over time.

Our initial hypothesis, grounded in the classic theory and previous findings of the EJ literature, is that incinerator plants were initially targeted towards communities with lower incomes and higher non-white minority populations. Further—and the anticipated key contribution of this study—we expect to find that plants are most likely to have been closed in communities with higher incomes and lower non-white minority populations, or places that have experienced demographic change.

^[i] Robert D. Bullard, *Dumping in Dixie: Race, Class and Environmental Quality* (Boulder: Westview Press, 1994).

^[ii] Timothy Williams, “Garbage Incinerators Make Comeback, Kindling Both Garbage and Debate,” *The New York Times*, January 10, 2015.

^[iii] Luke W. Cole and Sheila R. Foster, *From the Ground Up: Environmental Racism and the Rise of the Environmental Justice Movement* (New York City: NYU Press, 2001).

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Key Words: Environmental justice, Solid waste management, Incineration, Demographic change

RACE, PLACE AND RESILIENCE IN NORTH CAROLINA'S POST-DISASTER BUYOUTS PROGRAM

Abstract ID: 992

Individual Paper Submission

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Planners recommend post-disaster buyouts to reduce the vulnerability of neighborhoods located in risky areas. Buyouts funded by the federal Hazard Mitigation Grant Program (HMGP) remove development from harm's way, and the land is converted into open space in perpetuity. However, some advocates and critical scholars decry post-disaster buyouts or other post-disaster land use mitigation strategies as veiled means of dismantling low-income communities of color. There is scant research on whether buyouts disproportionately occur in marginalized populations, intentionally or unintentionally. In addition, we may be concerned about disproportionate buyouts in marginalized communities because buyouts can have positive and negative community development impacts. These impacts, from the liquidation of homeowners' real property assets to the creation of recreational amenities or derelict vacant lots, are poorly documented and therefore also not well understood. This research project uses empirical data to build a better understanding of the kinds of neighborhoods where buyouts occur and the changes that those neighborhoods, and nearby neighborhoods, experience after buyouts.

To test the hypothesis that the incidence and impact of buyouts relate to social inequality, this research examines HMGP buyouts of 4,600 properties in North Carolina following flood-related disaster declarations from 1996 to 2010. There are two primary research questions: 1) What are the sociodemographic characteristics of neighborhoods that had the greatest buyout participation? 2) What are the neighborhood-level changes in sociodemographic characteristics associated with neighborhoods where buyouts occur and neighborhoods near buyouts where spillover effects may occur?

To answer these questions, I use an administrative dataset from North Carolina Emergency Management and tract-level ACS and Census data. The first, cross-sectional question uses ordinary least squares regression to measure the association between buyouts and neighborhood sociodemographic characteristics. I hypothesize that a neighborhood's physical vulnerability may bias the results because households of lower socioeconomic status may be more likely to live in vulnerable areas and buyouts, by definition, occur in neighborhoods proven to be vulnerable to floods. To measure the effect of this bias, I run the model with and without floodplain and flood damage data. To answer the second question, I use regression modeling to analyze the association between buyouts and neighborhood change, and I use spatial regression techniques to examine how buyouts are associated with changes in nearby neighborhoods, which may receive an influx of residents after buyouts occur.

The results from this study will contribute to a growing scholarly conversation about buyouts and help bridge the gulf between hazard mitigation planners who promote buyouts and the critical scholars who study their racially disparate outcomes. The results will also point to possibilities for reducing the role of inequalities in the implementation of buyout programs. Buyouts have been implemented with a wide variety of program designs. This flexibility may allow for the use of prioritization, incentives, counseling, and community planning to address disparate impacts and generate additional benefits for participants and their neighbors.

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Key Words: Buyouts, Hazard mitigation, Disaster recovery, Neighborhood change, Housing

GREEN INFRASTRUCTURE FOR COMMUNITY RESILIENCE: A QUALITATIVE ASSESSMENT OF SCENARIO PLANNING TECHNIQUES

Abstract ID: 997

Individual Paper Submission

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There is increasing recognition that sustainable cities must in turn be resilient to disasters and climate change impacts (e.g., see Cutter, 2008; United Nations, 2015). However, an enduring challenge in local planning is that hazard mitigation and other forms of resilience planning remain fragmented from other community planning efforts (Berke et al., 2015). There is still a limited connection between resilience and green infrastructure (GI) objectives in local planning, despite evidence that ecosystem services provided by urban GI features such as parks, open spaces, riparian areas and greenbelt networks are an essential element of community resilience (Benedict & McMahon, 2012; United Nations, 2015). Thus, a key challenge limiting the use of GI approaches for urban resilience in practice is the lack of an integrated methodology for assessing and comparing GI resilience functions in the context of mainstream community planning. Scenario-based planning—a collaborative process for communities to explore alternative development patterns and learn about their consequences—offers a potential opportunity for drawing these connections more effectively. To follow up on a recent project that explored innovative scenario-based techniques for resilience planning, this paper asks: How effective were the scenario-based approaches for drawing connections between GI and community resilience from the perspective of local planning stakeholders?

This research reports on qualitative feedback regarding the combined use of urbanization scenarios (via the open source Envision Tomorrow geodesign GIS plugin) and flood loss estimation models (via FEMA's Hazus GIS plugin) to assess the resilience of alternative GI land use approaches in Austin, TX. Two underutilized types of scenarios were used: historical counterfactual scenarios to examine past flood events and identify missed opportunities for improving resilience through GI planning approaches; and exploratory scenarios to test how future development might best utilize GI planning approaches to increase resilience to a range of plausible future flood events. While the results of the analysis produced novel information flows, a critical piece of this research is a qualitative understanding of what the information meant to local stakeholders, how it affected their understanding of GI and resilience issues, and what they considered the strengths and weaknesses of the scenario

techniques. For this purpose, semi-structured pre- and post-analysis interviews were conducted with ten local stakeholders in Austin, representing a range of disciplines and sectors related to GI and resilience planning.

Interview findings support the use of historical counterfactual scenarios as a powerful learning device. They also found that the use of integrated scenario techniques and tools were effective for discovering complementary ecosystem benefits (e.g., amenity value, recreation, and flood loss avoidance), identifying important trade-offs between green and grey infrastructure approaches, and understanding the relationship between urban development patterns and GI opportunities. At the same time, interviewees identified areas of potential improvement, such as the inclusion of GI operation and maintenance costs, increased transparency of models, and clearer communication of outputs.

While prior research has investigated the effectiveness of using of scenarios and analytical tools in community planning (e.g. see Bartholomew, 2007; Goodspeed, 2016), qualitative assessment has been limited and has yet to focus on counterfactual and exploratory scenario frameworks. With growing use of scenario planning techniques in practice and the development of new planning support tools, feedback related to their effectiveness is important to consider. In addition, this study is unique in its specific focus on effectively drawing connections between GI and community resilience objectives.

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Key Words: Green Infrastructure, Disaster Resilience, Scenario Planning, Planning Support Systems

LOCAL CLIMATE ACTION PLANNING AND URBAN GOODS MOVEMENT: ASSESSING STRATEGIES TO REDUCE GREENHOUSE GAS EMISSIONS FROM URBAN FREIGHT TRANSPORTATION

Abstract ID: 1051

Individual Paper Submission

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Climate change is one of the most complex challenges of our time requiring planners and their communities to consider the various contributors to the problem and develop effective solutions. In the absence of meaningful federal action to combat climate change, many U.S. cities have developed Climate Action Plans (CAPs) to mitigate greenhouse gas (GHG) emissions from different sectors, such as energy and transportation. Within the transportation sector, an important topic that has not received enough attention is the growing contribution of freight transport to GHG emissions. This is especially problematic in urban areas, where goods movement has become more difficult due to increased urbanization, the critical role of cities in global supply chains, increased freight demand from urban businesses and residences, and changing land use that favors higher-density developments. While contributing to many sustainability goals, higher-density smart growth development has posed significant challenges for more efficient and cleaner transport of freight. This study discusses the common shortcomings of local CAPs relevant to freight GHG emissions reductions, and identifies, evaluates and

recommends the promising GHG emission reduction strategies for urban goods movement. The research process included a review of the literature on innovative strategies to reduce freight emissions and enhance efficiency, document analysis of 32 local CAPs from across the United States that have reached the implementation stage as well as freight plans of the same cities or related metropolitan areas to understand potential linkages between the two types of plans. Findings indicate that local CAPs and freight plans are not linked. Most local CAPs rely on policy measures related to public transportation, walking, cycling and city fleet to reduce transportation emissions and ignore opportunities to reduce freight GHG emissions. Although freight plans consider strategies to reduce GHGs and other environmental impacts from urban good movement, these plans do not consider opportunities for coordinated action with local CAPs. This can hinder the success of GHG mitigation strategies and potentially create conflicts between the goals or outcomes of these two types of plans. Nevertheless, the review of the literature, the local CAPs and freight plans offer some innovative strategies to tackle freight GHG emissions. We used illustrative case studies to highlight innovative freight emissions reduction strategies, and the cost-effectiveness and/or co-benefits of these strategies. This research is relevant to planning scholarship, practice and education as it identifies gaps in our climate action planning practices and offers strategies to further reduce GHGs from the transportation sector.

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Key Words: Climate Action Planning, Urban Goods Movement, Freight Transportation, Greenhouse Gas Emissions, Transportation Emissions

PLANNING FOR COST-EFFECTIVE MATERIAL AND WASTE MANAGEMENT

Abstract ID: 1060

Individual Paper Submission

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Having material and waste management (MWM) as one of the largest municipal budget items (Daniels, 2014), planners are often faced with the challenges of achieving better MWM performance in a cost-effective manner. Existing studies have shown controversies in effective MWM in relation to public expenditure. MWM expenditure was found positively correlated with higher recycling rates (Sidique, Joshi & Lupi, 2010). It is a concern that spending less on MWM leads to inadequate services (e. g., reduced service frequency and recycling programs) (McCullough, 2017). In contrast, other studies have argued that a budget cut may actually foster a regime shift (e. g., efficient route design for waste collection or privatization) when environmental and economic goals can be mutually effective (Ai and Grande, 2012). In addition, regional heterogeneities, including economic of scale, political and financial resources, citizen awareness, and economic structure, can all influence MWM performance (Ai and Leigh, 2017; Bruce, Asha, and Ng 2016; Sidique, Joshi & Lupi, 2010).

While most existing studies build upon anecdotal case studies or theoretical discussions, this study developed a multi-region and multi-year study that connects the local government expenditure with MWM performance. The Minnesota SCORE reports, which publish county-level MWM statistics (i.e., waste generation, recycling, recovery, expenditures, and enacted policies) from 1997 to 2013, provide a critical opportunity for implementing

our proposed research. This study employed the Log-mean Divisia Index (LMDI) method for a decomposition analysis that explains the changes in waste recycling rates (measured for the effectiveness of MWM) over time. Specifically, three factors were included in the decomposition analysis: recycling program efficiency (i.e., per-ton MWM recycling expenditure), public MWM spending (i.e., per-capita MWM expenditure), and waste generation (i.e. per-capita waste generated). To capture regional heterogeneities, this decomposition analysis differentiated counties within metropolitan areas from those outside. Various metrics of MWM performance are developed and evaluated for planning and policy discussions.

Initial results revealed that annual waste generation volume generally increased along with population growth in Minnesota from 1997 to 2013, although there were some fluctuations. Per-ton recycling expenditure slightly decreased over time, which suggests a general trend of increasing cost effectiveness. Notably, MWM expenditure increased from 1997 to 2001 while waste diversion rates decreased. The decomposition analysis identified recycling program inefficiency and increasing waste generation rate as the main driving forces. In addition, this study found that MWM performance in non-metropolitan areas was more sensitive to macro-economic forces compared to that in metropolitan counties, which is likely associated with various population densities and economies of scale. During economic recession years (2001-03 and 2007-09), the recycling program efficiency improved in metropolitan counties, despite significant decreases in the MWM expenditure. In non-metropolitan counties, although the MWM expenditure remained at the same level, an overall decline in MWM performance was found to be related to decreases in recycling program efficiency. To reveal specific planning implications, this study also explored the effects of local economic structure, demographic characteristics, consumption pattern, MWM infrastructure availability, and evolving policies on MWM program performance. The findings from this study will provide bench-marking information and critical references for sustainable MWM plan-making.

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Key Words: waste management , recycling, public expenditure , cost effectiveness , sustainability

INTEGRATING CLIMATE SCIENCE WITH LOCAL KNOWLEDGE FOR ADAPTATION PLANNING IN HAWAI‘I

Abstract ID: 1075

Individual Paper Submission

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Like many low-lying coastal regions of the world, Hawai‘i is vulnerable to the impacts of present and future hazards associated with climate change. The island of Kauai is especially vulnerable due to a combination of high hazard exposure, high sensitivity of coastal infrastructures, coastal ecosystems, its geographic isolation, and dependence on imported goods. In early 2018, the County of Kauai adopted their 2035 comprehensive plan, which explicitly calls for integrating climate change risks into future land use, development, and infrastructure planning through 2035. Following the adoption of the 2035 General Plan, the County is updating four community plans in West Kauai.

There is growing acceptance that assessment of risks and identification of adaptation responses should take place at the community level, with a process closely involving local stakeholders (van Aalst, Cannon, and Burton 2008; Berke and Lyles 2013; Moser and Pike 2015). Detailed assessments require a combination of the scientific understanding of hazard exposures and local knowledge of conditions for a more nuanced understanding of risks (Kettle et al. 2014; Spirandelli et al. 2016). Integrating scientific and local knowledge is expected to enhance the risk management approach and adaptation process. Here we report on efforts to design and perform a community-based vulnerability assessment across the four West Kauai communities with the objective of integrating climate change risks and adaptation strategies into the comprehensive plan. We hypothesize that integrating local knowledge with scientific knowledge enhances stakeholder understanding and perceptions of climate risks, increases the usability of climate science information, and increases the salience and credibility of the best available science on climate change risks.

We test these hypotheses with in-depth stakeholder interviews and an assessment, a community-based decision support tool, and a post-evaluation survey in West Kauai. For this presentation, we will report on the results from twenty-five semi-structured interviews with community members, local, state and federal managers responsible for infrastructure, facilities and natural resources in West Kauai. Interview questions address how climate risks are framed, how adaptation options are discussed, and how to deal with scientific uncertainty. Preliminary results suggest there is some convergence on the understanding of climate hazard exposures particularly to sea level rise in low lying areas. We find stories of historical land use practices help explain projected exposure maps of future flooding and erosion. We will discuss the relevance and insights on the meaning and practicalities of knowledge co-production and interactions at the climate science-practice interface (Moser and Pike 2015).

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Key Words: Climate change adaptation, community vulnerability assessment, science-policy interface

EXPLORING THE FULL SPECTRUM OF SOCIAL PROTECTION ACTORS/PROVIDERS AT PLAY AFTER AN EXTREME WEATHER EVENT—THE CASE OF TROPICAL STORM ERIKA IN DOMINICA

Abstract ID: 1084

Individual Paper Submission

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This paper investigates the wide range of non-state and informal social protection actors involved in recovery after an extreme weather event, something that is largely absent from the climate change adaptation (CCA)/disaster risk reduction (DRR)/social protection (SP) integration literature. Although the usefulness of integrating the fields of SP, CCA and DRR has been embraced as conceptually sound, more work is needed to better assess the impact of SP programmes and socially-conscious climate disaster programmes on livelihood resilience (Johnson, Bansha Dulal, Prowse, Krishnamurthy, & Mitchell, 2013; Siddiqi, 2011). More specifically, the role of informal SP systems or networks and support systems amongst family and friends has been largely

overlooked within the SP/CCA/DRR discourse (Johnson et al., 2013). To begin this conversation, however, we need to rethink our categories for social protection providers, which are currently referred to as formal, semi-formal or informal (Getu & Devereux, 2013). This paper argues that they are too general and do not reflect the wide range of social protection arrangements presented in varying contexts. They therefore stifle our ability to consider the wide range of current and potential actors involved in social protection interventions, and their role in ensuring livelihood resilience.

Most of the scholarly work on the role of SP programmes in the context of climate shocks are centered around formal or state SP actors and heavily focused on rural communities in South Asia and Sub-Saharan Africa (Browne, 2014, p. 4), leaving much room for investigation into Caribbean Small Island Developing States (SIDS) like Dominica, whose residents suffered devastating impacts from Tropical Storm Erika in 2015. This paper identifies a wide range of state as well as non-state and informal social protection actors at work for a sample of 191 households in 4 Dominican communities severely impacted. The study reveals a much wider range of social protection providers, to include a number of different non-state and informal sub-categories currently overlooked in the CCA/DRR/SP integration discourse. The level of involvement exercised by a given provider depended on such factors as extent of damage experienced by the community, political influence, and extent of community spirit. Effective, longterm recovery depends on a thoughtful coordination amongst social protection providers (pre, during, post storm), in order to avoid duplication of efforts, and, on a community's ability to give sufficient support to providers that may play a crucial role in rebuilding.

A multi-method case study research approach was used to investigate the range of state, non-state and informal social protection actors at play in Dominica after Tropical Storm Erika in August of 2015. Yin (2003) offers a thorough elaboration on case study research as a nonlaboratory social science methodology. My research is a direct response to the need for more case studies that can be applied to the real world and lead to practical solutions (Corcoran, Walker, & Wals, 2004, p. 7). This research is exploratory and analytical. With the help of research assistants (community workers) sourced through local contacts at the local government level, the researcher administered a survey to approximately 191 heads of households in 4 communities. Afterwards, approximately 20-25 in-depth household interviews were held with heads of households from all communities. Other key informant semi-structured interviews (approximately 30) were held with national and local government officials, representatives from community organizations, non-governmental organizations, religious organizations and other community groups.

This research is a contribution to the SP/CCA/DRR integration literature, which is currently focused on formal social protection provider arrangements in non-SIDS, rural environments. This work will be useful to SIDS' governments, nonprofits, development organizations and donor organizations working to build the adaptive capacity of vulnerable communities to the impacts of climate events.

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Key Words: Social protection, Climate change adaptation, Disaster risk reduction, Caribbean, Resilience

PLANNING FOR EXTREME HEAT EVENTS: BUILDING A DECISION SUPPORT FRAMEWORK FOR THE CITY OF CHICAGO

Abstract ID: 1102

Individual Paper Submission

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Extreme heat events are an important and often overlooked consequence of global climate change that warrant more attention from urban planners (Habeeb et al., 2015; Oke, 2006). The impact of such events on human health in urban areas is likely to worsen in the future due to ongoing patterns of urbanization and the potential for the urban heat island effect. Further, in the U.S., aging population and segregated residential patterns elevate the risks of disproportionately affecting vulnerable populations and communities.

While responses to heat events, like other extreme events, have historically been a public health and emergency management concern, planning's role in creating more resilient communities is increasingly acknowledged. These include regional climate action planning and greater investment in green infrastructure, to policies that target building design and human behavior to reduce energy consumption and heat loss. To a lesser degree, planning role in increasing housing choices or, conversely, concentrating vulnerability is also recognized. However, frameworks that can assist planners understand impacts of planning decisions on heat exposure and vulnerability are limited (Wilson, 2017).

In this paper, we critically reflect on our efforts in building such a framework for the city of Chicago. A few years ago, we developed a tool for mapping exposure and vulnerability to extreme heat in Chicago, as well as an analysis of how these patterns have changed over the last few decades and are expected to change in the next few decades (Wilson and Chakraborty, 2017). Following this work, we joined a team that includes two technology companies, a utility provider, a federal agency, and three departments in the city of Chicago to explore the development and deployment of a tool that can be used by a variety of users to analyze trends and formulate responses. Focusing on building long term resiliency, our specific efforts have identified and mapped some of the key datasets on heat exposure and vulnerability in the region. Using the existing literature, we also capture the relationship between the built environment and heat impacts at building and neighborhood scales. For the next step, we aim to understand how planning interventions affect this relationship. We also aim to characterize the existing understanding of these relationships among planners, and the role this plays in a variety of planning decisions. Our findings thus far suggest that, despite the presence of multiple heat mitigating policies in place, little systematic analysis is done in understanding the relationship between planning decisions and their heat impacts, or in reducing long term regional heat exposure and vulnerability. We hope that our work will advance planners' knowledge of heat impact and improve outcomes.

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Key Words: Heat, Climate, Vulnerability, Scenario, Decision-making

INTEGRATING HYPER-LOCAL AIR QUALITY DATA INTO PLANNING FOR NEW SCHOOLS

Abstract ID: 1121

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Public health researchers have documented the relationship between air pollution and childhood asthma (McConnell et al 2010) as well as absenteeism and test scores (Mohai et al 2011) but local air quality is rarely a consideration in planning for new school locations. Although the technology to measure hyper-local air quality has advanced dramatically in recent years, this technology is still out of reach for many planning departments. This paper presents a more accessible method for integrating air quality data into land use decision-making using personal air quality trackers. It tests the hypothesis that siting elementary schools within residential neighborhoods will reduce children's exposure to air pollution in comparison to schools located on major roads. The public elementary schools in Wilmington, North Carolina are the test case for this study. The findings of this paper have implications for planners in areas where population growth necessitates new school construction. The research method the paper utilizes is experimental and will also be of interest to planners concerned with air pollution in relation to land use planning broadly.

In this paper, I investigate the implications of siting Wilmington's elementary schools next to major arterial and neighborhood collector streets on nitrogen dioxide, volatile organic compounds, coarse and fine particulate matter levels, and the overall air quality index rating. Transportation access was a central factor in Wilmington's elementary schools siting decisions but alternative ideas for school siting date back to Clarence Perry's neighborhood unit (1929). The neighborhood unit diagram features "only neighborhood institutions" in the center of the neighborhood, such as an elementary school. I compare air quality at the existing Wilmington elementary schools to air quality at matched-pair alternative sites that follow Perry's recommendation to locate schools in the center of neighborhoods, on low-traffic residential streets. I also collected air quality data at these alternate sites. Air pollution levels at the actual and alternate school sites are compared through a paired-sample t test.

Quantifying the air quality differences between alternate school sites generally requires a partnership with a research institution but personal air quality trackers have created a new option for site comparisons. For example, researchers in Austin, Texas recently created a hyper-local air pollution map using Google Street View cars equipped with sensors that collected data over the course of a year (Apte et al 2017). In theory, this map could be used for land use planning although only by planners in Austin. Researchers have undertaken similar efforts in London and San Francisco but planners in smaller communities are likely to have a significant wait before they have access to "big data" on local air quality. Personal air quality trackers offer another route to integrating hyper-local air pollution data into land use decisions by comparing site level data, rather than extracting information on individual sites from a city-wide data set or map.

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Key Words: air quality, school siting, traffic, land use planning

CONCEPTUALIZING ACTION EARLY IN THE COLLABORATIVE PROCESS: DRIVING FORCES THAT BUILD CAPACITY FOR COLLABORATION IMPLEMENTATION

Abstract ID: 1139

Individual Paper Submission

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Over the last several decades, collaborative planning has grown in popularity and practice within environmental and natural resource management. Collaborative governance is well suited for addressing complex environmental issues that cross geographical and political boundaries, such as loss of biodiversity and species habitat (Koontz & Newig, 2014). While many collaboratives, groups that include multisectoral actors with different interests and positions, achieve innovative solutions they also experience challenges moving the plans into action (Innes & Booher, 2010).

The barriers to collaborating through implementation within public governance include legal and regulatory rules of authority and accountability, organizational norms and procedures, as well as professional cultures (Margerum, 2011; Butler et al. 2015). In environmental and natural resource management, these challenges surrounding the implementation of collaborative governance are magnified at the landscape scale: particularly as authority and accountability overlaps private land owners and public management agencies (Butler et al. 2015).

In this paper we explore how a collaborative, operating at a landscape scale can navigate these tensions and support the implementation of conservation across multiple ownership and management boundaries. This research study asks how and to what extent the dynamics in the collaborative process shape the implementation of conservation efforts on public lands. We identify and analyze the presence and absence of elements effective in the collaborative process and design and then consider the extent to which these elements, may influence collaborative implementation and potential outcomes.

To examine these dynamics, we utilize a case study, the Landscape Conservation Cooperative Network (LCC). The LCC seeks to manage the nation's natural and cultural resources through coordinated conservation, collaborating across boundaries at the landscape scale. Objectively, each of the voluntary actors participating in the network contribute toward developing the shared vision for the collaborative and then apply the common understanding along with shared resources to carry out on the ground implementation of its goals and objectives. Using a single-case the Gulf Coast Plains and Ozarks (GCPO) LCC, one of twenty- two individual LCCs in the LCC Network, we explore how the collaborative process navigates the tensions of collaborative implementation.

The case study provides a rich understanding of some issues influencing collaboration through implementation surrounding environmental and natural resources. The LCC serves as a bridge between science and management through the network design and collaborative process, which depend on stakeholder's participation in implementation. The study captured the actor's perspectives surrounding the shift from planning into action, decision making, and behavior which indicate a complexity of factors.

The findings highlight how easily actors become disconnected with the reality of collaboration that they overlook the critical elements leading toward implementation, specifically the roles they already play. We found that the scale used in collaborating has the potential to influence implementation. Based on the case, we provide recommendations for considering the roles and actions that can progress implementation earlier in the process. This research contributes to further understanding the link between collaborative processes and desired outcomes, by deepening our understanding of how collaborative implementation unfolds at the landscape scale in environmental and natural resource management.

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Key Words: Collaborative Governance, Implementation, Natural Resources Management, Public Governance

ADVANCING LEARNING AND USABLE KNOWLEDGE IN TRANSDISCIPLINARY LANDSCAPE DESIGN AND PLANNING FOR SUSTAINABLE LAND USE

Abstract ID: 1144

Individual Paper Submission

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Sustainable land use requires planning and action at broad spatial scales to align with biophysical and social patterns and processes. At this landscape scale, sustainable land use planning and design initiatives share certain broad goals and commitments, including land-use change to enhance landscape multifunctionality (i.e., the ability of a landscape to produce multiple goods and services for people), networked governance and adaptive management, and deliberation of normative questions about the nature and purposes of landscapes (e.g. Sayer and Cassman 2013).

Transdisciplinary landscape design and planning (TLDP) can be used to advance these goals by engaging a wide range of societal sectors and knowledge sources in collaborative learning and decision making (Nassauer and Opdam 2008). TLDP builds a shared, systemic understanding of the landscape to produce landscape-scale plans that are iterative and adaptive. Further, TLDP broadens the set of interests and issues considered in the planning and design process, working toward enhanced recognition of shared interests and the nature of problems.

The paper integrates this basic conception of TLDP, which draws from multiple disciplinary contexts, relative to the theories and practical guidance offered by urban and environmental planners' on collaboration and decision making. In particular, the paper hones in on conceptions of knowledge in design and planning processes. It highlights how the well-established planning approaches of collaboration and decision support technologies can integrate knowledge from multiple sources and disciplines, including from participants themselves, as well as advance learning through iteration and interaction (e.g. Cutts et al. 2011, Hayek et al. 2016).

The paper adds further insight on knowledge and learning in design and planning processes by engaging with the Cash et al. (2003) knowledge systems for sustainable development framework. This framework, which serves as the basis for the paper's empirical analysis, identifies three essential attributes of knowledge systems that can be used to advance sustainability. They include: 1) credibility, the empirical adequacy of knowledge; 2) salience, the relevance of knowledge to the needs of decision makers; and 3) legitimacy, the degree to which knowledge is respectful of stakeholders' values/beliefs, unbiased, and fair in addressing opposing views.

The paper's analysis utilizes credibility, salience, and legitimacy framework to assess the outcomes of a technology-supported collaborative stakeholder process, engaging experts from multiple disciplines and communities) focused on environmental and agricultural issues in rural Minnesota. The paper shares the results of an already-completed content analysis of pre- and post-process stakeholder interviews and focus groups, to reveal the extent to which the process, the decision support technology used in the process, and information provided by experts and stakeholders contributed to the creation of a knowledge system that was salient, credible, and legitimate.

The findings highlight the relevance of the salience, credibility, and legitimacy framework in planners' analyses of collaborative processes and points to the dynamics of learning and usable knowledge among stakeholders in design and planning processes for sustainable land use.

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Key Words: landscape planning, sustainability, collaboration, transdisciplinary, decision support systems

THEORETICAL FRAMEWORKS IN CLIMATE CHANGE ADAPTATION PLANNING: A COMPARATIVE CASE STUDIES IN COASTAL CITIES OF DEVELOPING COUNTRIES

Abstract ID: 1195

Individual Paper Submission

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Developing countries are believed to be significantly vulnerable to the impacts of climate change owing to their dependence of livelihoods on climate-sensitive sectors, infrastructure deficits, and limited adaptive capacity. Remarkably, coastal cities in developing countries are increasingly susceptible to the adverse impacts as a result of sea level rise, more intense climate extreme events, and other non-climatic factors. In responding to this global climate issue, numerous coastal cities in developing countries have made significant progress in shaping their climate adaptation plans. Tracking these planning practices is necessary to offer interactive lessons between theory and practice.

The evolution of climate change adaptation is shifted from a single-dimension to an integrative approach and significantly aligns with the theory of vulnerability and resilience. Planning for climate change adaptation, correspondingly, is guided by multiple frameworks categorized as the hazard-based approach, the vulnerability-based approach, and the model of urban resilience. This study seeks to explore the application of theoretical frameworks in climate adaptation planning across coastal cities of developing countries. The study aims to address the research question of how theoretical frameworks affect the formulation of adaptation options.

The study uses the sample of 36 coastal cities across developing countries with 42 sets of adaptation planning, vulnerability assessment, and urban resilience strategy and consists of two stages. The first stage utilizes a multiple regression to examine the impact of theoretical frameworks on the formulation of adaptation options controlling for the publishing year, the planning methodology and the number of stakeholders involving in the planning process. The finding illustrates a significant impact of theoretical frameworks and the planning methodology on the formulation of adaptation options. A comparative case study then follows to explore the ways theoretical frameworks are used to shape different focuses as well as the proposed adaptation strategies across these coastal cities. Although the planning documents propose a wide variety of adaptation actions, the documents guided by a hazard-based approach are more focused on structural and social actions while the ones with an urban resilience framework emphasized more on institutional strategies. Meanwhile, the vulnerability approach guides

the proposed adaptation options toward all three types of measures, which are necessary to treat the physical exposure, the social vulnerability as well as institutional capacity building.

These findings suggest the use of theoretical frameworks in adaptation planning. Specific frameworks might lead to different focuses on proposed adaptation options. Therefore, a city should acknowledge the differentiates between the three models to choose a relevant one or integrate between models in conducting their climate adaptation planning.

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Key Words: climate change adaptation planning, theoretical frameworks, comparative case studies, coastal cities, developing countries

A STUDY OF WATER QUALITY INDEX AND RESIDENT PERCEPTION ANALYSIS FOR SUSTAINABLE URBAN STREAM RESTORATION

Abstract ID: 1196

Individual Paper Submission

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Many researchers who advocate for environmental policies are prone to value the preservation of conventional water resource systems and individual pro-environmental behaviours rather than development (Milfont & Sibley, 2012; and Aberg, et al., 2013). This research explores if individual preferences for the major functions of stream restoration processes correlate water quality variations in an urban watershed of South Korea. This work uses a set of results from an analytical hierarchy process (AHP) model to rank the major stream restoration functions (Podolak, 2012) and compare citizens' preferences (Coeterier, 1996) for 'water quality' improvement during stream restoration based on the water quality index (WQI) and ordinary least square (OLS) regression.

This research will answer the research questions and examine the hypotheses below:

Research Questions

1. Which demographic factors of citizens are associated with comparative recognition (perception) regarding stream restoration?
2. Which comparative recognitions (perceptions) of stream restoration are significantly associated with water quality changes?
3. How differently do individual demographic factors correlate water quality changes among six subwatersheds of the An'Yang Stream watershed?

- H1: Citizens' demographic data may influence their perceptions regarding stream restoration.
- H2: The individual perceptions and awareness of An'Yang Stream restoration may influence the extent of changes in water quality.
- H3: Citizens who live in poor water quality areas highly value water quality improvements from stream restoration.

Data are collected through a survey with participants representing each stakeholder group as well as with scholars in the field of stream restoration. This study finds the correlation between the WQI and individual perceptions regarding stream restoration. Regional context and individual characteristics also influence the demands and awareness of citizens pertaining to stream restoration. My findings highlight the importance of understanding residents' perceptions and demographic information, including education, marriage status, gender, and residence period in different sub-watersheds. The largest change (28.29) in the WQI score of one subwatershed was correlated with the participants' perception of water quality changes and water pollution (AHP index: 66.8%). Based on the survey results, my research recommends that a human-ecological interdependent and adaptive consultative body is established in each sub-watershed to successfully implement stream restoration projects.

The results reveal that it is necessary for urban planners to consider the interdependence between water quality indicators and citizens' perceptions regarding stream restoration. In this case, the polluted and poor-quality water with a bad odour and unfavourable aesthetics may possibly lead citizens to believe that activities in the waterfront space may be harmful and unsafe. Besides, regional contexts and individual characteristics were significantly associated with the demands and personal awareness of the potential risks of water quality deterioration. The research results can provide useful insights regarding urban stream restoration in understanding how much collaboration occurs between urban planners and local residents and what kinds of the individual perceptions should be included in this emerging scholarship.

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Key Words: Stream Restoration, Resident Perception Analysis, Analytic Hierarchy Process, Participatory Decision Making, Water Quality Index (WQI)

INVESTIGATING THE IMPACT OF THE COASTAL BARRIER RESOURCES ACT ON COASTAL INFRASTRUCTURE

Abstract ID: 1205

Individual Paper Submission

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Significant urban growth in coastal areas due to growing residential, commercial, and tourist demands has transformed the shape and composition of shorelines. This development relies on a number of factors to remain

viable, including public funding for infrastructure, such as roads or utilities, as well as funding for shoreline protection features to guard against natural hazards (e.g., storm surges, sea level rise).

In this paper, we seek to understand how federal flood insurance and infrastructure subsidies affect the development and placement of coastal protection infrastructure. More specifically, we ask, how does the removal of these subsidies affect the location, extent, and composition of coastal protection infrastructure?

We contextualize our work through the lens of the 1982 U.S. Coastal Barrier Resources Act (CBRA, Public Law 97-348), which aimed to disincentivize risky development in high-hazard areas by removing federal funding for infrastructure and disaster assistance on undeveloped barrier islands (called CBRA units) along the eastern and gulf coasts of the United States.

To understand the impacts of the relatively novel, “subsidy removal” policy approach (Jones 1991), we use a quasi-experimental, pre-post design to assess changes in the composition and location of the coast over time and its relationship to CBRA units. Along with current, GIS shoreline composition data, we use high resolution satellite imagery to digitize historic shoreline data to assess shoreline change in five states (Alabama, Delaware, Florida, North Carolina, and Texas) across multiple time periods, including before (1980) and after (2015) CBRA implementation. Shorelines are classified by CBRA designation (within or outside a CBRA boundary) and land composition (rock, sand, riprap, tidal flat, marsh). Difference-in-difference tests are used to evaluate (1) the change in shoreline composition over time, and (2) locational shoreline change. Our findings illuminate the degree of variation in shoreline change between CBRA units and non-CBRA areas and provide insights into the relationship between the composition of a shoreline, its nearby development pressure, and the impacts of CBRA as a subsidy removal approach to hazard management. We also explore edge effects at CBRA boundaries, which offer further lessons regarding the unintended effects of having abrupt edges to zones of subsidy removal.

Studies examining interactions between the built environment and sensitive coastal resources have emphasized macro-scale system dynamics in coastal regions (Timmerman and White 1997) and micro interactions at the habitat scale (Bulleri and Chapman 2010). While shoreline dynamics are the result of a number of influential, natural and anthropogenic forces, we hypothesize that the differential application of hazard reduction conservation-oriented policies may play a major role. While recent work has discovered substantial human modification of shorelines (i.e., Gittman et al. 2015, 2016), few studies have actually looked at the rates of change to shorelines in light of conservation policy (e.g., CBRA) or development patterns.

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Key Words: shoreline change, coastal infrastructure, spatial analysis, quasi-experiment

ANALYZING TRENDS IN URBAN SUSTAINABILITY AND EQUITY INDICATORS

Abstract ID: 1208

Individual Paper Submission

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Indicators have become a common mechanism for decision making and monitoring urban areas (Kitchin, Lauriault, and McArdle, 2015). Scholars have redoubled efforts to understand the complex, evolving relationship between urbanization and environmental sustainability, resulting in new indicators designed to measure how cities impact the environment. Urban areas have meanwhile become important units of environmental policymaking through international diplomatic processes, including the 2016 UN Habitat III conference in Quito, Ecuador. Perhaps the clearest signal of the urbanism's rise in prominence, Sustainable Development Goal 11 (SDG 11) is a standalone goal on cities, charging nations to make cities "inclusive, safe, resilient and sustainable" (United Nations, 2017).

Recognizing SDG 11's focus on inclusivity as an appeal to environmental justice, this paper evaluates the urban sustainability indicators landscape to answer the question: How do urban sustainability indicators operationalize environmental justice? Our aim is to identify qualities of indicators that would allow policymakers to quantitatively measure and track progress towards environmental justice goals.

Three out of the 10 indicators for SDG 11 feature equity provisions motivated by environmental justice – to "ensure" or "provide" access (Indicators 11.1, 11.2, 11.7) to environmental goods and services. Yet, these equity indicators are among the most challenging to track due to the lack of data (Simon et al., 2016). Environmental equity metrics are often used to operationalize environmental justice through the distribution of environmental harms (e.g., exposure to pollutants) and access to environmental benefits (Agyeman & Evans, 2004). SDG 11 focuses on distributional equity, whereas environmental justice scholars suggest approaches that "encourage active community participation, institutionalize public participation, recognize community knowledge, and utilize cross-cultural formats and exchanges to enable the participation of as much diversity as exists in a community" are required to address the root cause of environmental injustice (Schlosberg, 2004). While all environmental indicators are implicitly related to equity, further analysis is often needed to make these connections explicit.

We reviewed 45 indices related to urban environment, sustainability, and environmental justice, including 445 indicators published by governments, civil society organizations, academic institutions, and the private sector. Based on a review of the metadata, we coded each indicator using qualitative methods to group and build patterns along key dimensions including (1) whether the indicator explicitly or implicitly addressed equity, (2) the scale of the unit of analysis, (3) the presence (or absence) of targets and baselines, and (4) whether the indicator conforms to the commonly-used SMART criteria, and (5) how it fits with SDG 11 indicators. The reviewed indicators reflect a broad range of topics related to environmental performance, however five topics - water and sanitation, climate and energy, transportation, waste management, and air quality - are more frequently found in the sample compared to other.

Through initial analysis, we profile the indicators and find that that indicators explicitly aimed at measuring equity tend to have a smaller unit of analysis compared to indicators not explicitly addressing equity. This finding may be related to the fact that most of the indicators addressing equity measured distributional equity. We found few indicators that meet Schlosberg's alternatives quoted above. Many of the indicators are lacking targets and fall short of the SMART criteria. Our conclusions suggest that future work developing environmental justice indicators should focus on establishing realistic targets and spatial disaggregation of indicator data that would enable explicit assessment of distributional equity. Discussion of new spatial analysis technologies offers strategies for achieving these indicator goals.

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Key Words: Sustainability indicators, Environmental justice, Urban indicators

DOES CONTEXT MATTER IN ENVIRONMENTAL JUSTICE PATTERNS? EVIDENCE ON WAREHOUSING LOCATION FROM FOUR METRO AREAS IN CALIFORNIA

Abstract ID: 1221

Individual Paper Submission

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Warehousing activities generate substantial externalities that affect surrounding neighborhoods. An increasing number of protest and lawsuit cases showed that local residents complained about the massive warehousing development in their communities and worked together to fight against it. The gap between real-world conflicts and academic understanding incentivizes more research on the environmental justice problem in warehousing location. The existing research in particular has not provided adequate evidence on the disproportionate distribution of warehouses in different urban contexts, and discussed whether interregional differences would affect the environmental justice patterns. Why is this discussion necessary? To address the environmental justice problem requires regional collaboration. Regions are, however, widely different from each other in terms of geographic, economic, and institutional characteristics. It is important for planners to understand the environmental justice patterns in the contexts of different regions and further develop appropriate strategies in accordance with those characteristics of the regions.

This study tests whether environmental justice problem exists in warehousing location using data for four major metro areas. Multivariate regression models are used to estimate the relationship between warehousing activity intensity and disadvantaged neighborhoods. Although the urban contexts in the four regions vary a lot, the results across models are generally consistent. The results confirm that transport access, industrial connection and economic attributes of a certain zone are closely associated with warehousing distribution in that zone. With all these variables controlled, the models show that warehouses and distribution centers are disproportionately located in minority neighborhoods.

The findings can help better understand the environmental justice problem in warehousing location in different urban contexts. First, the results provide solid evidence on the disproportionate distribution of warehouses in minority neighborhoods. The spatial relationships between warehousing location and minority neighborhoods are consistent across regions despite the vast differences in demographics. Second, the relationship between warehousing location and socioeconomic status is less apparent. In three of the four regions, both medium-income and low-income minority neighborhoods have higher warehousing activity intensities than the reference group, but there is no consistent evidence that low-income minority neighborhoods are different from medium-income ones in terms of warehousing concentration. Third, while all regions are subject to environmental inequity in warehousing location, minority groups are faced with different levels of environmental threats due to various context-based resources and constraints. The abundant undeveloped land in the hinterland of the Los Angeles region provides high-income minority people more options to avoid environmental hazards, while in San Diego region, people who belongs to the same group do not have that many choices due to geographic constraints.

The findings have profound policy implications on the environmental justice problem. Policy makers should always keep an eye on the environmental consequences of warehousing development, even in regions with a relatively low proportion of minority population. Meanwhile, urban contexts matter in evaluating the exposure of different minority groups to warehousing related environmental risks. Geographic constraints, urban structure, and land use legacy could all affect the environmental justice landscape.

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Key Words: warehousing location, environmental justice, spatial patterns, urban contexts, geographic constraints

CLIMATE POLICY FOR FOLLOWERS: EVALUATING THE SUITABILITY OF ENTREPRENEURIAL CITIES' CLIMATE POLICY MODELS FOR USE IN LATE-MOVER MUNICIPALITIES

Abstract ID: 1226

Individual Paper Submission

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Entrepreneurial states and municipalities go to great lengths to reduce their emissions and prepare for climate change, while states and municipalities without the will and capacity to take on such policies have done much less. This has led to an uneven concentration of expertise and experience with climate-related policymaking (Gore & Robinson 2009). While scholars often extract advice for other cities from climate leaders' experiences, we know little about how climate leaders' models work when implemented by climate followers. If planners wish to understand what kinds of climate change mitigation plans are likely to be effective beyond places that consider themselves local climate policy leaders, it is essential to understand what works when local governments are lured into climate-related policymaking in the absence of a strong local political will to do so. Research on the prevalence of local climate planning supports this need: Outka and Feiock (2012) found that in spite of the attention paid to local climate action in academic studies of the subject, most local governments they surveyed had done nothing or very little with respect to climate change policy.

This study uses municipalities' experiences with climate and energy programs funded by the American Recovery and Reinvestment Act of 2009 (ARRA) to examine the determinants of climate policy success among follower municipalities. Many local governments received ARRA funds directly from the federal government, and were required to spend the money on energy efficiency projects developed locally. Although the grants were accepted voluntarily, the extent of the economic recession at the time put pressure on eligible subnational governments to apply for all available grants (Miller and Blanding 2012), creating a policy case that provides some clues about the behavior of municipalities that are coerced into the climate policy arena.

The study uses a mixed methods approach, employing multivariate regression models to identify factors that tend to predict timely implementation of ARRA programs, and selecting cases for more in-depth qualitative study based on the regression results. Several "typical" cases—municipalities with predicted and actual delays in implementation—provide clues about the problems that may stem from applying entrepreneurial cities' policies to non-entrepreneurial municipalities. "Deviant" cases—municipalities with low expected success but high actual implementation success—provide information about how reluctant adopters of climate policies overcome these challenges.

Entrepreneurial local governments are an important source of new ideas for policymakers at the state and local level beyond the arena of climate and energy policy. When a state or federal mandate or fiscal policy attempts to spread a policy idea beyond the places where it originated, though, it targets places that are less entrepreneurial in the policy area of interest (Shipan & Volden 2012). This study contributes to an understanding of how the

implementation of policy ideas can be made more effective both from the perspective of the local planners charged with implementing them and the state and federal policymakers attempting to spread good ideas effectively.

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Key Words: Climate Policy, Policy Diffusion, Multilevel Governance

A METHODOLOGICAL ASSESSMENT OF EXTREME HEAT MORTALITY MODELING AND HEAT VULNERABILITY MAPPING IN ATLANTA, DETROIT, AND PHOENIX

Abstract ID: 1248

Individual Paper Submission

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Extreme temperatures pose a significant risk to human health, and are projected to worsen in a warming climate with increased intensity, duration and frequency of heat waves in the coming decades. Urban residents are at higher risk of heat exposure due to the urban heat island, a phenomenon in which built materials absorb and retain heat from the sun and elevate urban temperatures. To mitigate heat exposure and protect sensitive populations, urban planners are increasingly using heat vulnerability indices (HVIs) to identify high priority areas for intervention and investment. HVIs aggregate vulnerability indicators into an overall score that accounts for heat exposure, population sensitivity, and adaptive capacity factors. Relative HVI scores help identify which areas are at greatest risk of heat-related morbidity and mortality. However, HVIs are highly subjective in their construction. Decisions in the model construction method and vulnerability indicator choice can significantly influence the resulting map. Thus, a slight change in HVI construction method could direct resources into completely different neighborhoods. Furthermore, HVIs are difficult to validate, as estimating heat-related mortality has its own methodological challenges. One method to estimate mortality attributed to heat is using statistical attribution. This model uses regional climate models to simulate air temperatures comprehensively over a city, coupled with a heat exposure-response function to estimate heat-related mortality. But this is often beyond the capabilities of local planning departments due to limitations in funding or technical expertise. It is much easier to obtain remotely sensed surface characteristics and using GIS analysis techniques with which planners are commonly more familiar. Given these constraints, this study seeks to answer: to what extent do established HVI methods accessible to planners correlate with WRF-modeled mortality estimates? Furthermore, what factors, obtained purely from sources easily accessible to the urban planning practitioner, significantly explain these mortality estimates?

Data & Methods

This study compares various HVI construction method outcomes to statistically attributed heat mortality using WRF models of historically high heat waves in Atlanta, Detroit, and Phoenix. Heat vulnerability indicators identified in the literature were collected for each city at the census tract level from sources such as the National Landcover Database and the US Census. HVI accuracy is assessed using bivariate spatial regression to correlate the HVI scores with WRF modeled mortality estimates.

Results

Results indicate that HVI scores do not always track well with mortality estimates, in some cases highlighting completely different neighborhoods within the same city. Bivariate spatial regression between HVI scores and mortality estimates shows an R-square of roughly 0.4. Composite HVI scores may also be more useful to the practitioner if broken down into more policy-relevant components. Mapping exposure and sensitivity separately allows for more targeted responses specific to local context.

Significance

In a warming climate, it is increasingly important for cities to adopt strategic plans to protect our most vulnerable populations from heat-related morbidity and mortality. Cities must begin to monitor local temperatures now as a first step toward creating a resilient urban environment and population. This information can help urban planners and public health officials improve their emergency response plans and communication strategies for heat mitigation in urban areas by specifically targeting short and long-term responses where there is greatest need. A statistically significant correlation between WRF-derived mortality and heat vulnerability indicators equips planners with a useful and accessible tool to protect vulnerable populations in urban areas effectively and efficiently. A targeted approach can guide both greening policies for passive cooling and emergency heat response among sensitive populations. This research utilizes the latest scientific methods to meet contemporary climate change planning needs, and could significantly advance policies and plans to adapt to a changing climate.

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Key Words: Urban Heat Island, Heat Vulnerability Index, Public Health, Climate Change, Climate Adaptation

IMPACTS OF URBAN LAND USE PLANNING ON ATMOSPHERIC POLLUTION: EMPIRICAL RESEARCH BASED ON FINE-GRAINED DISTRIBUTED AIR POLLUTION SENSOR NETWORKS AND UNMANNED AERIAL VEHICLES

Abstract ID: 1250

Individual Paper Submission

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Whether and to what degree optimizing land use layout could improve urban air quality and reduce residents' exposure still lacks theoretical and empirical evidences. This paper focuses on exploring the relationship between urban land use structure and layout and the spatiotemporal distribution of air pollutants, based on distributed air pollution sensor networks and conventional monitoring networks in Dezhou, China, supplemented by Unmanned Aerial Vehicles (UAV) platform monitoring data, land use and transportation data. The Time-series Clustering model is used to depict the fine-grained spatiotemporal distribution of air pollutions in the urban areas, and the Geographically Weighted Land Use Regression (GW-LUR) Model is used to analyze the empirical relationship between land use type and layout and atmospheric pollutant concentration. Then CMAQ and WRF-Urban numerical models are used to simulate the effect of urban ecological corridor and land use adjustment on the

distribution and diffusion of air pollutants under different meteorological conditions. This paper aims to address two key scientific questions: (1) how and to what extent does the urban land use affect the spatiotemporal distribution of urban air pollution? (2) What effect does the land use planning have on the spatiotemporal distribution of atmospheric pollution? The results show that fine-grained data from the air pollution sensor networks reveals important spatiotemporal distribution patterns of air pollutants in the urban areas, that these spatiotemporal distribution patterns are closely related to land use types, density and structures, and that change in land use structures in the urban areas has significant impacts on the spatiotemporal distributions of air pollution in the urban areas. The research results provide a solid foundation and are important for land use planning.

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Key Words: land use patterns, atmospheric pollution, atmospheric pollution sensor networks, spatiotemporal statistical analysis, land use regression model

CLIMATE ADAPTATION AND SOCIAL VULNERABILITY IN AUSTIN, TEXAS

Abstract ID: 1256

Individual Paper Submission

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As awareness of climate change increases, U.S. cities are beginning to implement climate adaptation initiatives to reduce population vulnerabilities to climate risk. Adaptation initiatives cover a variety of interventions that range from small-scale green infrastructure solutions like bioswales to major engineering projects like flood walls. As these climate adaptation projects have been deployed, researchers have questioned if these interventions exacerbate or create new forms of environmental inequality (Anguelovski et al., 2016; Muñoz & Tate, 2016; Shi et al., 2016). This paper contributes to that literature with a focus on urban planning responses to increased flooding predictions due to climate change in Austin, Texas. Spatial logistic regression is used to quantitatively describe the relationship between measures of income, race, social vulnerability and the siting of climate adaptation interventions.

Flooding is considered one of the deadliest natural hazards in the U.S., and between 1996-2014, Austin experienced 76 flood events resulting in 10 casualties, 50 injuries, and \$105 million in property damage (City of Austin, 2016). In response to past flood events and future climate change predictions, the city has characterized existing and future projects that could improve flood resilience in the city (City of Austin, 2014). This study uses spatial logistic regression to answer two questions: 1) Are census block groups with greater racial/ethnic and income disparities more likely to be located in floodplains? 2) What is the relationship between measures of income, race, social vulnerability, flood risk, and the probability of a census block group receiving a climate adaptation intervention?

Analysis was completed on two categories of dependent variables; exposure to flood risk and proximity to flood adaptation initiatives. Flood adaptation initiatives capture existing and planned efforts by the city to improve flood resilience and are grouped into three categories: flood buyouts, small-scale green infrastructure, and planned future tree canopy. Four independent demographic variables are used to assess race/ethnicity and

income at the block group level. Nine additional demographic variables compose a social vulnerability index to capture compounding social stressors.

Initial results suggest that there is a statistically significant relationship between the probability of living in a census block group that receives a flood adaptation action and measures of flood risk, income, and race/ethnicity. The probability of receiving small-scale green infrastructure increases with median household income and the concentration of Asian residents. A lower probability of receiving small-scale green infrastructure is associated with higher measures of socioeconomic and education/language vulnerability. In contrast, the probability of receiving flood buyouts rises with increases in the percent of non-white Hispanic residents. The probability of a census block group being a priority for future tree canopy expansion increases as percentages of non-white Hispanic and African American residents increases, along with higher measures of socioeconomic, and education/language vulnerability themes.

Analysis of Austin's planning documents show that flood buyout and tree canopy plans are responding to an evaluation of risk, and in the case of the tree canopy, a desire to address existing environmental justice issues. In contrast, there is no documentation around the goals or intentions of small-scale green infrastructure. This paper suggest that when the City of Austin is intentional about siting climate adaptation initiatives they can do so in a way that is more spatially equitable. However, findings around access to small-scale green infrastructure may provide additional support to concerns that adaptation projects may create "ecological enclaves" that protect more privileged communities (Anguelovski et al., 2016; Shi et al., 2016). These findings contribute to on-going work that seeks to understanding how new urban planning responses to climate change perpetuate or address issues of climate justice.

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Key Words: Climate adaptation, Environmental justice

EXPLORING THE COOLING POTENTIAL OF URBAN AGRICULTURE DURING EXTREME HEAT CONDITIONS

Abstract ID: 1280

Individual Paper Submission

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Extreme heat events are responsible for more annual fatalities in the United States than any other form of extreme weather [1]. Urban centers are particularly vulnerable to the threats of excessive heat as most cities are home to large populations of lower income individuals who often lack access to air conditioning or adequate healthcare facilities. Urban populations are also more likely to be exposed to extreme heat due to the urban heat island (UHI) phenomenon. As the global population continues to urbanize, the number of vulnerable individuals will continue to increase making urban heat island mitigation strategies all the more important.

This research explores urban agriculture as an urban heat island mitigation strategy. Though previous work has examined the role of vegetation in mitigating the UHI effect [2], the potential of urban agriculture as a mitigation

strategy is relatively unexplored. Vegetative strategies in regions with sufficient rainfall have been shown to be very effective heat mitigation strategies for combating the UHI effect. While vegetation has been upheld as an effective cooling strategy, the impact of using vegetation as a heat mitigation strategy during periods of extreme heat is unknown. This paper presents the results of a land cover analysis, which investigates the climate effect of urban agriculture on local temperatures by examining how urban agriculture performs during a heat wave. The research is conducted in the city of Atlanta, GA, as Atlanta has one of the fastest growing urban heat islands and has exhibited significant increasing trends in heat waves [3].

This paper is a continuation of previous research where I showed that urban agriculture can reduce nighttime temperatures and outperforms forested land cover in reducing nighttime temperatures at the MSA level. My research shows that urban agriculture sufficiently decreases high nighttime temperatures during hot summer months, which is an important finding from a public health perspective, as night-time temperatures are a better metric for capturing negative health effects from extreme heat than daytime temperatures.

In this research, I conduct a land cover analysis to investigate how the cooling potential of agriculture changes during extreme heat conditions. I use satellite temperature data, land cover data, and urban form metrics to estimate how the percent change in urban agriculture impacts local temperatures. In order to investigate the role of urban agriculture as a heat mitigations strategy, I conduct a land cover analysis during a heat wave and non-heat wave period. I investigate the land cover over the entire Atlanta MSA and explore how temperatures change at a local scale depending on the composition of the local land cover.

This research builds on work currently examining the potential of urban agriculture to effectively revitalize neighborhoods with vacant properties and reclaim brownfield sites in urban areas. When designing heat mitigation strategies, it is important for planners and policy makers to quantify the difference between vegetative approaches in order to understand the tradeoffs they are making climatically, environmentally, and socially as well as understand how these vegetative strategies perform during extreme heat conditions. As such the results of this research can help guide planners when selecting between vegetative UHI mitigation strategies and may further support the burgeoning urban agriculture movement.

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Key Words: urban agriculture, urban heat island, extreme heat, urban form

TRANSFER OF DEVELOPMENT RIGHTS AND WATER QUALITY TRADING: A COMPARATIVE ASSESSMENT OF GEOGRAPHIES AND BARRIERS

Abstract ID: 1288

Individual Paper Submission

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Recent years have seen a ground-swell of bi-partisan support for market-based environmental and land use policies. This excitement is rooted in these policies' theorized potential for achieving goals more efficiently than non-market regulatory approaches. However, the performance of trading programs is uneven, with many exhibiting modest or very low trading activity (Hamstead and BenDor, 2010; Linkous and Chapin, 2014). This is evident across a wide range of geographies and among very different types of trading programs, suggesting the need for comparative research that looks across different trading programs to better understand the factors

promoting, or detracting from, the viability of these resource protection strategies.

This research examines transfer of development rights (TDR) and water quality trading (WQT) programs in the US, seeking joint lessons that can inform the design and implementation of ecosystem trading programs in general, as well as improve our understanding of why these widely adopted policies often have limited implementation and performance. TDR programs allow landowners to sever and sell the right to develop property, creating a market for development rights that provides an alternative or complement to land use regulation. WQT programs include a number of arrangements for redistributing pollution allocations to find efficient ways that polluters can reduce their effluent. TDR and WQT programs demonstrate similarities and differences, the identification and analysis of which may yield insights for understanding the potential and pitfalls for environmental trading programs.

What are the common inhibitors to implementation of TDR and WQT programs? Where and why have these programs overcome barriers to become functional and productive?

While several WQT programs have found frequent use, many experience operational barriers that closely mirror inhibitors endemic to TDR programs (Linkous 2017). Evaluations of TDR programs tend to focus solely on the few successful programs (Pruetz and Standridge 2009), producing little evidence about what sort of TDR transfers are typical, or even if transfers regularly occur (Linkous 2016). Few studies have sought to understand the abundance of TDR programs (including small-scale programs), the extent to which TDR is actually used for environmental protection or other uses, and whether local governments operating TDR programs actually view them as a viable tool for resource protection. Similarly, few studies have sought to understand the extent and abundance of WQT programs, where they tend to be established and/or successful, and where trading actually occurs (as opposed to pilot studies or programs that exist only on paper). Currently, there is little research that attempts to synthesize the lessons for program design, implementation, and performance through comparative analysis of different types of trading programs.

In this paper, we explore the first step in this research project, presenting the most complete database to date on WQT and TDR programs in the United States. We have compiled WQT program information from numerous data sources over the last two years, mapping markets specific to separately traded pollutants, distinctive geographic service areas, and individual trading mechanisms. Drawing on demographic, political, urban, and environmental co-variates, we use logistic regression modeling to better understand the existence and relative operating state of WQT programs. We likewise have compiled TDR program data from literature sources and local government records to paint a geographic and operating picture of programs in North Carolina, Pennsylvania, and Florida, states that each have distinct WQT and TDR policies and program histories. We conclude by discussing upcoming case-study work that will build on this data collection work to qualitatively analyze cross-fertilizations and regulatory learning in areas with TDR and WQT program overlaps.

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Key Words: market-based policy, environmental markets, water quality, density transfer, environmental planning

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In recent years, many studies have been conducted to assess the vulnerability to climate change and sea level rise in particular. The measure of vulnerability serves as a starting point for the understanding of climate change impacts and the prioritization of vulnerability reduction strategies (O'Brien et al. 2004). Using various social and physical indicators, vulnerability to climate change is usually assessed as a characteristic or state generated by multiple social and environmental process and exacerbated by climate change (Kelly and Adge 2000). Such characteristic or state depends on the actions and perspectives of stakeholders, the rules of decision making, and the underlying knowledge and value systems that drive the decisions (Miller et al. 2010). The perspectives and their relative importance are context-specific, associated with individuals, institutions, organizations, and cultures, and sometimes based on competing values (O'Brien and Wolf 2010). Therefore, literature proposes to take an actor-oriented view and adopt a value-based approach in vulnerability assessment to explicitly acknowledge the value of multiple perspectives, to identify potential conflict and convergence, and to facilitate the adaptation across sectors and scales (Miller et al. 2010; O'Brien and Wolf 2010). However, despite these potential benefits, there have been very few explicit value-based climate change vulnerability assessment that considers both physical risks and stakeholder values (O'Brien and Wolf 2010).

To fill the aforementioned research gap, this study proposes a value-based approach to assess the integrated vulnerability to sea level rise in Tampa Bay region. Acknowledging the vulnerability of sea level rise are linked with multiple dimensions and the significance of these dimensions differ by stakeholders, this study conducted a survey in the study area to explicitly assess the perception of the relative importance of social, economic, and infrastructure vulnerability to sea level rise by different agencies. Planners, city managers, and planning and engineering professionals from municipal planning agencies, county agencies, state and regional environmental protection agencies, department of transportation, and private planning and engineering companies have been asked to rate the importance of different dimensions and indicators on a scale of 1 to 9. The ratings are used 1) to compare the relative importance of infrastructure vulnerability, social vulnerability, and economic vulnerability, 2) to compare the relative importance of different critical infrastructures (i.e. emergency operation center, healthcare facilities, principal transportation facilities, fuel distribution centers, police, and fire department) in the infrastructure vulnerability assessment, 3) to select the most important measures to capture the regional economic vulnerability. Statistical analyses such as Friedman's test and Paired Wilcoxon signed ranks test are conducted to quantify the value compatibility among different agencies.

The analyses find that for the agencies in the case study area, social, economic, and infrastructure vulnerabilities are considered equally important at 95% confidence level. For economic vulnerability indicators, stakeholders value the impacts on employment over the impacts on wages or businesses. For critical infrastructures, agencies consider transportation facilities more important than other emergency facilities. Based on these findings, Analytic Hierarchy Processes (AHP) is then applied to generate an integrated vulnerability index under 1ft, 2ft, and 5ft sea level rise scenarios respectively. The integrated vulnerability index is mapped out at census block group level for the case study area to identify the hotspot for vulnerability reduction.

Although the findings are context-specific, the methodology and research framework could be applied generally to better understand the localized vulnerability and to identify potential value conflict and collaboration for adaptation.

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Key Words: Vulnerability assessment, Sea level rise, Value-based Approach, Analytic Hierarchy Processes, Value Compatibility

LOCAL MOTIVATIONS TO SEA LEVEL RISE ADAPTATION IN THE TAMPA BAY REGION

Abstract ID: 1302

Individual Paper Submission

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South Florida is on the frontlines of facing threats from climate change especially sea level rise and related effects of storm surge, inundation, salinization erosion, wetland loss. Local planners implementing adaptation planning face a multitude of barriers that impede the quality, timeliness, and frequency of adaptation initiatives. These include lack of leadership, resources and the uncertainty around planning for long range sea level rise is a significant barrier to the dilution of explicit federal and state guidance on sea level rise adaptation (Moser et al. 2010; Bierbaum et al. 2010; Hamin et al. 2014; Shi et al. 2015). The Florida Senate Bill 1094 “An act relating to the peril of flood” (Peril of Flood Act) which was signed into law in 2015, requires consideration of SLR and the effects of enhanced flooding in coastal element of comprehensive plan in order to guide future development projects. Consequently, there is a growing need to understand how municipalities are pursuing adaptation strategies to address sea level rise under this new state mandate.

This study seeks to understand the motivating factors for local adaptation to sea level rise guided by the Peril of Flood Act in the Tampa Bay Region. Projections for Hurricane Irma sounded dire warnings for Tampa Bay and highlighted the region’s critical vulnerabilities as the 2nd largest populous metropolitan area in Florida.

The paper answers the following research questions:

1. How are local municipalities responding to the Peril of Flood Act in the Tampa Bay region?
2. What are the factors influencing the extent of sea level rise adaptation actions in the Tampa Bay Region?

Data was collected through document reviews, plan reviews, content analysis of webinars and interviews with municipal and regional planners in the Tampa Bay Region. Preliminary results indicate that the extent of sea level rise adaptation in Tampa Bay is not a uniform process and operates along a continuum ranging from top-down vulnerability assessments supported by state resources to internal progressive collaborations, development of networks of learning and proactive policy responses. Specifically, most large urban municipalities such as Tampa Bay, Clearwater, St. Petersburg and Hillsborough identified vulnerabilities using unified regional sea level rise projections and are specifically planning to protect vulnerable transportation infrastructure. Some smaller municipalities such as Bel Air Shore rely on regional bodies such as the Tampa Bay Regional Planning Council One Bay Workshops and the Climate Science Advisory Panel to build capacity in order to perform vulnerability assessments.

This research highlights important ‘hard’ and ‘soft’ motivating factors which facilitate progression along the adaptation continuum: 1. Local and regional networks such as One Bay Resilient Communities creates non-political spaces to generate new ideas and can serve as sources of inspiration for uptake of these actions by members; 2. The guidance and financial resources from Peril of Flood Act is broad enough to give municipalities flexibility and external political ‘cover’ to pursue robust analysis and adaptation planning; 3. The availability of a unified, scientifically robust projections enabled more communities to use the projections to move forward in a credible and legitimate planning process; and 4. The presence of progressive planners, with broad discretion to innovate and implement ideas generated from local and regional networks. However, the outcomes of these adaptation planning efforts are limited by uncertainty and shorter planning time horizons which do not contemplate the multi-decadal impacts of sea level rise.

The results of this paper will resonate at the local and regional levels in Florida and can also translate to other states and localities facing similar risks and planning contexts in the Gulf Region. The results can provide guidance to local governments, particularly those in lower-resource communities, to offer the process steps and management considerations for engaging with regional bodies to facilitate the adaptation planning process.

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Key Words: Sea level rise, Adaptation planning, Motivating factors, Tampa Bay Region

NATIONAL CLIMATE JUSTICESCAPE AND GREEN INFRASTRUCTURE PLANNING

Abstract ID: 1315

Individual Paper Submission

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Communities around the world have experienced increasing climate change associated hazards that have impacted livelihood of millions of people. In the US, the remark of catastrophic 2005 Katrina is a wakeup call for community climate justice and 2017 Maria has once again demonstrated persist climate justice issues in social-ecological vulnerable communities, such as the devastations and social impacts in Puerto Rico. Climate justice examines spatial disparity of climate change associated hazards in relation to socially vulnerable groups (Cheng 2016a). Green infrastructure has been recognized as one of the critical climate change adaptation strategies in urban planning and design. A lack of access to green infrastructure for mitigating climate change-induced associated hazards such as heat (Jerenette et al. 2007) and floods (Cheng 2016b) among socially vulnerable groups would ultimately contributes to inequitable planning and climate justice communities.

Built on the previous study of climate justicescape in American cities (Cheng 2016b) that demonstrated spatial distribution and hotspots of climate justice areas in the United States based on spatial patters of historical extreme climate events and social vulnerability indices, this paper aims to incorporate green infrastructure mapping to answer the following question: to what degree do climate justice cities have access to green infrastructure? How have climate justice cities incorporated green infrastructure planning for climate change?

Green infrastructure is defined as interconnected natural and manmade open space that provides ecosystem functions (Tzoulas et al. 2007). In this paper, green infrastructure is identified as non-urban land cover categories from National Land Cover Database 2011 (NLCD2011). We then calculated the percentage of green infrastructure area at the unit of county level, which is consistent with social-ecological vulnerability assessment from the previous study. The results highlight the large metropolitan areas with climate justice patterns are also the areas

Finally, climate change action plans from the cities with climate justice hotspots are collected and apply content analysis for their goals and intended outcomes in using green infrastructure for addressing equity and climate change adaptation. Evaluation criteria include whether 1) the planning documents define social

vulnerability or associated socioeconomic indicators and whether social justice, 2) equity is listed and defined in their plans, 3) green infrastructure is identified as climate change adaptation strategy.

The results demonstrate that even though the climate associated disasters have been widespread, the socially vulnerable groups among the victims remain the least prepared for and having the most obstacles to respond to and recover from disasters. The findings support the evidence of climate justice persists at local scales and a lack of institutional change for addressing justice issues in climate change planning. Through raising the awareness of climate justicescape and green infrastructure asset, the findings help to inform planning policies for prioritizing resources in investing green infrastructure in areas with the greatest social needs under the consideration of climate change impacts and promote local climate justice planning.

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Key Words: climate justice, green infrastructure planning, social vulnerability, climate change adaptation, equity planning

THE CHANGING MEANING AND RESPONSIBILITIES OF URBAN SUSTAINABILITY PLANNING: THE CASE OF PHILADELPHIA

Abstract ID: 1368

Individual Paper Submission

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Increasingly there are questions about both the concept and desirability of urban sustainability. Planners and scholars are recognizing that it is not enough to promote policies that are aimed at creating more sustainable cities (for example, investment in public transit, smart growth, transit oriented development, increasing density, bike lanes, energy efficiency, climate resiliency, and urban greening) without engaging in a larger conversation about social justice, race, class, structural inequality, and “just sustainabilities” (Agyeman, 2017). While planners often focus on place-making, the urban sustainability approaches that cities are adopting are increasingly viewed as contributing to larger, and troubling gentrification dynamics, often termed “green gentrification” (Anguelovski, 2016). This paper examines the way that the concept of urban sustainability and policies to promote it have evolved in Philadelphia over the past decade. While Mayor Nutter (2009) aimed to use urban sustainability planning as a means of revitalizing the city, in 2018, the tide has shifted and the political economy of Philadelphia has changed. Increasingly, urban sustainability is seen as a part of a larger, neoliberal agenda and there are very real political conflicts around sustainability planning that often divide on race and class lines. Using a series of mini-cases of conflicts around urban sustainability planning in Philadelphia over the past decade, this paper highlights how the conversation about urban sustainability and the associated policies has evolved in the city. The paper highlights the growing recognition that place-based strategies to make cities more sustainable are not leading to “just sustainabilities”. What is missing in Philadelphia are policy tools and planning techniques that promote urban sustainability planning and simultaneously respect the very real concerns from low-income and communities of color that they are, what Melissa Checker describes as, being “wiped out by the ‘green wave’” (Checker, 2011). I argue that policies to address displacement need to be coupled with urban sustainability efforts. Planning for urban sustainability that promotes “just sustainabilities” will require a rethinking of the siloed and fragmented nature of planning in the city. Planners need to work across agencies, collaborate with

communities, and be more creative about integrating sustainability goals with other goals such as promoting affordable housing, improving schools, promoting low-income home ownership, and innovating with tools such as community land trusts. Using a case study research method, this paper outlines a series of lessons for urban sustainability planners that come out of the Philadelphia experience.

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Key Words: Sustainability, Green Gentrification , Community Land Trusts

EXPLORATION ON THE DEVELOPMENT PATH OF CHARACTERISTIC SMALL TOWNS BASED ON INDUSTRIAL TRANSFORMATION IN CHINA - A CASE STUDY OF GAOCHENG CHARACTERISTIC SMALL TOWN PLANNING

Abstract ID: 152

Poster

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Small towns have been playing an important role to connecting urban areas and rural areas, constructing small towns is very essential for China's urban-rural integration development. Under the background of New Normal, the traditional planning, focusing on spatial planning and aiming at economic growth, has been unable to adapt to the current development needs of small towns. People are facing with great pressure on the resources, the environment and the labor force etc. So the development and nurturing of characteristics small towns becomes the key. This study through analyzing the status and problems of characteristic small towns, summarizing the changing of planning ideas of the characteristic small towns under the 'Zhejiang Model'. Taking the planning of Gaocheng characteristic small town in Yixing city as an example, and from the prospective of determine factors of characteristic small town's construction, its industries. Then exploring the choice of industry position and specific strategies for implementation, upgrading industrial structure and value-added hierarchy with the innovation-driven. Under the guidance of development experience of Zhejiang, the planning of Gaocheng characteristic small town made a clear judgment and choice. It determined the environmental protection industry as the leading industry for development, and gradually decreasing the cable manufacturing which is the main economic growth point of industrial development currently. Finally by implementing the specific elements, the final spatial planning program lay out. Its industrial transformation ideas and planning methods giving a certain reference to other characteristic small towns. The study of Gaocheng also illustrates that the long-term growth of regional economy driven by the continuous upgrading of industries has become an inevitable trend of urban and rural development under the new normal. Small towns as an important medium connecting cities and rural areas, more necessary to discovering and cultivating their own characteristic industries, then developing into a characteristic small towns. Moreover, this will enhance the quality of China's urbanization and develop in a more healthy and coordinated pattern.

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Key Words: characteristic small town, industrial transformation, innovation-driven, the New Normal, urbanization

SOCIAL VULNERABILITY AND FLOOD DAMAGE: NEIGHBORHOOD DISPARITIES IN FLOOD DAMAGE DUE TO HURRICANE HARVEY IN THE CITY OF HOUSTON

Abstract ID: 426

Poster

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Hurricane Harvey hit the U.S. and caused catastrophic damage in Texas in August, 2017. Harvey inflicted nearly \$200 billion damage due to widespread floods in the City of Houston area. News articles show inconsistent results regarding equity of flood damage due to Harvey. Specifically, some point out that Harvey hit all incomes evenly. Others report that damage is disproportionately distributed. Social Vulnerability (SV) and Environmental Justice (EJ) research (Highfield et al., 2014; Peacock, 2003; Zahran et al., 2008) has revealed disparity in the impact of hazards, mostly in the evacuation and recovery process, at the county level, census tract level, or household or individual level. Limited research examines the relationship between social vulnerability and flood damage at the neighborhood level.

To fill this gap, this research examines the physical damage of housing units across the block group, the minimum neighborhood unit within which has similar demographic characteristics, in social vulnerability perspectives. The research is a factual basis analysis revealing the disparity in flood damage across the neighborhoods in the City of Houston with real assessed damage dataset. Specifically, we address the following question: Does neighborhood socio-economic condition relate to the flood damage of housing?

We utilize Harvey damage assessment dataset in the form of GIS shapefiles provided in open data Houston website (<http://data.houstontx.gov/dataset/city-of-houston-harvey-damage-assessment-open-data>). The dataset includes the number of affected single family units and multi-family units and socio-demographic information in each census block group. We examine the proportion of affected housing units in each block group and use statistical analysis to answer the question.

Given the EJ and SV research, we expected that socially vulnerable neighborhoods have more damaged housing units even controlling for population density and exposure to hazard. The finding has substantial implications for how the reduction of flood damage for socially vulnerable populations may be achieved. Understanding the relationship between social vulnerability and damage at the neighborhood level will be helpful to develop land use and hazard mitigation planning to make the hazard risk more equitable.

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Key Words: Social Vulnerability, Environmental Justice, Flood damage, Hurricane Harvey, Hazard mitigation

THE EFFECT OF NATURAL DISASTER ON POPULATION DISPLACEMENT AND LAND USE CHANGES: IN THE CASE OF REPUBLIC OF KOREA

Abstract ID: 613

Poster

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The increase in the frequency and strength of extreme weather events requires countries and cities to get prepared for and cope with potential impacts of climate change. As natural disasters become more complex, larger in scale and unpredictable, strategic national and local spatial planning is key to establish resilient human settlements to future climate change and natural disaster. While there is a growing interest in disaster mitigation and management in Korea, natural disaster has not been the major interest in the field of spatial planning. The current urban planning does not fully incorporate the potential impacts of climate change. Thus, it is important for the future urban and national planning to take into account the impacts of the coming climate change and natural disaster. As the first effort to this end, the research aims to analyze the impact of natural disasters on population displacement and land use changes in the case of Republic of Korea. Against this backdrop, a panel analysis will be conducted by using a net change in population as a dependent variable and data on human and property loss due to natural disaster as independent variables with other control variables. The results of the research are expected to provide empirical grounds for the need of spatial planning and identify key influential characteristics of natural disasters that have significant effects on population movement and land-use changes.

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Key Words: Natural disaster, Spatial planning, Flood, Migration, Land use change

PERCEPTIONS OF A WICKED PROBLEM: SITUATION ASSESSMENT OF WATER QUALITY ISSUES IN THE JORDAN RIVER WATERSHED

Abstract ID: 624

Poster

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The Jordan River Watershed in north-central Utah exemplifies urban stream environments throughout the western United States. It faces a variety of challenges like population pressure, increased urbanization, higher impervious

surfaces etc., which influences water quality throughout the watershed. This diverse mix of concerns is interwoven with assorted stakeholders and social organizations in the river basin, such as; local municipalities, water treatment plants, water users, local universities, state and federal agencies to name a few. The interplay of these actors in this socio-ecological system creates what is known as a ‘wicked problem’. Linear problem solving is not adequate to address the multifaceted interactions in this watershed. Our study has thus considered this planning unit [Jordan River Watershed] as a complex, non-linear system where the various agents [stakeholder] are loosely integrated in an interdependent network.

Our hypothesis is that a regional stakeholder driven approach to water quality issues will prove more cost effective and environmentally beneficial than individual projects. The goals of this study are to gauge the stakeholder perception of this ‘wicked problem’ and to document existing knowledge and capacity to holistically tackle the issue which is situated in this cross-scalar complex system of Jordan River Watershed.

We are conducting a situation assessment between stakeholders of diverse but interdependent interests associated within the Jordan River Watershed. Face-to-face interviews are conducted with 30 key stakeholders in the watershed. Through the stakeholder assessment, we are able to characterize the current state of local adaptive capacity within and between stakeholder groups and communities, explore distinct stakeholder interests and concerns and highlight the unique challenges and possibilities. The specific research objectives are: to map the stakeholder landscape in terms of interests, positions, epistemology, perceptions, and values; to assess stakeholder individual and collective capacity to address risks and challenges; and to assess whether collaborative decision-making processes enhance knowledge, connections, and the ability of stakeholders to find solutions to wicked problems.

Our findings help understand community resilience and adaptive capacity based on three components: knowledge, connections, and options. Knowledge is simply access to sufficient credible, accurate, and relevant information about the watershed as a system to understand how it works and how particular actions may affect it. Connections has to do with networks of individuals and organizations that individually or collectively have the power to take action to affect the system. Options is a measure of a state of the socio-ecological system: what array of actions are available to influence the trajectory of the system? This is done by mapping stakeholder epistemologies through mental models created from interviews.

The main significance of this study is linked to the practice of collaborative regional planning. Authentic dialogue helps establish jointly constructed knowledge through interaction and team learning. Agents interact dynamically exchanging local heuristics while creating a knowledge pool that can be distributed throughout the entire social system [Innes and Booher, 2010]. Bringing these local stakeholders together helps tap the local knowledge that is practical, collective, and strongly rooted in a particular place [Geertz, 1983]. Understanding how and where this knowledge is generated is essential for understanding the inter-play of various links in the complex system of this watershed and attempting to solve the ‘wicked problem.’ We present and compare stakeholder position/interest “maps” and the epistemologies that inform and support them as an approach to understanding and communicating the complexity of wicked problems.

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Key Words: complexity planning, wicked problem, watershed management, stakeholder assessment

ESTIMATING COOLING EFFECT OF URBAN GREEN AREAS USING RANDOM FOREST PREDICTION MODEL

Abstract ID: 685

Poster

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Rapid urban growth has resulted in increases in the amount of impervious surfaces in cities, inducing changes in urban climates, which are generally warmer than their rural surroundings. This phenomenon is known as the urban heat island (UHI) effect (Kim et al., 2017). Previous studies analyzing the relationship between urban form and UHI have shown that urban green space can effectively reduce UHI intensity (Kong et al., 2014). However, many studies have analyzed the UHI intensity using land surface temperature (LST) since it is extremely difficult to accurately measure the surface air temperature for a wide range of urban spaces. Because the LST is a measurement of how hot the land is to the touch, it is different from the thermal condition in which people actually feel.

Due to recent advances in machine learning techniques, the predictive power of the model has been greatly improved. Accordingly, in the remote sensing studies, the LST data was often used for predicting the maximum air temperature of the day. Most of these studies have used the LST data retrieved from MODIS of 1 km resolution (Yoo et al., 2018), but such a low resolution of estimated air temperature made it difficult to find meaningful implications and interventions for mitigating UHI through land uses planning.

This study aims two. First, using the 30m unit of Landsat data, we predict the surface air temperature at microscopic scale by applying random forest prediction model. Second, we estimate cooling effect of urban green areas using the prediction model.

The study was conducted in two stages. The first was developing random forest models for estimating the surface air temperature, and the second stage was estimating cooling effect of urban green areas. Random forests technique is an ensemble method that randomly learns multiple decision trees. For the analysis, we have collected nine cloud-free Landsat images from 2013 to 2016 for hot summer days in the study area, and corrected the LST in different days using Surface Energy Balance Algorithm for Land (SEBAL). The number of Automatic Weather Station (AWS) in the study area was 52. Meteorological variables included Albedo, elevation, longitude, latitude, and Julian Day. The vegetation variables were Normalized Difference Vegetation Index (NDVI), Weighted Difference Vegetation Index (WDVI), Soil Adjusted Vegetation Index (SAVI) and Leaf Area Index (LAI). The variables related to urban development were impervious area ratio, building coverage area and average height of buildings within 100m and 400m buffered area. The results of Random Forest models were tested using 10-fold cross validation method.

The model performance of the random forest estimation ($R^2=0.9$, $RMSE=0.73$) outperformed the performance of previous models (Ho et al., 2014). The 9-year average temperature prediction showed a slightly better performance in terms of RMSE (0.53). Julian day appeared to be the most important predictor of the model and LST was found to be the second most influential factor. Accounting for the fact that Julian day is a variable representing solar radiation, solar altitude, and solar azimuth, the surface air temperature was largely influenced by solar activity.

The random forest model in the first stage was retained for the next stage of analysis. For identifying cooling effect of the urban green space, we will examine the surface air temperature on the urban green areas and decline of Cool Island by the distance from the green areas.

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Key Words: Cooling effect, Random Forest, Green areas, Maximum Air temperature

ELIMINATING "RESOURCE CURSE" AND BUILDING RESILIENT CITY - BASED ON THE STUDY OF TYPICAL RESOURCE-BASED CITIES IN CHINA

Abstract ID: 738

Poster

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Resource-based cities tend to fall into the "resource curse" due to the strong dependence of resources and the single industrial structure, which shows that urban development is more volatile and anti-risk ability is poor. Therefore, the transformation of resource-based cities are imperative. The fundamental goal of the transformation of resource-based cities is to build a resilient city, which is also the key to breaking the "resource curse".

Shanxi Province is a typical province of coal resources in China. With the advent of "New Normal of Energy", the price of resources such as coal has dropped sharply. The urban development mode that originally relied on energy economy is unsustainable and has been deeply trapped "Resource curse". Taking Datong, Yangquan and Shuozhou as examples, this paper analyzes the basic characterization of resource-based cities and resource-based finance, summarizes the economic development path of resource-based cities and the three predicaments of "resource curse", and then to explore the ideas to get rid of "resource curse" and building a resilient city.

The primary determinants are as follows. (1) Datong and Yangquan developed earlier, which are more mature than Shuozhou. However, Datong and Yangquan have also exposed many problems. Datong started the transformation firstly, however, in recent years, the dependence of local finance on land finance has risen., Yangquan has not achieved remarkable results in its transformation in the face of various difficulties and inadequate coping measures. Shuozhou is still relying on the rapid development of resources, but also needs good job of planning in advance, to avoid the mistakes of similar cities. (2) There are three main causes of "resource curse", Structural difficulties- resource dependence of "coal alone" and lack of economic motivation; Policy difficulties-government positioning deviation, inexperience and slow response; Governance difficulties-conservative ideas and political deterioration. (3) Building a resilient city is a new way for cities to achieve sustainable development, resource-based cities need to upgrade industrial and change the diversified structure, improve the government functions, standardize the order and strengthen the security system, and so on.

Resources-based cities can only effectively eliminate "resource curse" and achieve sustainable economic, social and environmental development if they are really built into a resilient city.

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Key Words: resource-based city, "resource curse", resilient city

THE RESOURCE AND ENVIRONMENT ASSESSMENT METHOD BASED ON BOTTOM-LINE THINKING

Abstract ID: 740

Poster

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China's first proposed ecological protection red line in 2011, which is an important institutional innovation in the field of environmental protection in China. In February 2017, Chinese government issued "Opinions on the delineation of ecological protection and adherence to the red line". It stressed ecological protection red line again. For ecological protection and urban development, ecological red line is a kind of "bottom-line thinking", which is a prudent way of thinking, focusing on the crisis, risk and prevention. In non-reversible urban ecosystem, the bottom line plays the role of "guaranteed minimum," "minimum line of defense," and "crisis minimization."

This article aims to clarify what is the ecological "bottom line" and how to delimit the ecological bottom line in resource and environmental assessment. Based on theoretical research, combined with a series of planning practices, case studies and GIS analysis, we will explore the methodological framework for resource and environmental assessment to ensure the ecological integrity of the planning scope and define the limit scale of the growth boundary.

We combine the results of the research and form a technical framework for resource and environmental assessment methods based on bottom-line thinking: determine the scope of the study based on the minimum unit of the river basin, analyze the ecological resources within the scope of the study to determine the ecological security pattern, and then conduct space control and clarify the boundary based on the ecological bottom line. First, determine the scope of planning and research. This paper takes Yunlong New Town planning in Zhuzhou City as an example. We propose to define ecological research units at natural scales. We use GIS and professional hydrology analysis software to conduct basin analysis, and use the smallest watershed covering the planning scope as the research unit. Next, analyze the planning security pattern. Water, terrain, animal communities, mineral resources, etc. should be analyzed. Take the Sihe River Basin Conservation Plan as an example, comprehensively combining the strict control elements to identify resources safety patterns, combined with analysis of other urban ecological factors within the ecological line, to comprehensively determine the ecological security pattern. Finally, delimit the ecological bottom line and determine the space control. Based on the research scope and the security pattern, we compare the delimitation of ecological bottom lines in Wuhan, Quanzhou, and Guangzhou planning. Through the environmental bearing capacity, the area of the ecological bottom line can be predicted, delimited and unified management.

The exploration of the "bottom line of thinking" in different cities has provided many cases and practical experiences. On a whole, reforming the ecological planning in China's spatial planning system, establishing efficient planning and management and overall order, and optimizing space governance require both the first transformation of technological approaches and the transformation of ideas and model innovation at the level of urban thinking.

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Key Words: Bottom-line thinking, resources and environment assessment, watershed unit, analysis of ecological resources, space control

RESILIENCE INDICATORS AND MEASURING VULNERABILITY TO COASTAL HAZARDS

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As climate change threatens coastal areas at risk of inundation and flooding, accurate measures to assess and diagnose the current hazard levels have been absent. Yet they are essential to allocate limited resources for appropriate resilience programs. For more than forty years, since the UN Conference on the Human Environment held in Stockholm in 1972, environmental advocates, including city planners, have been developing indicator systems to meet this need. They aim to provide guidance for policy-relevant comprehensive and scalable information-driven processes understandable to laypeople and practitioners alike. They have introduced many urban indicator systems for resilience planning, mainly in response to several highly destructive natural disasters. This study explores the historical development of urban resilience indicating systems in order to apply them to the specific site of South Korean coastal regions for validation testing.

This research is composed of two parts. First, I historically examine the academic and practice-oriented studies on urban resilience indication systems and discover the need for a standardized system for urban resilience as a reference for various governments and organizations. This part includes recent studies, such as the United Nations Environment Programme (UNEP), the Intergovernmental Panel on Climate Change (IPCC), the United States Geological Survey (USGS), and the National Oceanic and Atmospheric Administration (NOAA), regarding how to differently measure and confirm coastal resilience using various definitions and goals.

Second, I employ basic spatial regression and GIS modeling analysis to determine whether the global-scaled indicating system can apply to the national-scale area. I evaluate the current coastal vulnerability of Korean coastal regions by applying the UNEP's framework as a pilot test. This part also includes some geospatial analysis to define flood characteristics and to assess flood vulnerability at the national level. Each result is codified in a map format for easy policy implementation. These analyses discover how the different scaled actors, such as global organizations, national governments, and local authorities, can coordinate for overall coastal resilience and their positive interaction.

An objective and accurate understanding of the current state of disaster resilience will help to isolate the problems during the policy decision process. In this context, this research can provide a clear direction to the Korean government for building better coastal resilience planning and future preparation. Along with coastal resilience, the methodology of spatial statistics also has untapped potential in this field. Through the interaction of these two areas of thought, a practical indication system that can be applied to real-world problems will be developed for future studies. This review and the application of coastal vulnerability indexes and modeling of an indication system can positively inspire adaptation strategies for coastal areas in this time of dramatic climate change.

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Key Words: Resilience Indicator, Coastal Hazard, Climate Change, Spatial Analysis, South Korea

HIGH-RESOLUTION MICROCLIMATE MAPPING IN THE TECH CLIMATE NETWORK

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Extreme heat poses a significant threat to human health, and is expected to worsen in a warming climate. In response to both global and local scale climate change due to the urban heat island (UHI), temperatures in the Atlanta region have been rising more rapidly than in previous decades. More effective monitoring of climate trends on campus, in concert with climate-responsive design strategies, can lessen both the human impacts and infrastructure costs of rising temperatures. The Georgia Institute of Technology's Urban Climate Lab has established a dense network of temperature and relative humidity sensors throughout the campus to identify the location of hot spots, measure the impact of ongoing development on micro-climatic conditions, and assess how the use of vegetation and cool materials around campus can moderate warming trends. Georgia Tech's campus provides an ideal location for exploring microclimatic activity both spatially and temporally. This study seeks to answer: what is the impact of impervious surface cover, surface-level vegetation, and overhead tree canopy on air temperatures?

Methods

We monitored air temperatures at 25 sites across campus over the summer of 2017 and analyzed the amount of surface-level land cover classes within 100 feet of each site including sidewalks, streets, buildings, and landscaped area, along with tree canopy area above or around each site. We correlated these land cover variables with the full-summer average daily minimum, mean, and maximum temperatures, as well as number of hot days over the summer defined as a day that exceeds the 90th percentile maximum temperature for Atlanta's 30-year climatology.

Results

Our results show that the UHI is not one large hot spot across the city, but rather a collection of distinct microclimates with max temperatures ranging from roughly 1.4 to 6.8°F warmer than a rural control site on average. Similarly, number of days above the 90th percentile maximum temperature range from 7 days in the coolest areas to 56 in the warmest areas. The landcover regression analysis shows that land cover performs fairly well in predicting minimum and average temperatures, and less well in predicting maximum temperatures and the number of hot days. Minimum temperatures are significantly predicted by streets, sidewalks, and buildings. These materials absorb and store incoming solar radiation, releasing it slowly as sensible heat throughout the night. The influence of vegetation became more significant in predicting maximum temperatures and hot days than minimum temperatures. While landscaping never emerged as a significant predictor, tree canopy displayed a strong relationship, reducing maximum temperatures by 0.52°F for each percent increase in canopy cover.

Significance

This study illustrates the significance of land cover on UHI intensity across Georgia Tech's campus, and shows how small each microclimate can be. This information can help urban planners prepare for rising temperatures from a warming climate and increased urbanization. Heat mitigation planning that incorporates vegetative strategies can significantly protect vulnerable populations adapt to extreme temperatures and enhance local resilience. Cities must begin to monitor local temperatures now as a first step toward creating a resilient urban environment and population. This information can help urban planners and public health officials improve their emergency response plans and communication strategies for heat mitigation in urban areas by specifically targeting short and long-term responses where temperatures are most extreme. By characterizing the thermal properties of built and natural environments, this method allows urban planners to estimate local air temperatures without deploying a dense network of sensors across the entire city. Understanding which neighborhoods are at greatest risk of extreme temperatures can help planners shape the policies necessary to combat the impacts of climate change tailored to their local context.

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Key Words: Urban Heat Island, Microclimates, Climate Change, Urban Climatology, Extreme Heat

URBAN AND RURAL TEMPERATURE TRENDS IN PROXIMITY TO LARGE US CITIES: 1988-2017

Abstract ID: 1178

Poster

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In addition to the threats of a warming global climate, urbanization exacerbates extreme local temperatures due to the urban heat island (UHI) effect. This paper presents an ongoing study of urban and rural temperature trends in proximity to the most populous metropolitan areas of the US. As data from urban meteorological stations are typically eliminated or adjusted for use in continental and global analyses of climate change, few studies have addressed how temperatures are changing specifically in the areas most vulnerable to the public health impacts of warming: large cities. In this study, temperature data from urban and proximate rural stations for large US metropolitan areas are analyzed to establish the mean decadal rate of change in urban temperatures, rural temperatures, and UHI intensity over the last three decades. Additionally, this study analyzes the methodological challenges in UHI definition by comparing sensitivities of different rural station selection protocols.

Methods

Climate station data is often “homogenized” when included in large-scale analyses such as national or global averaging, often removing the influence of urbanization to focus on the background warming trends rather than the urban heat island effect. To ensure that this signal is not removed, this study used only unadjusted GHCN-Daily station data obtained via Applied Climate Information System (ACIS) web services. All data were quality checked to remove any stations with confounding effects based on the physical location and management of the stations themselves. Any station that has moved more than 200 feet over the study period was removed. Similarly, any station with excessive missing data was also removed. Stations were classified as either urban or rural using satellite-derived night light data. Each urban station was then spatially matched to the nearest 3 rural stations within 250 km and the median decadal temperature trend among these rural stations was selected for comparison with their respective urban station.

Results

This study found that on average, the most populous cities in the continental US have been warming at a rate of 0.51 degrees F per decade between 1988 and 2017. Meanwhile, their surrounding rural areas have been warming at a rate of only 0.40 degrees F per decade over this time period. This means that while both urban and rural areas are warming, urban areas are warming at a rate of 0.11 degrees F per decade faster than their surrounding rural areas. This difference increased to 0.15 degrees F per decade on average when selecting only the nearest rural stations to the city, and reduced to 0.10 degrees F per decade using only the farthest rural stations.

Significance

This study provides evidence of the strong influence urbanization can have on the local climate. It has long been known that the urban heat island effect results in elevated temperatures within urban areas, but little attention has been paid to the acceleration of this effect as cities continue to grow and develop. Furthermore, this study illuminates the challenge of defining UHI intensity, as the intensity is sensitive to the method of rural station selection. As populations continue to move into cities, vulnerability to extreme heat events will be an ever-increasing threat to public health. While current climate policies tend to focus on atmospheric warming, this study shows that it is just as important to focus on issues related to urbanization and the urban heat island to control local and regional warming, and to protect these vulnerable urban populations.

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Key Words: Climate Change, Urban Heat Island, Landcover Change, Climate Adaptation

THE FATE OF LARGE UNPROTECTED FOREST LANDS IN NORTH CAROLINA: THE ROLE OF LAND-USE PLANNING AND NON-PROFIT LAND TRUSTS

Abstract ID: 1206

Poster

TREADO, Anna [Clemson University] atreado@clemson.edu, presenting author

One of the most universally accepted principles in conservation biology is the principle of bigness, or that large patches of habitat are better than small patches (Noss, O’Connell, & Murphy, 1997). However, in the southeastern United States most land is privately owned and, therefore, maintaining large, contiguous areas of habitat is difficult due to the sheer number of private landowners making uncoordinated land use decisions. As land ownership becomes more and more fragmented (parcelization), the difficulty of implementing conservation plans increases further. The ability of the public to influence land-use on private lands can be loosely divided into two strategies, regulations or incentives. Land-use regulations, such as zoning, subdivision regulations, or urban-growth boundaries, are used by local governments to shape future land use by limiting or preventing uncoordinated development. Incentives, on the other hand, are often voluntary and are used to entice individuals to maintain private land in ways that benefit the public through subsidies such as reduced taxes or direct payments from the government.

One such incentive is the federal tax deduction for donation of a permanent conservation easement or payment for selling a conservation easement on one’s property. Non-profit land trusts have become instrumental in influencing land use through the use of conservation easements. This increased dispersion of planning authority, away from the state and towards third parties, such as land trusts, is highlighted by the sharing of discretion over use of government funds with multiple agents of change (Fairfax & Guenzler, 2001). This has resulted, however, in some criticism from scholars who raise concerns regarding the consequences of allowing private entities to enter into contracts with landowners that dictate the uses of a property into perpetuity without input from the public. These researchers have criticized the devolution in land-use planning authority to non-state actors, citing the ways in which land-use decisions are becoming privatized and excluding the public (Morris, 2008). They argue that this has resulted in a lack of transparency and a lack of data availability on protected lands (Merenlender et al., 2004). Conservation easements have been termed “the invisible forest” (Pidot, 2011) because their locations are often undisclosed by land trusts and therefore potentially unknown by local planners and others in the conservation community. This leads to problems in terms of enforcement as well as an inability to engage in effective strategic conservation planning (Owley, 2011).

Despite the above criticisms, private landowners continue to convey conservation easements to land trusts, signaling that land trusts are fulfilling a role in influencing land use that is desired by at least a subset of the public. Non-profits have a role in a mixed economy when for-profit firms and government action have failed to provide adequate quantities of public goods. However, little research has investigated the relationship between outcomes of government land-use controls and the activity of land trusts (Gerber 2012; Gerber & Rissman, 2012).

This study describes the changes in land ownership and parcel size of forested parcels in North Carolina, USA, between 2006 and 2017, and the relationship of these changes to government land-use policies and non-profit land trust activity. Although the process of parcelization does not in and of itself cause habitat fragmentation, parcelization is considered a critical step in the change from natural resource land use to land development (Haines and McFarlane, 2012). Information about the rate of forestland parcelization and its relationship to specific land-use policies is lacking. Additionally, the role of land-trusts in preventing forestland parcelization needs to be clarified, given the criticisms regarding their involvement in land-use planning.

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Key Words: conservation easements, land-use, habitat, land-trusts, planning authority

TRACK 4 - GENDER AND DIVERSITY IN PLANNING

ROUNDTABLE: PUBLIC MONUMENTS, MEMORIALS AND MEMORIALIZATION

Abstract ID: 598

Roundtable

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In recent years, Confederate monument removal in the US South has become a critical demand in urban anti-racist social movements. While newly visible, these actions continue decades of work to remove Confederate, colonial and other oppressive symbols from shared spaces and institutions as a step to dismantling their legacies. Yet some want to preserve these public sculptures as historical artifacts or for their cultural significance. These debates have entered many universities, which are attempting to chart a path away from their colonial and slaveholding pasts, while also honoring the experiences of their alums. Simultaneously, monument building continues as societies commemorate significant events, as nation and community building, or to recognize people and events that symbolize justice and equality.

Hundreds of grassroots memorials have emerged as an equally significant force. Family and friends resist erasure and express grief when they create street shrines by placing photos of young people killed by violence on city streets along with professions of love and stuffed animals. Public commemorative and political action has disrupted the conditions that made Missing and Murdered Indigenous Women and Girls invisible and therefore the situation possible. Ghost bikes have appeared in cities throughout the world, recognizing individual loss and dangers facing cyclists. Some memorials are ephemeral and other become semi-permanent as they stay in place through time.

These public sector, community and grassroots actions reflect deliberate decisions about public storytelling and visions for collective futures. The purpose of this roundtable is to explore varied perspectives on public memorials, memorialization and responses to monuments enacted in past eras. The roundtable examines the motivations and outcomes of contemporary monument building and removal, conflicting experiences with public monuments, the possibilities for using memorials in processes of truth and reconciliation, as well as how to teach these subjects in a divisive era and as moments to envision different futures. The diverse cases include US Confederate monuments, an independence monument in Haiti, commemoration of war, traumatic events and national disasters, and grassroots actions to draw attention to injustice. The roundtable continues decades of conversations about how planners can engage with conflicted histories and storytelling to build inclusive but honest alternatives, and newer issues about the ongoing importance of built environments and artifacts in a virtual era.

Questions for panelists:

- What are contemporary motivations and purposes for public monuments, memorials and memorialization?
- What is the significance of grassroots memorials?
- Who decides? Who builds? Whose stories? Which spaces?

- Should municipalities or other public institutions ensure that public memorials help to inclusive public realms? Can they do so?

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Key Words: monuments, memorials, public spaces, diversity, Indigenous feminist planning praxis

ROUNDTABLE: CENTERING PUBLIC EDUCATION EQUITY IN PLANNING RESEARCH

Abstract ID: 644

Roundtable

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 MAKAREWICZ, Carrie [University of Colorado Denver] carrie.makarewicz@ucdenver.edu
 GIBSON, Huston [Kansas State University] hgibson@ksu.edu

Increasingly, planning researchers and practitioners have recognized the mutually constitutive relationship between domains of planning and public education. Research across related disciplines has demonstrated that external factors such as poverty, hunger, violence, housing instability and homelessness, community disinvestment, legacies of and persistent segregation and transportation affect education outcomes and access to high quality schools. Further, education quality is strongly linked to social mobility. When students do not have access to high quality schools, due to upstream influences, the downstream outcome is continued disparities in social mobility between those with good education and those without.

Planning research and practice strongly influences those upstream conditions for learning. Researchers also study planning solutions to address the downstream disparities. Yet, the planning discipline has struggled to center public education as a cohesive research thread or sub-field. Transportation planners look at schools as traffic generators and opportunities to promote active travel. Land use and smart growth planners see them as triggers for sprawl and barriers to urban infill. Community development and housing researchers connect schools alternatively to segregation, shared use facilities, or opportunities for promoting revitalization. In addition, educational researchers have also focused on policies to improve educational equity and quality without adequately considering the interconnection with these other domains.

This roundtable will bring together planning scholars and educational researchers engaged in research grappling with the interactions between the built and social environments and school districts, access to high quality education, and ultimately equity and social mobility outcomes for children and youth in marginalized communities. Roundtable participants' projects span the United States and beyond and focus on: neighborhood and school segregation, public school closures, transportation and school access, the outcomes from school choice systems, housing mobility, comprehensive community development, school facilities infrastructure and land uses, and learning places as frameworks for neighborhood planning.

Across this diversity of projects, our goal is to discuss the ways that more explicitly defining and centering schools in planning research helps us not only support high quality public education, but also advance planning scholarship and practice – theoretically, empirically, and methodologically. The following questions will guide our discussion:

- -- How do you incorporate or frame schools, school quality, and education-related social mobility within your research?

- -- How does centering public education in your research help you advance knowledge and theory within your domain of planning? Do schools, in their various functions, fill a gap in your policy or planning domain? Alternatively, how do you center other domains like transportation and housing in your educational research?
- -- What methodological approaches have you used to consider the intersection between planning domains and educational systems? What methodological challenges have you faced?

Moderator: Ariel H. Bierbaum, Assistant Professor, University of Maryland

Participants:

Molly Chlebnikow, University of Hawai'i Manoa
 Kara S. Finnigan, University of Rochester
 Huston Gibson, Kansas State University (co-organizer)
 Andrew Guinn, University of North Carolina-Chapel Hill
 Leigh Graham, John Jay College of Criminal Justice
 Seema Iyer, Baltimore Neighborhood Indicators Alliance, University of Baltimore
 Carrie Makarewicz, University of Colorado Denver (co-organizer)
 Erkin Özay, University of Buffalo
 Jane Rongerude, Iowa State University
 Ruth L. Steiner, University of Florida

Citations

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Key Words: equity, public education, public schools

PRE-ORGANIZED SESSION SUMMARY

INCLUSIVITY & RIGHTS: CREATING AN URBAN SPACE FOR IMMIGRANTS & REFUGEES

Summary ID: 14

Abstract ID: 158

Abstract ID: 161

Abstract ID: 162

As we face the time of heightening global inequality and mass migrations caused by political instability and climate change, the role of planning has never been as important as it has become now. Fueled by rapid urbanization around the world, these changes have led planners and scholars to pose the question, "how do we manage urban space for these migrant populations coming from various backgrounds?" This session is organized to engage planning scholars in the discourse on this very fundamental question from a theoretical point of view. In particular, a focus will be placed on how cities can be more inclusive for immigrants and refugees in a way that they properly exercise their right to the city and contribute to the making of the urban space. Drawing on case studies of various topics such as suburban place-making, municipal zoning, advocacy planning, and experiences of refugees in cities during resettlement, the session will serve as an invaluable opportunity in exploring what has been done and setting a direction for the future planning scholarship on immigrants and refugees.

Objectives:

- To explore current state of literature in the field and how existing planning theories have been applied to planning practice.
- To find gaps in current theory and practice and discuss how "rights" and "inclusivity" can/should be incorporated in planning scholarship.
- To diagnose the need for a new theory for planning and immigrants and refugees and propose proper scholarly directions.

NEGOTIATING SPACE AND RIGHTS: MULTICULTURAL PLANNING IN TORONTO'S IMMIGRANT SUBURBS

Abstract ID: 158

Group Submission: Inclusivity & Rights: Creating an Urban Space for Immigrants & Refugees

ZHUANG, Zhixi Cecilia [Ryerson University] zczhuang@ryerson.ca, presenting author

The Toronto area has attracted the largest proportion (nearly 40%) of the country's immigrants. It is renowned for its multicultural diversity, which is not just reflected in its multi-ethnic population composition, but is also manifested in many tangible and physical ways. Ethnic neighbourhoods are highly visible indicators of Toronto's multiculturalism, where immigrant businesses cluster together along with other ethnic-oriented institutions (e.g., places of worship, ethnic schools, community centres, etc.) to serve the needs of the co-ethnic community and beyond. In the Toronto area, many of these ethnic neighbourhoods have been established in the suburbs, where contemporary immigrants tend to settle and concentrate. The influx of immigrant businesses and institutions has readapted and transformed existing suburban neighbourhoods and created vital retail and community spaces (Zhuang, 2017).

Research has confirmed that immigrants play important roles in restoring social, cultural, and economic vitality to declining areas. However, what remains unclear is how immigrants have negotiated political power and claimed space and rights within host cities and societies (Rios and Vazquez, 2012). Furthermore, municipalities have not yet developed responsive policies and processes to address the opportunities and challenges brought forth by suburban immigrant settlement. Multicultural planning advocates have urged planning practitioners to be more proactive in responding to the needs of ethnocultural communities, and create inclusive and meaningful urban spaces that put people's diverse needs, values, and cultural preferences at the forefront of planning practices (Burayidi, 2015). However, there is insufficient empirical evidence that the good intention of multicultural planning is truly embraced in planning policies, processes, and practices (Qadeer and Agrawal, 2011). Municipalities need to develop a clear understanding of the processes and mechanisms involved in the making of immigrant suburbs, and how to engage immigrant communities in the making of inclusive spaces.

As part of a larger scale research focusing on the making of immigrant suburbs, this paper investigated the evolution of three suburban immigrant neighbourhoods in the Toronto area. It aims to explore the following research questions: How have immigrant communities got involved in the development and transformation of these ethnic neighbourhoods? How did they claim their space and rights when tensions and conflicts over resources and land uses arose and how did municipalities respond? What is the role of planners in the negotiation of space and rights among different users whose priorities, preferences, and needs are at odds with each other? Multiple data collection methods were adopted, including reviews of secondary documents (e.g., municipal policies, staff report, council minutes), census data, site observations, semi-structured interviews and focus groups with key informants (e.g., ethnic entrepreneurs, city officials, community leaders, developers, architects), and a consumer intercept survey.

As revealed in this study, the rapid development of the three neighbourhoods over the last several decades, however, have not been fully recognized or supported by planning authorities; it was mainly a result of community mobilization. Conflicts related to land use, public engagement, and public realm development continue to arise, exposing planning's failure to keep pace with the changing needs of diverse communities. The lessons learned from the case studies reveal that planners tend to rely on their own expertise and impose their

power through regulations and uses of urban spaces. Without proper consultation with community members, the planning process further marginalizes minority groups. This lack of communication and negotiation suppresses cooperation between groups in building inclusive communities.

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Key Words: multicultural planning, negotiation of space and rights, immigrant suburbs, Toronto

ADVOCACY PLANNING: A POWERFUL CONTEMPORARY TOOL FOR SOCIAL INCLUSION

Abstract ID: 161

Group Submission: Inclusivity & Rights: Creating an Urban Space for Immigrants & Refugees

REARDON, Kenneth [University of Massachusetts Boston] kenneth.reardon@umb.edu, presenting author

Central Theme/Research Hypothesis:

In November of 1965 Paul Davidoff, a young member of the University of Pennsylvania planning faculty, published his most influential article, “Advocacy and Pluralism in Planning”. This article criticized mainstream planning for its near exclusive focus on the physical development of the city. It also highlighted the tendency of municipal planning agencies to promote policies and plans that advanced elites interests at the expense of marginalized groups, including poor families, racial minorities, and immigrant communities. In addition, the article challenged the existence of a unitary public interest in light of the increasingly diverse nature of American cities. Davidoff concluded his article with an eloquent appeal to planners and planning agencies to work the leaders of marginalized groups to prepare high quality plans representing their interests. He argued that the development of multiple plans would provide planning commissions with new data analysis, alternative planning goals, and innovative policy recommendations that would improve the quality and fairness of planning decision-making.

Paul Davidoff’s persuasive arguments in favor of advocacy planning as an important tool for promoting more equitable and democratic cities created a small but significant movement within the planning profession. Young planners inspired by his work formed Planners for Equal Opportunity (PEO). For more than ten years this group challenged planning schools to diversify their faculty and study bodies. They also pressed major planning departments and commissions, under the leadership of Walter Thabit, to do the same. They also challenged Federal public housing, highway, and urban renewal policies which they believed were leading to further residential segregation that were restricting the economic opportunities of the poor. In the mid-1970s, PEO’s progressive planning activities, inspired in large part by Paul Davidoff, was taken over by a new organizations called Planners Network (PN) led by Chester Hartman which continues to promote advocacy planning values and methods through its electronic journal, national conferences, and regional issue forums on social justice and the city.

This paper argues for the greater relevance and importance of Paul Davidoff’s advocacy planning values and techniques in light of the increasing income, wealth, and power disparities; rising percentage of new immigrants, and recurring attacks against these communities in many of our nation’s largest metropolitan areas. This paper describes the important contribution that advocacy and, its related equity and insurgent forms, of progressive

planning are making to improving the quality and fairness of contemporary comprehensive, resiliency, and transportation efforts in several U.S. cities, including New York, Boston, and Chicago.

Research Approach/Methodology

This paper is based upon qualitative research methods featuring archival research, review of relevant theoretical and practice literature, analysis of Census Data, and interviews with planners involved in both historical and contemporary advocacy planning initiatives.

Findings

While never the dominant approach to planning practice, advocacy planning has historically and currently making significant contributions towards improving fairness and equity within public planning processes by highlighting the needs, aspirations, and desires of identity groups that are often overlooked or undervalued. This work has produced what William F. Whyte described as “social inventions for improving human problem-solving” designed to produce a more just city.

Relevance

Despite the passage of landmark Civil Rights legislation in the 1960s and 1970s aimed at expanding economic opportunity for low-income communities of color, social inequality continues as a defining characteristic of American cities. Advocacy planning seeks to change this reality through inspired forms of planning practice that are worthy of greater study and discussion.

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Key Words: Advocacy planning, Citizen participation, Social justice, Immigrant rights, Profession practice

MUNICIPAL PLANNING IN IMMIGRANT-FRIENDLY CITIES

Abstract ID: 162

Group Submission: Inclusivity & Rights: Creating an Urban Space for Immigrants & Refugees

HARWOOD, Anne [University of Illinois] sharwood@illinois.edu, presenting author

The academic literature focuses on how land-use decision-making processes become the platforms for anti-immigrant politics with very little about municipal planning in environments where immigrants are welcomed and supported. The growing literature on governing cities and immigrant integration focuses on such thing as education, language, economic development, policing, recreation and culture. While there is an emphasis on process and engaging immigrants in decision making, very little especially covers municipal planning, and even less so on regulations, such as zoning. Given this context, this project asks: How are municipal planners involved in welcoming and immigrant-friendly initiatives? How are municipal planners responding to immigrant-friendly political environments on an administrative level? Are the tools of municipal planners adjusting to immigrant populations? To answer these questions, I interviewed management level staff working in 30 different immigrant-

friendly cities for a total of 42 interviews, 23 were in planning departments and 19 in immigrant affairs offices. Additionally, I analyzed the content of 28 comprehensive plans and 17 immigrant integration plans. I found that while planners are aware of immigrants and many are experimenting with ways to better reach immigrants in the planning process, few explicitly talk about the immigrant population, and hardly any city is examining the laws and codes used to regulate land-use. At the same time, those focused on immigrant integration, know little about municipal planning, nor do they have much time to do it. The focus, while justified, are on immediate concerns about services delivery and social and economic integration. But built environment and land-use should also be considered, particularly the ways in which the regulatory structures and decision-making process shape integration.

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Key Words: land-use, immigrant-friendly, immigrant integration, planning process

PRE-ORGANIZED SESSION SUMMARY

SELLING OUT OR SELLING IN: ETHNIC AND RACIAL PLACEMAKING AND SPACES OF BELONGING (1)

Summary ID: 18

Abstract ID: 230

Abstract ID: 231

Abstract ID: 233

Abstract ID: 1290

These two sessions seek to develop a research agenda that better addresses the interaction of race and ethnicity with our understanding of place. We posit that the everyday practices found in ethnic and immigrant communities are key to understanding current conflicts over both economic and cultural gentrification processes, and can expand our repertoire of planning tactics and strategies. We seek to build an urban planning paradigm that centers the idea of belonging, particularly for communities of color, rather than older concepts of tolerance or inclusion. In particular, we bring to the fore the role of commerce as a form of placemaking. In many communities, a bookshop or restaurant might be a de facto cultural institution or business signage clusters might act as ethnic claims to space. Practical placemaking as found in grassroots community building, strip mall entrepreneurialism, and other culturally specific claims to urban space will be explored.

Objectives:

- Learning about the overlooked, everyday practices of a diverse set of ethnically and racially specific communities.
- Exploring an expanded notion of culture, resistance, and placemaking as found in ethnic communities.
- Considering the impacts and solutions to cultural, as opposed to economic, gentrification.

BEEN HERE: BLACK URBANISM AS THE CIVICS, STORIES, & SPACES OF BELONGING

MILLER, Matthew [University of Southern California] mattmill90@gmail.com, presenting author

Social sciences and humanities have proliferated largely deficit-driven views of the influence of race on American society (Hunter and Robinson, 2016), regularly concluding that American cities create places via “a politics of dis-belonging” (Bedoya, 2013). While merited, rarely do urbanists study how people of color forge modalities of urbanism geared toward belonging. This dexterous concept of belonging has received sustained interest in a variety of fields: geography (Antonsich, 2010, p.6-7), anthropology (Lovell 1998; Warriner 2007; Dragojlovic 2008), sociology (Kiely, Bechhofer et al. 2005; Bond 2006; Fox 2006; Scheibelhofer 2007), communications (Ball-Rokeach et al., 2001), American studies (hooks 1990). Yet, to date, no theoretical framework in urban planning exists to augment understanding and comprehensively observe how Black Americans generate spatial, economic, and sociocultural attachments to place. This study intervenes in that gap by dynamically studying Black commercial space.

Black-owned businesses (BOBs) provide a rich context to explore community and capital-driven questions (Sutton, 2010). Yet, much of the scholarship around BOBs frame them as absent (Fairlie, 1999), less financially successful, under-educated, and quicker-to-fail than their White and Asian counterparts (Robb and Fairlie 2007, 2008). Advocates have illustrated how the issues BOBs face are “runway problem[s]” rather pilot problems with the entrepreneurs themselves (Association for Enterprise Opportunity, 2017). However, without new theory, we cannot appropriately measure other realities nor change these realities.

Using a mixed-method, ethnographic case study of a commercial corridor in Los Angeles from 2016 to 2018, this paper argues for an asset-based theory of Black urbanism that reconstructs the value of space for how it emphasizes three forms of belonging: political (civic), cultural (stories), and socioeconomic (spaces). Each method in this paper corresponds to how a different form of Black urbanism and belonging can be observed.

- 1. Spatial belonging: Hot-spot analysis and cluster analysis of BOBs
- 2. Civic belonging: Content and archival analysis of public-private branding efforts
- 3. Cultural belonging: Digital and social ethnography of BOBs

Overall, it reframes BOBs as generative institutions that provide a trifecta of ways for Black Americans to claim space and seek belonging, though the road may be fraught with challenges. While Black placemaking has served as the next-of-kin concept (Hunter et al., 2010), placemaking is too narrow a process compared to the broader idea of urbanism. To date, the idea of ‘Black urbanism’ has been under-conceptualized by a few architectural, cultural, and urban professionals who have documented the unique ways Black Americans shape space (Zewde, 2010; Goodwin, 2010; Sass, 1994).

Ultimately, the paper concludes and reinforces a growing consensus that race is more than racism (Pitcher 2014; Hunter and Robinson, 2018). It can also paradoxically function as an ethnically-derived, asset-based tool for socially constructing cultural identities which have currency in the cultural economy.

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Key Words: Race, Black Urbanism, Belonging, Design, Business

"SOMOS AQUÍ": THE FIGHT FOR FAIR REDEVELOPMENT ALONG MARYLAND'S INTERNATIONAL CORRIDOR

Abstract ID: 231

Group Submission: Selling Out or Selling In: Ethnic and Racial Placemaking and Spaces of Belonging (1)

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Suburbia has always been a site of social struggle. While not well documented in the literature, it has served as an important space upon which marginalized groups have registered claims to equal rights, citizenship, and a more just distribution of resources. For much of the twentieth century, these battles were largely fought over access to housing, schools, jobs, and the promised suburban “good life.” But in the past few decades, the tenor of these debates has changed. With the unprecedented movement of minorities, immigrants, and the poor to the urban periphery, the battles now taking shape are about far more “urban” issues, like gentrification and displacement.

This paper explores the growing movement for equitable transit-oriented development within Langley Park, Maryland, a low-income, predominantly Latino immigrant community in the inner suburbs of the Washington, DC Metropolitan Area. The Purple Line, the region’s first inter-suburban light rail line, will soon pass through Langley Park, better connecting the neighborhood to opportunities around the region and potentially attracting much-needed investments. However, many fear that the Purple Line will result in higher land and property values that will displace current residents, small businesses, and the strong sense of community and culture that currently define the neighborhood. Through interviews with local activists, political leaders, and other stakeholders as well as analysis of secondary documents about the Purple Line, local plans, and organizing efforts, the paper shows how the neighborhood’s demographic and geographic context has shaped how equitable development has been pursued in Langley Park, and to what ends. This case study shows the challenges and opportunities for equitable development in diverse suburbs, offering lessons for community organizers and advocates, planners, and policy makers.

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Key Words: suburban poverty, suburban redevelopment, gentrification & displacement, Latino / Hispanic, immigration

ETHNIC ENTREPRENEURSHIPS: CULTURAL RESILIENCY AND STRATEGIES FOR REURBANIZATION

Abstract ID: 233

Group Submission: Selling Out or Selling In: Ethnic and Racial Placemaking and Spaces of Belonging (1)

LARA, Jesus [The Ohio State University] lara.13@osu.edu, presenting author

The purpose of this presentation is to understand the factors that contribute to the establishment of Latino neighborhoods in urban areas, and to explore how these Latino communities contribute to the creation of social, economic, and cultural resilience for their residents. To address the research objectives, this presentation examines a series of commercial corridor case studies in different urban areas across the U.S. in order to learn

from best practices, and to draw out some lessons on cultural, social, and economic resilience among immigrant neighborhoods. These cases show public policy makers, academics, and business owners examples of how Latino communities can revitalize retail corridors and improve both the economy and quality of life. An overview of the steps that planners and policymakers can take include responding to an urban population's increasing diversity and changing demands, examining the processes and mechanisms that contribute to ethno-cultural alienation in Latino neighborhoods, and guaranteeing that any revitalization efforts in Latino communities will enhance local assets. Some prominent urban scholars argue that the idea of creating community via deterministic designs must be re-evaluated and that urban patterns of class, culture, race, and ethnicity should be part of the redevelopment of urban places (Marcuse 2000, Harvey 1997). The study areas are currently part of a transformation process resulting in areas with vibrant commercial centers, and these centers help maintain the social networks that provide ties to Latin American home countries while working to acclimate new immigrants. A detailed analysis of business activities and census data in the case studies illustrate changing spatial patterns and demonstrates how ethnic minority entrepreneurs are giving new meaning to such abandoned and dilapidated landscapes as strip malls and older, unmaintained neighborhoods. This presentation also investigates the specific ways in which urban spaces are being transformed and modified to suit the needs and cultural preferences of their residents.

Latino immigrants play an important role in shaping the built environment, and what that role implies for the future. Scholarship in Latino Urbanism is practiced across many disciplines, with scholars engaged in research from a variety of perspectives and geographic representations. Books such as *Latino Urbanism* (Diaz and Torres, 2012) *Diálogos: Placemaking in Latino Communities* (Rios and Vasquez 2012), *Barrio Urbanism* (Diaz 2005), *Hispanic Spaces, Latino Places: Community and Cultural Diversity in Contemporary America* (Arreola 2004), and *Latino Metropolis* (Valle and Torres 2000) all these provide a foundation for discussions about the future course of Latino Urbanism in the US.

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Key Words: Latino Urbanism, Urban Design, Economic Development, Adaptive re-use

BIG PLANS: COLLECTIVE ACTION FRAMES, REIMAGINING AND REBUILDING BLACK URBAN PLACES

Abstract ID: 1290

Group Submission: Selling Out or Selling In: Ethnic and Racial Placemaking and Spaces of Belonging (1)

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A major concern among many urban planning, geography, and sociology scholars has been and remains how and in whose interest local areas, or communities, are produced and reproduced. In the contemporary moment, however, the issue of community formation is undoubtedly heavily influenced by decades of neoliberal policies and practices that have inhibited or rendered illogical, infeasible or radical more expansive visions for community building and development. Although the community development subfield, for instance, still encompasses inquiries into whose planning with whom, for whom, and to what end, decidedly political questions, and purports to correct for market distortions and mitigate the consequences of historic patterns of uneven private and public investment (Wolf-Powers 2014). The practice of community development has arguably narrowed to an emphasis on building partnerships with corporate capital, cultivating community assets, and bottom-line outcomes (DeFilippis et al. 2006).

In this article, I draw on community development and social-movement literatures to analyze the structure, actions and organizational ideologies of three organizations engaged in planning in Black communities in Chicago, Brooklyn and Jackson, MS. Using organizational documents such as annual reports, comprehensive plans, and flyers, I present a discourse analysis of the ways that organizations describe their goals and agenda. Moreover, I assess the extent to which these organizations engage in community development through “collective action frames,” which constitute a motivating discourse for building legitimacy by clearly identifying problems at the appropriate spatial scale, diagnosing their causes, proposing solutions, and giving reasons for collective action (Martin 2003). While the organizations in this study reject conventional approaches community development, they make strategic calculations about how best to enlist municipal support. The organizations in this study reveal how place informs activism and how sociospatial environments shape framing processes. Further, by inserting these organizations into collective action framing, this study offers a more expansive understanding of placemaking, namely as a critical space between community development and social movements/activism.

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Key Words: placemaking, collective action framing

PRE-ORGANIZED SESSION SUMMARY

GROUP SUBMISSION: SELLING OUT OR SELLING IN: ETHNIC AND RACIAL PLACEMAKING AND SPACES OF BELONGING (2)

Summary ID: 19

Abstract ID: 234

Abstract ID: 236

Abstract ID: 237

Abstract ID: 246

Abstract ID: 1361

These two sessions seek to develop a research agenda that better addresses the interaction of race and ethnicity with our understanding of place. We posit that the everyday practices found in ethnic and immigrant communities are key to understanding current conflicts over both economic and cultural gentrification processes, and can expand our repertoire of planning tactics and strategies. We seek to build an urban planning paradigm that centers the idea of belonging, particularly for communities of color, rather than older concepts of tolerance or inclusion. In particular, we bring to the fore the role of commerce as a form of placemaking. In many communities, a bookshop or restaurant might be a de facto cultural institution or business signage clusters might act as ethnic claims to space. Practical placemaking as found in grassroots community building, strip mall entrepreneurialism, and other culturally specific claims to urban space will be explored.

Objectives:

- Learning about the overlooked, everyday practices of a diverse set of ethnically and racially specific communities.
- Exploring an expanded notion of culture, resistance, and placemaking as found in ethnic communities.
- Considering the impacts and solutions to cultural, as opposed to economic, gentrification.

HOW I LEARNED TO STOP WORRYING AND LOVE THE STRIP MALL: COMMERCIAL SPACES DESIGNED FOR AND BY IMMIGRANT ENTREPRENEURS

Abstract ID: 234

Group Submission: Selling Out or Selling In: Ethnic and Racial Placemaking and Spaces of Belonging (2)

CRISMAN, Jonathan [University of Southern California] crisman@usc.edu, presenting author

Strip malls have long been maligned as unattractive urban spaces which detract from their surroundings and signal car-oriented sprawl. Historically, they flourished during the 1970s and 80s when former gas stations were sold off as cheap street corner parcels, and saw a backlash during the 80s and 90s as cities tried to regulate their development out of existence. Now, however, they are seeing a resurgence in popularity as the availability of urban space is ever more limited and as hip restaurants and businesses locate off the beaten path (Linovski 2012). What is the role of these humble commercial spaces in the process of urban development and what are the material qualities that make them unique?

In particular, what is the relationship between race, ethnicity, immigrant life, and strip malls? Literatures around race, urbanism, and planning have often focused on housing and amenities, but what are the processes of racial inclusion and belonging driven by commercial development? Strip malls are often the site of mom and pop food establishments, nail salons, barber shops, and other ethnic and immigrant businesses (Loukaitou-Sideris 2002; Zhuang 2015). Is it possible that the backlash against their development was linked to negative racial attitudes, and their current improved reputation is related to changing demography? And what are the ethnically and culturally specific claims to space and forms of placemaking found in what are often seen as generic architectures?

This paper will delve into the history of strip malls in Los Angeles and evaluate their design qualities and code requirements which allowed them to flourish, decline, and thrive once again. Additionally, through analysis of historical rental cost data, spatial ethnographic research, and interviews with La Mancha, the largest single historical developer of such properties in Los Angeles, strip malls will be reclaimed as a site of critical importance for immigrant entrepreneurs and urban development at large.

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Key Words: race and ethnicity, immigrants, strip malls, placemaking, spatial ethnography

ETHNICITY: MAPPING THE LINGUISTIC LANDSCAPE OF LOS ANGELES' ETHNIC COMMERCE

Abstract ID: 236

Group Submission: Selling Out or Selling In: Ethnic and Racial Placemaking and Spaces of Belonging (2)

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The public sector has embarked on an open data revolution in our information age and governments around the country have made public data more easily accessible through the internet. Los Angeles city and county have not

only uploaded their datasets but also made the extra investment to spatialize the data into interactive maps through websites. This important and necessary first step investment has also made clearer some of the limitations of existing datasets. For example, the Office of Finance datasets of “active businesses” is outdated, retaining many records of non-existent businesses. Also, the conventional fields used to describe the businesses do not address some of the pressing policy questions of the day such as the uneven support and regulation of minority businesses.

Over the past two years, my research team has been testing and developing a process for generating new data about ethnic commerce in Los Angeles. We can fill a data gap that neither public databases nor private vendors currently provide by making creative use of publicly available imagery and synergizing it with other mapped data.

By ethnic commerce, we mean a specific phenomenon. In Los Angeles, businesses display signage in a variety of languages to communicate to their customers, despite occasional proposals to require English language signage that have regularly been struck down in courts. Through exploratory studies in which we interviewed store owners, we also found that the signage text not only describes their cultural products and services they are also sometimes chosen to express the cultural identity of the owner. So, LA’s shop signs can tell us about the ethnicity of the customer, the products, or the owner (not necessarily all three). In essence, the shops are literally speaking to us about ethnicity.

Google takes StreetView photos of the establishments along major streets in Los Angeles several times a year, providing the only timely record of what is happening on the ground as establishments, open, change, and close. Attached to these images is metadata about the coordinate location of the camera and the date.

We have developed a method to automate collection of these images, isolate the business’ signage in the image, convert it into text, recognize the language as well as interpret the text. With this novel database of images, text, location, and date, my group can also spatialize this data into maps which would allow us to identify locations, neighborhoods, clusters of business by a variety of attributes such as business type, ethnicity, etc. Furthermore, we can intersect the spatialized database with commercial real estate market data and census datasets so that we can analyze how rent prices and neighborhood demographics are associated with these ethnic commercial clusters.

We are collaborating with the city of Los Angeles’ Information Technology Agency for a new data map which would have more accurate and sustainably updatable information about businesses in the city as well as information with which to assess the potentially disproportionate impacts of the city’s outreach, compliance, and enforcement actions on minority businesses (Garcia, 2013). Similarly, the database behind our map integrates information that could analyze the potential impacts of economic development strategies on minority businesses. Furthermore, our map can contribute to the debates about the economic impacts of immigration by generating new visualizations and insights about the spatial patterns of ethnic commerce.

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Key Words: mapping, ethnicity, Google Streetview, business, Los Angeles

TAKE THE NEON LIGHTS AND MAKE A CROWN: THE SUBVERSIVE GEOGRAPHIES OF THE EVERYDAY

Abstract ID: 237

Group Submission: Selling Out or Selling In: Ethnic and Racial Placemaking and Spaces of Belonging (2)

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Claiborne Avenue is a “rebellious” (McKittrick 2016) space. It was the heart - the crown - of the black business and cultural community by the mid-20th century, until the construction of the I-10 expressway over the avenue’s median in 1968 decimated this once vibrant place. Since 1968, Claiborne has been both site and object of contrasting logics of development – from residents’ adaptations of the spaces under the bridge to proposals for other waves of clearance. This corridor is caught between worlds of contextual, everyday acts of belonging and modalities of clearance, inclusion or racial tolerance that stem from white spatial logics and epistemologies (Dwyer and Jones 2000).

The everyday business and cultural corridors in black mecca neighborhoods such as New Orleans’s Tremé were separate worlds from the overtly spatialized segregation of the early-mid 20th century. In these spaces, black Americans created a world apart from the brutalities of racialized inequality. These worlds were often created in spite of structural forces that shaped the political, social and spatial spheres unequally for blacks and within strict delineations of segregated color lines. Yet these worlds also subversively countered the implicit meanings of white supremacy as expressed through segregation by creating value in places and for bodies that were not valued. From banks to hair salons and barbershops to cafes and nighttime venues, the historic corridors that made up the pre-Civil Rights black urban sphere centered these worlds as subversive geographies that spatialized political agency and subaltern values.

These subversive spatial practices have continued along Claiborne and residents’ accumulated stories and visions for this corridor offer to urban planning other possible futures. From murals to inhabitation, from visioning to countering exclusive development visions, residents in and along this corridor project, re-member (Savoy 2015) what Claiborne was and is and therefore what it might be.

This research asks how the city simultaneously exhibits the impulse to remake space to aid colonial and/or plantation practices and to imagine a different geographical future that is not solely contoured by relationships with white supremacist spatial structures and practices of discrimination and dispossession. Centering Bates’ et al. (Forthcoming) challenge to map subversive black geographies that have been and are constructed through subaltern conceptualizations of space, temporality and development, this research re-presents subaltern geographical imaginations along one avenue in New Orleans.

Bringing together multiple methodologies, including archival research, site analysis, and interviews/spatial histories with residents, to unsettle the plantation trajectories (McKittrick, 2016) of this corridor’s history (Jones Allen, 2018), this research posits that the spatial memory of vibrant, rebellious spatial histories translates into concrete design visions for the future of this corridor and into tangible practices of resistance to white spatial logics (Dwyer and Jones, 2000) that operate through planning and design. Using the archival data and interviews, I highlight voice and acts of belonging across different temporalities along this corridor, collapsing these past and present epistemologies into future modalities and visions for more just settlement patterns and landscapes. I explore how residents’ visions conflict with a series of planning and design-led future projections and highlight the gaps between different spatial epistemologies and socially just design modalities. Finally, this research draws out the unmapped possibilities of place and anti-racist development, asking what a landscape of racial justice and reparations might look like.

Citations

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Key Words: New Orleans, race, urban development

WHERE COMMERCE MEETS CULTURE: IMMIGRANT SPACE AND SUBURBAN RETAIL IN THE NEW LATINO SOUTH

Abstract ID: 246

Group Submission: Selling Out or Selling In: Ethnic and Racial Placemaking and Spaces of Belonging (2)

ARROYO, John [University of Oregon] arroyojc@mit.edu, presenting author

While it may seem that traditional shopping malls are dying, immigrant communities are reviving distressed retail spaces. Nowhere is this phenomenon of adaptive use more acute than in small cities, towns, and unincorporated jurisdictions across the United States. In many of these sprawling metropolitan suburban and exurban areas, Great Recession-era commercial centers are often abandoned or forgotten (Dunham-Jones and Williamson 2011; Williamson 2013). At the same time, these outer suburban areas are becoming popular, affordable places for new immigrants and urban migrants to live, work, recreate, and shop. Over the past 20 years, Latina/os (Latinxs) are bypassing historic, urban ethnic enclaves to settle in suburban areas of the U.S. South – where the largest increase in the U.S. Latinx population has rapidly reshaped the built environment (Odem and Lacy 2009; Smith and Furuseth 2006). Along with these surging Latinx demographics come distinct sets of consumer and cultural preferences, plus a combined national buying power that exceeds \$1.5 trillion (Dávila 2016). Developers have capitalized on this by constructing generic Latinx-themed malls based on Colonial-era Latin American facades and streetscapes – with varying levels of success. How do Latinx immigrants reshape commercial centers in recent high-growth peripheral gateways in the U.S. South?

This paper relies on ethnographic research to discuss how Latinx (predominantly Mexican) tenants and developers have changed the interior and exterior retail characteristics of four Latinx-specific commercial centers in greater Atlanta: Plaza Fiesta (Chamblee, GA), Santa Fe Mall (Duluth, GA), Plaza Las Americas (Lilburn, GA), Plaza Latina (Norcross, GA – recently demolished per eminent domain). The study draws on the ethnic-specific placemaking ideals set forth by Latinx Urbanism scholars (Arreola 2004; Davis 2000; Diaz and Torres 2012; Lara 2018), as well as the normative spatial “fit” dimensions proposed by Kevin Lynch’s *Good City Form* (1981). The study analyzes how distinct physical elements symbolize more than mere consumerism. They serve to define a thriving “third space” and vital community anchor for cultural, social, and civic life in new immigrant destinations (Oldenburg 1989). Data are triangulated from nearly 150 in-depth interviews, participant observation, and longitudinal content analysis of local English and Spanish-language news outlets and municipal policy documents since 2000. Findings will contribute to urban design policy literature and migration studies by analyzing how Latinx shopping centers in the Nuevo (or New) South imbue a sense of empowerment and agency while establishing a key focal point for recent immigrants.

Citations

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Key Words: Mexican immigration, urban design, retail placemaking, Latino Urbanism, U.S. South

LIMINAL AND INTERSTITIAL CITIZENSHIP

Abstract ID: 1361

Group Submission: Selling Out or Selling In: Ethnic and Racial Placemaking and Spaces of Belonging (2)

SIMPSON, Sheryl-Ann [UC Davis] ssimpson@ucdavis.edu, presenting author

Citizenship is often understood as a formal status, something that one simply is, or is not. A more comprehensive understanding of citizenship, however, focuses on both formal and informal aspects, including the rights afforded by formal status, as well as the ability and opportunity to participate in the decision making processes of the polity, alongside full social and cultural membership and belonging. In this understanding becoming a citizen is no longer a binary state, something one is or is not. Instead there is an imperative to examine and understand the process of becoming a citizens, including intermediary stages of the process. Understanding this process of citizenship is important for both planning theory and practice because of the ways in which planners act as both local representatives of, and gatekeepers to, the state and decision-making processes more broadly. Further, place, and the production of place, play an important role as both context and content of practices of citizenship. Conditions in place shape opportunities for engagement, participation and membership, and spatial practices such as use, making claims, animating and caring in place are strategies for claiming citizenship. For these reasons there is a need for planning theory that specifically addresses the process of citizenship formation, the process of becoming a citizen, and the role of planning in that process.

This paper provides a theoretical examination of citizenship formation by drawing on empirical research in North America and northern Europe focused on the role of place in the processes of immigration, settlement and incorporation to build a stronger understanding of the intermediate stages of citizenship formation. Further the paper specifically discusses theories developing around practices of 'liminal and interstitial citizenship.' The liminal is a threshold, a gateway between one state and another. Passing through the threshold implies an openness to being changed by what is on the other side, but also the potential to make changes once you are there. While the interstitial is a state between and outside of familiar boundaries. Similarly liminal citizenship describes both practices of citizenship that happen in the transition zones between public and private space, and the process of moving between non-citizenship and citizenship. Interstitial citizenship is a somewhat contradictory term, which nevertheless, holds great utility within planning theory, referring to the spaces and practices of immigrant residents that involve engagement, use, care and claims to space, but that do not lead to citizenship. This interstitial state, might be caused by a refusal of membership on the part of immigrant residents, but is more likely to occur when an existing polity refuses entry, or refuses to be changed by the practices of these active residents. The paper further develops these concepts through a synthesis of data gathered from empirical studies examining the practices and narratives of immigrant residents in North America and northern Europe. The focus of these studies are primarily racialized immigrant communities, and actions within intimate environments such as front and back yards, apartment complex courtyards, streets, parks and neighborhoods. This research has included over 24 months of dedicated participant observation, formal interviews and participatory mapping exercises with immigrant residents, and community development professionals serving immigrant communities.

Finally, I argue that understanding and incorporating ideas around liminal and interstitial citizenship provides an important opportunity for planners to reflect on their own role in facilitating or blocking opportunities for membership. This might include the recognition of immigrant resident actions, and spatial practices as citizenship practices, and, importantly, a willingness to be changed by them.

Citations

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Key Words: care, citizenship, immigration, intimate environments, production of place

PRE-ORGANIZED SESSION SUMMARY

TOWARD AN INTERSECTIONAL DISCOURSE ON INSURGENT PLANNING HERSTORIES

Summary ID: 48

Abstract ID: 1103

Abstract ID: 1104

Abstract ID: 1106

Abstract ID: 1109

Planning's decision-making disproportionately affects vulnerable populations, particularly communities of color. The field has recognized and sought the inclusion of persons of color in order to diversify the demographics of the profession, yet the individualized burden of tokenization does not substantively address the structural gaps between what planning's scholarly spaces preach in theory and the lived experiences in subaltern places. This panel centers intersectional planning herstories as a means to share radical insurgent planning herstories and counter dismissive hegemonic trends. Intersectionality attributes interpersonal, cultural and structural barriers as constraining the ability of women of color to be included as prominent interlocutors, to navigate graduate programs successfully, etc. In short, where are the planning stories of women of color? We argue the narrative turn in planning remains to be fully explored as a planning tool for fruitful insurgent, intersectional and intergenerational discourse on the general and the particular institutional challenges present.

Objectives:

- This session expands the metrics of planning narratives and centers the planning theories and practices of women as sites of both cultural and pedagogical production.

INTERSECTIONAL EXPERIENCES OF WOMEN OF COLOR AT ACSP MEMBER INSTITUTIONS

Abstract ID: 1103

Group Submission: Toward an Intersectional Discourse on Insurgent Planning Herstories

REDDEN, Tyeshia [Gettysburg College] tredden@ufl.edu, presenting author

Since the 1960s, urban planners have recognized that the field's decision-making disproportionately affects communities of color. Consequently, urban planning graduate programs have sought the inclusion of people of color in order to diversify both the demographics and ideological spectrum of the profession. Amid discussions regarding the urban planning field's difficulties in achieving representative populations at the 2017 Association of Collegiate Schools of Planning (ACSP) Annual Conference, some faculty have suggested that there is a lack of students from diverse backgrounds "in the pipeline." The intersection of race and gender poses a specific set of challenges for women of color in graduate programs. Commonly referred to as "intersectionality," both interpersonal and structural barriers constrain the ability of women of color to navigate graduate programs successfully. The cultural nuances, gatekeeper epistemology, and deficient mentorship opportunities at many campuses combine to create an academic landscape that is both foreign and hostile. This presentation focuses on the experiences of women of color attending or having recently graduated from urban planning programs at twenty ACSP member institutions. Using snowball sampling to conduct qualitative interviews, I document

personal accounts and analyze the responses with Moya Bailey's "misogynoir," racialized and gendered discrimination, as a theoretical framework. This work reveals the structural and cultural challenges that have delayed the field's progress in diversifying its ranks and threaten its future relevance in an ever changing demography.

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Key Words: cultural capital, diversity, higher education, intersectionality, pluralism

PÒSALI'S PLANNING STORY: THE GENDER OF AID & NGO-IZATION OF DISASTER RELIEF

Abstract ID: 1104

Group Submission: Toward an Intersectional Discourse on Insurgent Planning Herstories

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Oral storytelling is at the heart of Haitian traditional knowledge exchange. Planning scholar, Leonie Sandercock notes that stories are also at the heart of planning practice and thus experts' knowledge exchange. In October 2016, Haiti's Southwestern Peninsula region was devastated by Hurricane Matthew, a category-five superstorm. Physical infrastructures' reconstruction is a difficult post-natural disaster challenge. Few insurgent planning herstories exist that bridge discourses across urbanisme's disciplinary and language barriers. The purpose of this case study is to tell rural infrastructure planning stories about the diffusion of traveling planning ideas, specifically decentralization planning within the Haitian postcolonial context. Decentralization planning is defined as the devolution of strong central governments responsibilities, functions or powers to a less concentrated area of subnational government units. The research questions the long-term sociocultural impact of the NGO-ization of development aid in disaster recovery efforts. This longitudinal and mixed methods case study of a rural municipality, Pòsali, tracks planning efforts from 2010 to 2017. By focusing on rural, Southern Haiti's pre- and post-disaster experience and NGOs' invasion of the area, I triangulate data from semi-structured interviews, quantitative survey responses, ethnography and historic archival documents' analysis. The research findings include: NGO invasion of an area decreases community members sense of unity, increases participation fatigue and thus decreases participatory planning's viability. Furthermore, decentralization planning goals are undermined by the complexity of the pernicious effects of aid. This intersectional study contributes to a gap in the Black diaspora's policy-making and urban history within the policy mobilities, transnational planning, radical geography and feminist planning literature.

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Key Words: radical planning, feminist planning, decentralization planning, policy mobilities, transnational planning

SPECULATIVE CITIES: URBAN PLANNING FAILURES IN BLACK WOMEN'S FICTION

Abstract ID: 1106

Group Submission: Toward an Intersectional Discourse on Insurgent Planning Herstories

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While initially appearing to be an incongruous juxtaposition, city planning and speculative fiction have similar threads running through them: both are forward looking pursuits that are based on some imagination of what space and place could or should look like. In this presentation, I argue that speculative fiction can provide a rich source of information about the historical influences, present reality and future possibilities of cities especially when the focus is on African diasporic communities as these communities have been silenced and/or erased through the violence of slavery, colonization and racism. Speculative fiction, even more so in the cases of communities under oppression, can be another source of how people view, understand and imagine cities. Pulling from feminist literary criticism and black geographies, I offer readings of Octavia Butler's *Parable of the Sower* and Nalo Hopkinson's *Brown Girl in the Ring* which make clear the ways that neoliberal, capitalist, planning regimes have failed Black communities and propose paths forward, rooted in reclaimed, reimagined and new community knowledges.

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Key Words: speculative fiction, black geographies, feminism, neoliberalism

GENDER AND DIVERSITY IN THE PLANNING ACADEMY: 1980 TO 1995

Abstract ID: 1109

Group Submission: Toward an Intersectional Discourse on Insurgent Planning Herstories

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When women began entering the planning academy in large numbers in the 1970s, social movement pressure from inside and outside the discipline precipitated a shift in planning issues and scale. Feminist scholars were at the forefront of this charge to push the field towards equity frameworks through a critical assessment of gendered planning outcomes and by developing new epistemologies for planning (Ritzdorf 1995; Leavitt 1986; Milroy 1991; Parker 2012; Markusen 1980). In the 1980s and early 1990s, women institutionalized demands for equity in the planning academy by fostering professional development activities and mentorship programs and advocating to ACSP leadership through special interest groups and committees. This paper analyzes the institutional memory built during this period, framing a historical perspective as a way to understand and confront persistent institutional challenges for women of color in the planning academy. How did women influence institutional efforts for diversity, and to what ends? To answer these questions, I rely on a combination of personal, institutional, and intellectual perspectives gathered from interviews and archival sources. I collected oral histories from twenty women active in institutionalizing diversity efforts and support for women's careers in academic

planning organizations during the 1980s and 1990s. I augment these accounts with primary documents such as ACSP governing board meeting minutes, committee reports, personal correspondence, and documentation on the formation of special interest groups. Following Ahmed (2010) and Wiegman (2012), I inquire after the relationship between formal organizations of knowledge and the varying political commitments of several generations of planning scholars, examining how women's activism has shaped, and been shaped by, diversity efforts in the planning academy.

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Key Words: feminist planning, gender, diversity, planning history

SOCIAL DYNAMICS IN DIVERSE NEIGHBORHOODS: IMMIGRATION, GENTRIFICATION, AND ETHNIC NEIGHBORHOOD

Abstract ID: 42

Individual Paper Submission

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Background

Both statistical and empirical studies show the increase of diverse neighborhoods throughout the United States. The increasing immigrant population has clearly contributed to this transformation (Marrow, 2005). Immigrant settlement into not only traditional gateway cities like Chicago and Los Angeles but also old postindustrial cities has created diverse neighborhood throughout the United States (Singer, 2004). In those postindustrial cities, when the original immigrant influx ceased and younger generations made their exodus to suburbs, the cities suffered significant population loss and struggled economically. However, they are now seeing new immigrants, this time mostly from Latin and Asian countries. At the same time, those inner city areas are experiencing an influx of young professionals (Hwang, 2015). Those young professionals tend to be gentrifiers who see that the neighborhoods have attractive characteristics such as affordable housing, close proximity to entertainment and work, historic buildings, and an ethnic population that can provide them with authentic cultural experiences (Brown-Saracino, 2004). All together, these conditions generate demographically diverse neighborhoods. How we create an inclusive and collaborative living environment in such rapidly diversifying neighborhoods is an important question. As Sandercock (2000) stated, "... we do share the space on the planet with others who in many ways are not like us, and we need to find ways of co-existing in these spaces...." This paper investigates the social relationships in the neighborhood and the realistic measures that planners, community organizers, and city officials can take to build diverse yet inclusive communities.

Case and Methods

The main source of this paper is a survey conducted in Greektown in Baltimore City, Maryland, in 2015. Greektown was, as the name implies, once a Greek immigrant enclave and still maintains some original ethnic characteristics on the surface. Yet in the past ten years, it has become far more diverse from the rapid influx of Latino immigrants as well as young and professional residents, the majority of whom are White with high educational attainment. The three groups are ethnically, socioeconomically, and generationally different. Ninety-

six participants, including Greeks, Latinos, and young new residents, responded online or to a paper-based survey in English and Spanish. In addition, interviews and participant observations that were conducted from 2013 to 2015 add to the stories behind the survey.

Findings

The case in Greektown indicates that this ethnically and socioeconomically diverse neighborhood is physically integrated but socially fragmented with scarce interaction between the groups. It is easy to assume that the reason for this infrequent interaction may be due to the language barrier, lack of cultural understanding, and socioeconomic differences. Instead, the survey results find that those are not the main reason for the social fragmentation. The majority of residents in Greektown think that the language is not a major obstruction; rather, the lack of time to interact with the others is the primary explanation for the infrequent interaction. In other words, their daily lives are completed within their groups, and the necessity of communication with other groups is decreasing. However, this lack of close communication does not hinder coexistence in the neighborhood. In Greektown, the groups have positive perceptions of each other; for example, the Greeks see the Latinos as hard working and family oriented immigrants just like their grandparents; the Latinos see the Greeks as successful immigrants; and the young professionals see both the Greeks and Hispanics as giving an interesting and exotic flavor to the neighborhood, and they embrace the diversity. The paper highlights the importance of planners' understandings of such social dynamics in rapidly diversifying neighborhoods.

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Key Words: Diversity, Immigration, Gentrification, Ethnic Neighborhood, Culture

IMMIGRANTS AND RIGHT TO THE CITY: THE VISIBILITY OF BANGLADESHI STREET VENDORS IN ROME.

Abstract ID: 183

Individual Paper Submission

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Transnational migrations challenge conventional ideas of belonging. This paper analyzes how the urban visibility of the immigrant poor transforms the ways different people use and perceive space. I ask how planners can mobilize visibility to normalize pluralism in the public realm. The Bangladeshi street vendors who informally work in Rome's touristic center are the focus of my study. Through participant observation, interviews, and mapping, I explore the everyday interactions between the vendors, tourists, established residents, and police officers. I study these groups' behaviors and perceptions in a pedestrian-only area, and investigate how the visibility of the vendors affects their respective understanding of Rome. My findings demonstrate that the relationships among and within these users are at times conflictual and at other times strategic, or even convivial. Frictions arise because the vendors compete for the allocation of space, and because powerful actors (some local residents, the police, etc.) perceive the immigrants as outsiders who "pollute" Rome's identity. But the vendors' out-of-placeness and the particular form of the historic built environment also encourage civil inattention and friendly interactions.

When immigrants appear in a city, established groups perceive them as polluters of the local, pure identity (Douglass, 1966). For their part, stigmatized immigrants know that they are seen as “Others” and behave accordingly with people and in space (Goffman, 1963). Public space must serve as the arena where plural publics interact and learn to live together in difference (Sandercock, 2003). I study such encounters with difference by looking at when the ethnic “Other” appears in prime urban spaces. These areas, like Rome’s touristic center, epitomize local traditions conserving strong economic roles. When the immigrant poor occupy prime spaces, they encounter groups they would not usually meet—i.e. tourists and wealthy residents. This contact, visual and physical, makes it unavoidable for powerful groups to acknowledge difference while also enabling vulnerable subjects to construct a sense of urban belonging. Scholars of The Right to the City argue that everyday practices can challenge dominant patterns of exclusion (Purcell, 2002). I join this group of scholars and contend that the Bangladeshis’ visual encroachments function as collective, non-intentional tools of struggle for the right to the city.

Seeing and being seen in the city is the everyday tool the poorest can rely upon to ask for recognition. Scholars understand visibility as a political process that can advance the recognition of difference (Mirzoeff, 2011). Visibility’s political implications become apparent in touristic Rome, where the Bangladeshi’s presence sometimes triggers conflicts, but other times normalizes diversity in the eyes of the city’s users. I argue that planners should use the politics of visibility to encourage respect for the “Other” in the public realm. In support of this argument, I present visual narratives that challenge dominant assumptions of who belongs in touristic Rome. I propose to furnish the city center with urban elements that visually disrupt the crafted landscapes of heritage. I also distribute to the center’s users postcards with historic views of Rome that include today’s vendors next to their early-modern predecessors—predominantly Jewish “outsiders.” These postcards explain that street vending not only is constitutive of Rome’s heritage, but traditionally serves a vehicle of integration for marginalized populations.

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Key Words: Immigrants, Public Space, Right to the City, Street Vendors, Bangladeshis in Rome

LIVING IN LABOR CAMP: HOUSING CONDITIONS AND MENTAL HEALTH

Abstract ID: 200

Individual Paper Submission

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Housing quality is positively correlated with psychological well-being of residents. Research found the relationship focusing on urban areas (Dunn & Hayes, 2000; Kearns & Smith, 1993), single-family detached versus multiple dwelling (Moore, 1974; Zalot & Webber, 1977), high-rise versus low-rise (Bagley, 1974; Evans, Wells, & Moch, 2003), and households with children (Hunt, 1990; Kasl et al., 1982). Yet, there has been only little interest in rural areas, especially looking at the migrant farmworkers' labor camps-temporary seasonal group dwellings (Vallejos et al., 2011). A few studies investigated private family housing for farmworkers (Early et al., 2006; Gentry et al., 2007). The rural housing for families is regulated by the U.S. Department of Housing and Urban Development (HUD) Minimum Property Standard for Housing (HUD, 1994; NRCAP, 2005). On the other hand, the labor camps in NC are regulated by the Migrant Housing Act (NC-MHA) (Arcury & Quandt, 2011). Although NC-MHA regulates bare minimum compared to the HUD's minimum property standard for

housing, the violations on the labor camps were notably reported (Arcury et al., 2012; Early et al., 2006), which we believe associated with adverse psychological health to farmworkers.

We ask two following research questions. Do the labor camp conditions affect farmworkers' mental health? If so, what characteristics of housing quality affect mental health, how and why? To understand the relationship comprehensively, we take into account other variables (i.e., social supports and community satisfaction) that might moderate the relation between housing and mental health.

Our data collection consists of a survey questionnaire and a field audit. The Farmworker Survey conducted in 2016-2017, assessed various social well-being and mental health for farmworkers in eastern North Carolina. The questionnaire includes the well-validated measures of depression (Patient Health Questionnaire, PHQ-9), anxiety (Generalized Anxiety Disorder, GAD-7), social supports (Multidimensional Scale of Perceived Social Support, MSPSS), and community quality of life indexes. In addition to the questionnaire survey, we also conducted an audit of physical conditions of labor camps. Evans, Wells, & Moch (2003) criticized the use of the subjective measure of housing conditions (asking residents how they evaluate the housing conditions). We adapted the Housing Audit instrument developed by Evans (2000) and recorded the labor camp conditions on cleanliness/clutter, indoor climatic conditions, privacy, hazards, structural quality, and housing and neighborhood/surrounding quality. Preliminary screening of the housing conditions began in 2016 and had continued until 2018. The sample of the research includes 12 labor campsites with H-2A migrant farmworkers. Total 300 farmworkers participated in the surveys. We anticipate showing the link between the inadequate living conditions to mental health problems to workers.

UN HABITAT's report, *The Right to Adequate Housing*, states "access to adequate housing can be a precondition for the enjoyment of several human rights, including the rights to work, health, social security, vote, privacy or education (p.9)." Every adult and child have the right to live in housing that does not compromise their health or well-being. Due to their lack of legal status, the criminalization of irregular migration in the US, work insecurity, and cultural/language barrier, farmworkers tolerate the poor housing conditions and lower quality of life. There might be different perspectives and new solutions around farmworker housing and health. A systematic approach with various stakeholders should be considered to address the problems.

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Key Words: Housing condition, Audit , Farmworker, Mental health, Latino

THE IMPACT OF PRIVATIZATION ON DIVERSITY IN PUBLIC SPACE: EVIDENCE FROM DOWNTOWN DALLAS PARKS

Abstract ID: 282

Individual Paper Submission

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This study focuses on how privatization of public space affects inclusiveness, diversity of the uses and users and thereby social justice. With the growing popularity of public-private partnerships, cities are heavily relying on the

market for financing, programming, and managing their public spaces. However, “public space” might rather be called “publicly-accessible” space, considering private ownership and control. Critics of privatization argue that privatized public spaces exclude individuals and groups based on race, gender, class, social status, and also beliefs, behavior, and activities (Davis, 2012; Loukaitou-Sideris and Banerjee, 1998; Mitchell, 2003; Schmidt and Nemeth, 2011).

To further explore this dilemma, three publicly used parks were selected in Downtown Dallas based on three ownership and management types: (1) publicly-owned, publicly-managed; (2) publicly-owned, privately-managed; (3) privately-owned, privately-managed. Exploring these spaces with different levels of private control helps evaluate their impacts on the degrees of inclusion not only based on gender, class and social status, but also accommodating protesters who claim spaces to show themselves as part of the “public.” Thus, we question privatization as a means of planning, programming, and designing the appropriate “public”.

Studies have examined exclusion in high-density, high-amenity cities of the east or west coast, e.g., New York, Los Angeles (Davis, 1992; Miller, 2007; Németh and Hollander, 2010; Peterson, 2006; Staeheli and Mitchell, 2007). However, the importance of inclusivity of public space has not been questioned in the sprawled, fragmented, low-density, auto-dependent Metropolitan areas, such as Dallas-Fort Worth. Hence, the study findings contribute to the literature, and help professionals to gain insights into the impacts of their interventions or decisions on the ground.

The research methodology includes (1) semi-structured interviews with three groups of stakeholders: community activists, management teams, and designers, representing the users, regulators, and developers respectively; (2) Participant observation during weekdays, weekends, formally-planned events as well as community-led ones, and (3) review of local media coverage as well as public spaces websites and social media (Instagram and Twitter) for content analysis. Triangulating the results from interviews, observations, and content analysis inform on how users, planners and administrators, and market appropriate public space for a win-win-win situation, so that all stakeholders feel included.

Based on the findings of participant observation and the content analysis of the three case studies' social media from March 2017 to March 2018: (1) The publicly-owned and managed space continues to restrict the use of space for “planned” events, granting access through payment or membership. Otherwise, the “homeless” and “local activists” claim the space for “unplanned” activities despite the presence of security; (2) “Social activists” and “protesters” are not allowed to engage the public in the publicly-owned and privately-managed case, where the private security severely restrict the presence of different types of “public.” However, women and children utilize the space for “planned,” and “unplanned” uses. Record of “homeless” people appearing within or outside of this park was not found during the observation; (3) “Social activists,” “protesters” and the “homeless” use the privately-owned and managed park heavily whereas women and children are routinely absent in the everyday life of the place.

Given the number, diversity, and types of activities and occupants, this research denies the relation of privatization to the geography of inclusion and exclusion. However, the presence of significant private control stimulates female occupancy.

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Key Words: Public Space, Privatization, Control, diversity, Inclusion

VALUE-LADEN, NOT VALUE-FREE: BIG DATA APPLICATIONS AS TECHNOLOGIES FOR ETHNIC AND CLASS ERASURE

Abstract ID: 388

Individual Paper Submission

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Today, in an increasingly unequal and digital society, the promise of technological, data-driven solutions for social issues is greatly common. The field of planning has not been immune to this rhetoric and touts open data, big data, and Smart City initiatives, among other techno-solutions, as the promising tools for an equitable, inclusive, and sustainable future. This paper, and its accompanying [interactive map](#) and [Story Map](#), are centrally concerned with the social and cultural implications of techno-neutral imaginaries in planning, and problematize the degree to which such digital and data-driven futures will be able to achieve desired outcomes, especially in relation to the empowerment of low-income communities of color.

This paper does not presuppose that “big data” and the “digital” are value-free and neutral, but instead argues that they are value-laden in their design, use, and deployment (Pinch & Bijker, 1984; Winner, 1986). Under the guise of technological neutrality, large data systems and applications often reinforce subordinate positionalities through their representations of marginalized groups and individuals, and contribute to the unconscionable withholding of resources from underrepresented communities, as a result of data-driven decision-making (Noble, 2018; Zook et al., 2017). Thus, as big data tools are increasingly integrated into community planning processes – and as our mediated environments now directly impact our built environments – it is of utmost importance to interject these notions of the social construction of technology alongside writings on spatial justice and the social production of space (e.g., Soja, 2010; Lefebvre, 1981) to understand the opportunities and dangers of big data tools for planning. Thus:

RQ1: Which groups and communities serve to benefit from “neutral” big data applications in planning?

RQ2: Which groups and communities are endangered?

To explore these questions, this study tests the validity of urban myths claiming artisanal coffee shops as purveyors of gentrification and ethnic erasure within Los Angeles, using Yelp as a case study for examining the politics of big data and a potential “alternative” dataset for land use planning. Business data for coffee shops in the City of LA were collected through the Yelp API and then coded according to their artisanal shop status, using menu items to inform categorization. Following this, the point-level data were overlaid on top of an extant gentrification index (Zuk & Chapple, 2015) and spatially joined to census tract data for visual analyses and socio-spatial regression tests.

The preliminary results indicate that artisanal coffee shops tend to agglomerate within gentrified and gentrifying neighborhoods, rather than non-gentrified neighborhoods, regardless of neighborhood socioeconomic status. Moreover, the shops with the highest ratings and review counts tend to be located within gentrified and gentrifying neighborhoods. Although we cannot directly attribute these results to the same causes and/or infer directionality, taking into consideration the overrepresentation of educated whites in Yelp user demographics, and the work of big data scholars such as Noble (2018) and Zook et al. (2017), we would be remiss not to be wary of techno-neutral narratives that portray any and all big data applications as equalizing tools for communities and removed from extant power relations.

Therefore, through problematizing narratives of techno-neutrality and exploring the ways in which social hierarchies are indeed embedded in the production and consumption of big data and geospatial platforms such as Yelp, this paper illustrates the potential failures of narratives promoting open data, big data, and social media applications as facilitators of spatial justice and community empowerment in planning processes. This paper redirects such techno-interventions to further interrogate and carefully consider the social aspects of socio-technical interventions, rather than overemphasizing the technical or otherwise endanger marginalized low-income communities of color even more through planning processes.

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Key Words: big data, Smart Cities, GIS technologies, gentrification , race and ethnicity

CARTOGRAPHIES OF ACCESS, OPPORTUNITY, AND DIFFERENCE

Abstract ID: 503

Individual Paper Submission

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Person-centric approaches for describing access to urban resources have developed over decades, largely reliant upon individual travel diaries and other survey-based data collection methods. Still, urban planning research and practice most frequently deploy cartographically standardized measures of accessibility when proposing interventions or evaluating landscapes of equity within cities. These measures unfortunately flatten documented, experiential difference between collocated individuals (differences often related to gender, race, and income levels) in favor of mapping a location-based, comprehensive image of the city via less resource-intensive data collection. Drawing from qualitative and feminist GIS, time-geographic techniques, and structuration theory, and while leveraging large, authoritative, and publicly available data sources, the paper presents countercartographies that reconfigure urban access as a variable landscape of opportunity and constraint incorporating, both, where we are and the lives we live there. Developing robust GIS-based, data-driven, and replicable approaches, the research focuses on spatiostructural differences between genders, presents an alternative cartographic conceptualization for describing and planning access to everyday locations in several mid-sized US cities, and reveals substantial variation in daily opportunities despite residential collocation. In addition to new methods for evaluation, the results offer insights into transportation and land use planning with additional implications for the development of gender-biased industry clustering (such as that found within the STEM fields).

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Key Words: Gender, GIS, Cartography, Time-Geography

UTILIZING COMMUNITY PLANNING AND COLLABORATION TO CREATE AGE-FRIENDLY COMMUNITIES FOR LESBIAN, GAY, BISEXUAL, AND TRANSGENDER OLDER ADULTS

Abstract ID: 547

Individual Paper Submission

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Problem/Central Theme: Lesbian, gay, bisexual, and transgender (LGBT) older adults face unique challenges that influence health outcomes and social inclusion in community life. Despite the anticipated growth of this population and changing social and political attitudes towards sexual and gender variant communities, the needs of LGBT older adults are often not adequately addressed by agencies and organizations intended to support older people and often remain overlooked by many states and municipalities.

The concept of age-friendly communities exemplifies a new framework for policy and program development that accounts for diversity among both older persons and places they live. However, to date, planning and gerontological literature about age-friendly initiatives has not examined the capacity of this movement to be responsive to LGBT older adults

Approach and methodology: To address this knowledge gap, the current study examined the extent to which the development and implementation of an age-friendly initiative in Erie County, NY addressed the needs of the LGBT community.

The study answered the following research questions:

- What innovative community planning and collaboration practices have been integrated as part of age-friendly efforts in Erie County, NY to address the needs of LGBT older adults?
- Where is there congruence and divergence about the needs of LGBT adults between policymakers, organizations that serve older adults, and members of the LGBT community in Erie County, NY?

To address these research questions, the study employed a descriptive, cross-sectional case study design to examine planning efforts in the real-life context of a county policy environment. The study utilized multiple data gathering techniques to obtain a rich depiction of the planning and implementation of county-scale efforts to improve outreach and support to LGBT older citizens. Data collection include: (a) interviews with multiple stakeholder groups (e.g., LGBT older adults, local and organizations, and public officials and policymakers), (b) participant observation of planning meetings, public hearings, and program events, and (c) gathering policies, program documents, and media coverage for content analysis.

The process for analyzing data interview data, observational field notes, and secondary policy and program documents included (1) open coding of all raw data, (2) focused coding of open codes, and emerging analytic concepts across and within the data set to develop thematic categories and subcategories, and (3) diagramming to explore the relationship of codes and conceptual categories.

Findings and relevance to scholarship/ practice: Study results depict the capacity of age-friendly initiatives to establish opportunities synergy and collaboration among government agencies and local organizations to address diverse needs of LGBT older adults. While awareness of needs vary among institutional leaders, a majority of the government agencies, senior centers, churches, and LGBT organizations had had intentional strategies in place to reach LGBT seniors in the community. Innovative practices identified include leadership-initiated outreach, collaboration for problem solving, and the utilization of existing funds and programs to create small-scale changes in policies and services.

These have important implications for planning scholarship and practice due to growth and diversification of the aging population and movement towards community-scale aging solutions. Study findings offer guidance to researchers, planners, and public-sector practitioners for addressing the needs of LGBT older adults as part of research and assessment efforts, decision-making, program development, and public engagement. Additionally, this study introduces new substantive issues to the growing body of literature focused on the implications of planning theory, research, and practice for LGBT communities.

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Key Words: Community/Civic Engagement, GLBT Issues, Inclusive Community and Social Inclusion, Social Planning, Community-Based Research

THE GENDERED PRODUCTION OF INFRASTRUCTURE

Abstract ID: 619

Individual Paper Submission

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Over the years, studies have highlighted how women, the poor, racial minorities, and marginalized communities have the worst access to critical infrastructure services, and disproportionately bear the negative consequences from noxious public works projects built in their communities (Lucas, 2004, Pulido 2000). This paper examines the ways that unequal gender dynamics are a key feature of the front-end production of infrastructure, a topic that has received far less attention, yet significantly impacts on the projects that are built. Through a review and synthesis of a multi-disciplinary literature, the paper explores how the infrastructure sector is constituted, and identifies what actors and forces are essential in its making. Then an examination is carried out of the key project leaders, planners, builders, community groups and the symbolic narratives that together create infrastructure projects globally. The research shows how the gendered rationalities of mainstream infrastructure planning rely overwhelmingly on masculine norms and values. Masculinity is deeply embedded in the organizational structures, employment practices, symbolic meanings, aesthetic choices, and systems of power that create the vast arrays of infrastructure worldwide. And the paper reveals the ramifications of an infrastructure sector where the positions of power are overwhelmingly held by men, in an industry that has a legacy of racial discrimination that remains entrenched through to the present. Highlighting the pervasiveness of gender and racial inequity in infrastructure production has the potential to identify more just orientations for planning practices (Sandercock and Forsyth, 1992; Fainstein and Servon, 2005). The paper concludes by reflecting on what the gendering of infrastructure production tells us about the built environment and about the possibilities for building infrastructure differently.

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Key Words: Gender, Race, Infrastructure Planning, Diversity

LIMITS OF LOCAL DEMOCRACY: MUNICIPAL BOUNDARY CHANGES AND RACIAL DISCRIMINATION AFTER THE VOTING RIGHTS ACT

Abstract ID: 753

Individual Paper Submission

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Cities in the United States routinely expand their jurisdictional borders through the process known as municipal annexation and, as they do so, they sometimes exclude neighborhoods with high shares of racial or ethnic minorities, a process known as municipal underbounding (Aiken, 1987; Anderson, 2010; Durst, 2014; Lichter, Parisi, Grice, & Taquino, 2007). These discriminatory patterns of exclusion are exacerbated by state laws that provide city residents with control over annexation decisions, either through public hearings or municipal referenda (Durst, 2018). Although racial underbounding has historically been prohibited under Section 5 of the Voting Rights Act (VRA), the Supreme Court's recent invalidation in 2013 of Section 4 of the VRA has led to a nascent return to municipal underbounding. In this study, a Geographic Information System containing Place and Block data from the U.S. Census Bureau is used to identify changes in city boundaries between 2010 to 2017 – before and after invalidation Section 4 of the VRA. “Difference-in-differences” regression analysis is then used to examine whether the share of whites, blacks, and Hispanics in annexed census blocks changed after 2013. The analysis illustrates that the invalidation of Section 4 has led the underbounding of black neighborhoods located on the fringe of cities; such patterns of exclusion are most pronounced in states that allow popular determination of municipal annexation (i.e., where city residents vote directly for or against annexation). This study highlights the need for planners to reconsider the importance of democratic institutions, local boundary changes, and social equity in the absence of federal oversight and enforcement of voting rights.

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Key Words: Voting rights, Municipal annexation, Discrimination

“MANAGING” DIFFERENCE IN ORGANIZATIONAL CONTEXTS: USING MULTIPLE IDENTITIES IN AN ASIAN AMERICAN ADVOCACY AND SOCIAL SERVICES ORGANIZATION

Abstract ID: 780

Individual Paper Submission

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In 2017, immigrants and their children accounted for 27 percent of the total US population (Current Population Survey). These demographic trends have translated to social, political, economic, and physical change in various neighborhoods throughout the US, giving rise to “new immigrant gateways” as well as transforming traditional gateways for immigrant groups (Singer 2004). Consequently, policy makers and planners increasingly consider how to plan for ethnically and racially diverse communities (Sandercock 2000).

Nonprofit social service and advocacy organizations are increasingly viewed as key political players that work with constituents, policy makers, and other stakeholders to facilitate immigrants' social and political incorporation (Bloemraad 2006). Such organizations may serve, educate, advocate on behalf of, and politically mobilize some of the most disadvantaged portions of the US population – those who are undocumented, lack English proficiency, and are poor (Wong 2006). Through these activities, nonprofits may also shape stakeholders' understandings of immigrant communities and their needs at the local and national levels.

But how do immigrant advocacy and social service organizations claim to serve and work on behalf of a diverse constituency? In other words, how do they “manage” internal diversity (as individuals may identify along multiple dimensions such as ethnicity, race, religion, gender, geographic locale, etc.) given their diverse and at times, growing constituencies? My paper will focus on how staff in immigrant nonprofit advocacy organizations construct organizational identities and how these processes contribute to their advocacy activities, if at all.

Using data from a larger qualitative comparative case study of Asian American advocacy and social services organizations in New York City, I present findings based on 16 semi-structured interviews from my fieldwork in 2016. I use the example of Asian Americans because of the group's tremendous diversity which contributes to significant intragroup disparity and potential difficulties for advocates who seek to serve, mobilize, and represent a constituency comprised of individuals with dynamic identities. Further, Asian Americans represent the largest growing racial group in the US with the highest percentage of foreign born members among immigrant groups, rendering many to be excluded, by default, from traditional forms of political participation.

I focus on organizational initiatives (nail salon campaign, civic engagement, and DREAMer organizing) carried out by one Asian American social services and advocacy organization to demonstrate how organizations may strategically expand their social and ethnic boundaries, allowing advocates to juggle different identities (e.g. disadvantaged Korean, middle-class Korean, Asian American, and immigrant) in various advocacy and organizing contexts. Ultimately, these practices offer 1) a level of flexibility for advocates as they serve and advocate for multiple constituencies and 2) benefits in the form of increased funding opportunities and exposure to other stakeholders. However, these strategies may lead to unequal representation and service provision for constituents and/or clients who are intersectionally disadvantaged (Crenshaw 1991).

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Key Words: immigration and diversity, nonprofit social services and advocacy organizations, intersectionality

INTER-FAITH COALITIONS FOR IMMIGRANT RIGHTS IN NORTHERN ALABAMA

Abstract ID: 798

Individual Paper Submission

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U.S. Americans have long expressed a preference for taking membership in associations, organizations, and community groups that fall outside the realm of formal government structures. De Tocqueville argued that this tendency for associational affiliation is what led to a robust American Democracy. However, as we move into the 21st century, social theorists increasingly express concern about American's declining participation, and indeed interest, in community activities and associations (see Putnam 2001). The decline of such social interaction, or

social capital, indicates some key challenges to our democratic institutions. At the same time, the government has retrenched, cutting back on programs, services, and activities designed to support communities, especially those in need as neoliberal policies continue to guide all major political parties (Wolff 2001b). In this environment of reduced social capital and reduced government involvement, how to communities come together to create progressive change?

This question becomes critical when considering the needs and demands of communities lacking formal political voice and holding little political power. Undocumented Americans, are one such group. This project seeks to understand how community coalitions are formed and function in support of immigrant rights, immigrant access to social services, and the general welfare of immigrant communities in Northern Alabama.

Alabama has long experienced state retrenchment under neoliberal practices and relies heavily on faith groups to fill the gaps left by the limited state-sponsored social program. In Northern Alabama religious and community organizations have joined together in inter-faith coalitions to fill the gaps left by the state by providing social services to the public. After the 2016 election of President Trump, community coalitions took on increased significance as Americans desiring to push back against his race-baiting and nativist agenda, came together to demand political action. Immigrant rights organizers and leaders feared the future of their communities under a president that referred to Mexican immigrants as “rapists and murders” (Tobar 2016). While this level of racial division and government retrenchment was new for the Nation, it was not new for the State of Alabama where racialized violence and hyper nativist policies had long been at home. Indeed, it was as though the social policies of Alabama were taking over the national scene; news media declared “the Alabamification of America” (Pendigrass 2017). With this alleged Alabamification of the nation, it becomes increasingly significant to understand how community coalitions struggling for social justice have survived and even thrived here in Alabama. For it is not only the negative side of Alabama politics that can be exported to the rest of the country, but the organizing strategies, successes, and practices too.

To understand how immigrant rights coalitions function in Northern Alabama, this paper presents preliminary findings from a mixed-methods study of inter-faith coalitions. Two sets of data are analyzed (1) a social network analysis based on publically available data (web-scraping) of coalitions and organizations in the region and (2) a survey of organizations and faith groups working to further the cause of immigrant and undocumented Americans in Alabama. The social network analysis is undertaken to identify the centrality of organizations, relative levels of prestige, and key clusters of organizations. The survey is undertaken to gauge the importance of collaboration and coalition work to individual organizations and their efforts to further immigrant causes in the region. Findings from both of these approaches will speak to the function of coalitions for immigrant rights and the motivations for participating in immigrant rights activities.

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Key Words: Immigrant Rights Movement, Inter-faith, Coalitions, American South, Alabama

SITUATING PUBLIC EDUCATION IN THE RACIALLY JUST CITY: THE CASE OF SCHOOL CLOSURE, DISPOSITION, AND REDEVELOPMENT IN PHILADELPHIA

Abstract ID: 812

Individual Paper Submission

Fainstein's *The Just City* outlines a way to "provide an evaluative standard by which to judge urban policies and to express the goals of urban movements" (2010, p. 36). The scale of the city (as distinct from a region or state) is useful because of the instrumentality of the local level of governance; "objects of investment" and "locational decisions" are under the purview of local governments (Fainstein, 2010, p. 7). Cities thus hold "the power to distribute benefits and cause harm," and in the just city, the distribution of "benefits and costs [goes] to those least well-off or those most directly and adversely affected" by public decisions (Fainstein, 2010, p. 9). The framework also responds to the turn towards neoliberal urban governance that relies on market-logics and outsourcing policy implementation to private actors, and on the preoccupation of urban policy with economic growth.

Notably, Fainstein omits public education in her conceptualization, commenting that "education is a crucial aspect of policy to be considered under the rubric of the just city [but it] require[s] separate and fuller examinations that I can provide here" (Fainstein, 2010, p. 7). Herein, I begin that examination by looking at school closure, building disposition, and redevelopment. What is the path to the just city for communities whose schools have been closed and sold for redevelopment? More specifically, what does the racially just city look like for these communities?

Considering schools as sites of redevelopment that are embedded in the dynamics of neighborhood change facilitates reflection on the ways that the politics of place and those of education interact in the context of racial justice. Specifically, I look at the case of Philadelphia, where in 2013, school district leaders closed ten percent of its traditional public schools, with the intention of selling the majority of these buildings. Nationwide, closures disproportionately and negatively affected students of color, and in Philadelphia neighborhoods with majority African American residents were more likely to experience school closures (Good, 2017). This exploration relies on findings from a study of the Philadelphia case conducted between March 2014 and August 2015 (with additional follow up research through December 2017). The original study included seven months of on-site ethnographic fieldwork; archival research and document analysis; and interviews with over 100 Philadelphia residents, city and school district staff, and other non-profit professionals.

The case of closed school buildings is a fruitful starting point and extension for Fainstein's framework to consider public education and racial equity. Their disposition and reuse highlight schools as physical infrastructure and sites of redevelopment that are embedded in the dynamics of neighborhood change. Fainstein's attention to local government extends easily to school districts, especially in places with contiguous city-school district boundaries and districts that operate under mayoral control or hybrid models that blur the lines between urban redevelopment and public education efforts. School facilities decisions (e.g., siting and constructing of new schools, rehabilitating older school buildings, school attendance zone design and implementation, and closing of schools) have historically (and today) unevenly distribute benefits and harm, cementing disadvantage for low-income communities and especially African American communities.

In this paper, I grapple with applying Fainstein's just city framework to public education and extend it by building on Fay's (2015) recent work that identifies school closure decision-making processes as an expression of "abnormal justice" (Fraser, 2008), and exploring the extent to which anti-racist policy and planning could move planners towards the racially just city (Kendi, 2016).

Citations

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Key Words: justice, racial equity, public education, public schools

DIFFERENTIATING PARTICIPATION: EXPLORING THE RELATION BETWEEN PARTICIPANTS' CIVIC CAPACITIES AND THE DESIGN OF PARTICIPATORY SPACES

Abstract ID: 901

Individual Paper Submission

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One of the challenges of participatory planning is ensuring that all participants are fully informed so that they can engage meaningfully in a context often offset by an imbalance of power and resources (Santos & Chess, 2003). This is one of the reasons why multiple researchers have constructed hierarchical schemes to assess the degree of shared power and responsibility as individuals engage in participatory processes (Arnstein, 1969; Cornwall, 2008; White, 1996). Such models aim to provide insight about the public's degree of access to meaningful power that can effect change from the bottom up rather than respond to predefined outcomes from the top down. While an upcoming special issue for JAPA argues that public engagement has "now been elevated over time to core values in planning practice," (2018) these practices can vary. They can vary not only in their level and type of engagement, but also in how they represent the value that those in charge of participatory planning activities place in the challenging work of including under-represented communities, usually absent from decision-making processes.

Drawing on three years of data collection, this study investigated participants' civic capacities –the skills needed to actively engage in civic discourse – and the role these capacities had in a participator budgeting process in Chicago. Discourse analysis of participants' social interactions from video data revealed key civic capacities that varied depending on the different design environments in which participants engaged. Civic capacities were found to have qualities at both the individual and collective level. Individual-level civic capacities were required for initiating ideas and clarifying the purpose of both the planning process and emerging ideas. However, individual-level civic capacities were not enough for ideas to become actionable. Collective-level civic capacities were necessary for an idea to be developed as a joint activity among participants, increasing the likelihood of the idea becoming actionable.

Accordingly, the study examined what contributed to the differences in the above findings, exploring design features that supported or inhibited the organization of civic capacities into individual or collective levels. The authors identify the difference between levels through coalescence- finding the commonalities in instances where ideas were only proposed against those developed into projects. As such, the study details how when coalescing happens, even individual-level civic capacities take on collective-level properties that support idea development across participants.

The above findings are instrumental given the diversity of participants in the participatory budgeting process under study. By differentiating between predominantly Spanish-speaking Latino immigrants and predominantly English-speaking participants, the study highlights how design features can limit or support participation across groups with different access to power and resources. Differentiating between the two types of civic capacities is critical for understanding the extent to which design features in civic spaces support or prevent the emergence of civic capacities. It is challenging to learn and develop collective-level civic capacities when participants who speak different languages attempt to engage in meetings that fail to support the differentiated needs of participants. Taking into account differentiated needs for participation is what the authors refer to as designing for equity (Meléndez & Martinez-Cosio, 2018). Planners should be interested in understanding the purpose of each type of civic capacity and how to design for their development (Forester, 2013), in particular how to design for supporting the level of participation at the top of participatory hierarchical schemes. Torfing and Sørensen argue in Healey et al., 2008, that we need to "focus much more on the role of institutional design for augmenting the size, quality and impact of participation", (p. 395) if we are to connect civic engagement and participatory planning for urban resurgence.

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Key Words: Civic Capacities, Design Features, Differentiated Participation, Discourse Analysis, Designing for Equity

A GENDER LENS TO CREATIVE PLACEMAKING

Abstract ID: 913

Individual Paper Submission

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Creative placemaking has become an important tool for urban planners engaged in revitalizing cities. When effective, creative placemaking transforms a commodified space into a place reflective of lived culture. The full range of creative placemaking includes a variety of planning practices such as tactical urbanism, venue development, arts district designation, and constructing new live/work spaces for artists. While increasing support for large institutions such as museums and performing arts centers may play a role, effective creative placemaking facilitates the creative practice of artists

The occupational approach to creative placemaking quickly reveals an underlying reality: there are large gender discrepancies within artistic and creative occupations. Gender differences in creative fields exist in terms of employment, income, recognition and representation. Given these differences, what are the differential needs of artists and creative workers in terms of the built environment and social connections for success? How might creative placemaking work to increase equity of arts opportunities across these gender divides?

I use two major sources of data to answer these questions. I examine gender differences in artistic and creative occupations and activities using data from national surveys of time usage, occupational employment and wages, and census information. These data will set the context for a closer examination of gender differences in artists' practice. The second source of data is a local survey of artists from the Kansas City Metropolitan Area. This survey was designed to examine the needs of artists in the built environment and to examine the influence of institutional artist support networks. These data will be analyzed to illustrate underlying patterns of gender difference in artist and creative worker needs.

I find distinct gender differences in artist social networks, occupations, modes of recognition and income sources. This gender lens shows that the majority of artists and creatives in Kansas City who may benefit from creative placemaking may not directly show up in the occupational accounting. Furthermore, creative placemaking programs that address the needs of artists have the potential to increase gender equity and access. Provision of community art spaces and artist live/work housing development address some of the needs found in the artist survey. These spaces provide amenities that create stronger communities of place.

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Key Words: Creative Placemaking, Artists, Gender, Urban development

THE INFLUENCE OF MICROAGGRESSION ON MUSLIM WOMEN'S WALKING BEHAVIOR

Abstract ID: 932

Individual Paper Submission

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During the last two decades, emphasis on social components of walking behavior has created an emerging discussion in walkability discourse. The socioecological model of walking behavior is one the models, which determines social factors impacting walking behavior. This model discusses life-cycle circumstances at individual, group, and regional level, which impact one's decision to walk or not walk in an urban neighborhood (Alfonso 2005; see also Mehta 2008). The present research study explores social components of urban accessibility and the influence of those factors on walking behavior of a culturally cohesive disfranchised group, Muslim women, in Detroit Metro Area. This research determines whether higher level of walkability in an urban neighborhood encourages walking for Muslim women or social factors impact Muslim women's walking behavior more effectively than built environment components. The socioecological model of walking behavior introduced by Alfonso was used to determine the impact of Muslim women's life-cycle circumstances at individual and group level.

Detroit Metro Area hosting one of the highest concentration of Muslims in the U.S. is a good study area for the present research. This area also represents one of the most diverse Muslim communities within urban America due to their countries of origin, religious affiliations, language skills, and years of living in the U.S. This considerable diversity among Muslims in the area provided us with an insightful perspective on Muslim's cultural values and the roles those values play in Muslim women's social life experiences. The present research tends to answer three questions of (1) does fear of others (non-Muslims) diminish Muslim women's presence in studied public spaces (e.g. walking trails and sidewalks), (2) would living in urban neighborhoods with the majority of Muslims as residents promote Muslim women's walking behavior, and (3) what kind of barriers do community planners face to engage Muslim women in planning processes. This paper presents the outcomes of a qualitative research conducted from early 2013 to late 2016 to answer those three questions. A set of research activities were completed in this period from several participants observations in walking trails and urban parks, to semi-structured interviews with 122 Muslim women as participants.

This study revealed that four factors impactfully influence interviewed Muslim women's walking behavior: 1) fear of otherness, 2) social acceptance within Muslim community, 3) cultural differences with non-Muslims, and 4) built environment components. Fear of otherness was the most impactful factor mentioned by study participants, which includes sub-factors such as micro-aggression. Microaggression has long been mentioned as an impactful factor influencing urban population's social experiences (Wing Sue 2010). This paper introduces a model for walking behavior based on interviewed Muslim women's experiences, highlighting the phenomenon of microaggression and its overarching impact on Muslim women's social lives in Detroit Metro Area. Results of

this research will also provide community planning experts with the knowledge they need to communicate with this minority group and provides a new lens through which urban planners could see Muslim minorities' priorities and limitations related to their level of urban accessibility.

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Key Words: American Muslims, Qualitative Methods, Walking Behavior, Physical Activity, Microaggression

WHERE ARE THE WOMEN IN INDIA'S SMART CITY TRANSPORT PLANS?

Abstract ID: 987

Individual Paper Submission

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Gendered differences in travel are now well established. It is well understood that urban transport plans and policies have a wide range of impacts, trade-offs and conflicts that affect men and women differently. This paper aims to address two inter related questions with the intent of better understanding and addressing the gender blindness of urban transport policies and plans in India. The specific questions are: (1) How are women mobility needs understood, conceptualized and accounted for in urban transport plans in India; and (2) how can women concerns be better integrated in urban transport plan making in India?

The paper presents a critical review of the Smart City plans developed under the Smart Cities Mission, a flagship program of the Government of India which aims to develop 100 smart cities in India by 2022. I review the first 20 winners of the first round of the mission which are representative of the different geographical areas. The review focuses on the transport section of the plans, and analyzes the inclusiveness of these plans in terms of the quality of overall goals/plan objectives, the plan making process and the projects identified by each city for implementation to become a 'smart' city. In light of the rising incidents of violence against women in India, the review also pays special attention to the kind of projects identified by cities that focus on the safety needs of women. The review is supplemented by interviews conducted for planners and policymakers engaged in designing and implementation of smart city scheme at federal level, and also planners involved in preparation of the smart city proposals in selected cities.

The preliminary findings indicate that the smart cities mission continues to ignore women by adopting a gender neutral stance to urban transport planning, and in doing so, reinforce the existing issues and barriers faced by women in meeting their daily mobility needs. The plans also fail to include women adequately in the citizen participation process which is the main focus of the scheme, with few exceptions (e.g. Bhubaneswar). With no attention to gender differences, the plans reflect narrow understanding of urban planners and policymakers in India about women travel needs and concerns.

The plans pay attention to women only in terms of improving the safety levels of men and women on streets at all hours. Most of the plans, however, with an exception of Bhubaneswar, are silent on improving women safety and security levels on public transit systems which have been in the news for being the main site for some high profile rape and assault incidents lately. The main and, in most cases, the only strategy adopted by cities to improve the safety levels of women is by increasing surveillance. The paper concludes with a discussion related to identification of measures for better integration of women needs in urban transport planning in Indian cities.

To my knowledge, this paper is the first of its kind review of the plans from a gendered lens. Given that the cities are planning implementation of proposed smart city plans, the research presents a unique opportunity in terms of

evaluating the plans and integrating women needs and concerns more effectively in urban transportation planning. The results should be of particular interest to planners and policy makers interested in gender sensitive planning and policy making in general and particularly in special context to India.

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Key Words: Gender , Urban Transport, Smart cities , Safety , India

LIFE-SPACE MOBILITY AND AGING IN PLACE

Abstract ID: 1007

Individual Paper Submission

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Research on older adults explores the notion of “aging in place”—providing older adults the opportunity to continue to occupy familiar surroundings, to live in their own homes and communities. But oftentimes one’s ability to stay or leave, particularly in old age, depends on the built environment. Mobility is the ability to meet the basic needs to access goods, activities, services, and social interactions as they relate to the quality of life (Mollenkopf, 2005). Thus, mobility is essential to older adults due to their limited, or gradually reducing, physical and cognitive abilities. In transportation research, mobility is often regarded in terms of travel behavior and it is measured by the number of outside-home travel. However, in other fields, including public health, it refers to the relative ease and freedom of movement in all of its forms (Satariano et al., 2012). This study intends to broaden the understanding of the environmental factors on older adults’ mobility in different life-spaces, from one’s bedroom to sidewalk, from home to a final destination via walking, public transit and/or driving. We will document and examine 1) the ways in which older adults talk about, understand, and make meaning of their experiences and conditions related to life-space mobility and, 2) how these frames of reference guide their ability to be able to age in place. To achieve these objectives, we will develop a life-space mobility assessment tool and conduct semi-structured interviews with 50 older adults who have participated in home accessibility modification programs in Salt Lake County (Utah) and Multnomah County (Oregon). Given that interviewees already have engaged in some level of self-determination to improve their lives at home, we are interested in their life-space mobility and which opportunities they might see to improve their auto-sufficiency. Our work will provide both a basis and springboard for studying further geographies and discussion about policy initiatives to effectively and equitably address growing mobility disparities.

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Key Words: older adults, aging in place, life-space mobility

THE RIGHT TO (RE)SHAPE THE CITY AS A PERSON LIVING WITH DEMENTIA: IDENTIFYING BARRIERS AND ADAPTING THE OPEN HOUSE – LESSONS FROM WATERLOO, CANADA

Abstract ID: 1059

Individual Paper Submission

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BACKGROUND: There has been a call from US policy advisors to expand the studying of people living with dementia (PLWD) from health and social care to that of urban planning (Lin & Lewis, 2015). The number of PLWD will increase from 47 to 115.4 million worldwide by 2050. Estimates show that 65-80% of PLWD live in community as opposed to congregate living, however PLWD are not included in the planning process that seeks input from citizens and shapes the places they live in, as they are generally only sought to comment on health/social care policy for themselves (Lin & Lewis, 2015). This is likely due to perpetuated societal norms about PLWD which presume incapacity, resulting in widespread stigmatization. These prevailing notions see PLWD as passive care recipients instead of citizens (Bartlett & O'Connor, 2010). Thus, this research takes the position of PLWD advocating for themselves – that PLWD are people with a disability, citizens, who have the right to be accommodated in society (Swaffer, 2014).

RESEARCH OBJECTIVE: To understand the experiences of PLWD at an Open House (a typical planning consultation tool) to examine barriers and facilitators of meaningful participation.

APPROACH: Many planning scholars have asserted that meaningful involvement of the diverse publics in planning processes are more likely to result in just planning outcomes, and in order to build participatory democracy, we have to work harder to include marginalized voices (Fainstein, 2010; Young, 1989). Thus, this research understands citizenship as involvement in the planning process, and uses a participatory methodology to understand barriers/facilitators and imagine what a dementia-accessible Open House could look like.

METHOD: Twelve community-dwelling participants with self-identified, mild, young-onset dementia (diagnosed under the age of 65) were recruited through community organizations in Waterloo. The study involved the researcher and an individual participant attending a local planning Open House, with the participant being encouraged to interact as they normally would, and the researcher conducting systematic observation (proven to be a successful technique when conducting research with PLWD and their environment, since one is able to observe their actions without researcher interference). The second phase included post-activity interviews with individual participant to (1) understand their experiences and perceived barriers/facilitators to participation in the Open House, and (2) further probe instances of confusion and/or concentration as witnessed by the researcher. The data from both phases were analyzed separately, using a critical grounded theory approach.

FINDINGS: This research illuminates barriers and facilitators to inclusion in the Open House setting for PLWD. Specifically, this research revealed areas of tension, discomfort and confusion for PLWD, but also gathered information from PLWD themselves on how the Open House could be adapted to make it more accessible to their needs as someone living with dementia. These findings are separated into four categories: physical/sensory setting; presentation of information (visual/ auditory); communication with other citizens/professional staff; and mechanisms for seeking meaningful feedback.

RELEVANCE: PLWD are, and always will be, citizens of the places that they live in, and as such, have the right to (re)shape their city as a citizen (Lefebvre, 1996). There is a chance for planning scholarship and practice to lessen stigmatization and expand the concept of citizenship for PLWD, from understanding citizenship as advocating for one's own care/national policy (Bartlett & O'Connor, 2010) to making an accessible space for them to have a voice in the process of city building. PLWD have a right to be consulted about how their

neighborhoods enable or disable them, and this study demonstrates the strong potential for this to happen through adapting this well-known tool in the planning process.

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Key Words: Dementia, Disability Rights, Planning Process, Citizen Engagement

TITLE: TOWARD A TYPOLOGY OF PUBLIC HARASSMENT

Abstract ID: 1065

Individual Paper Submission

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The #MeToo campaign highlights the prevalence of sexual harassment and sexual assault experiences. People share workplace harassment by their bosses, academic harassment by lecherous professors, and even previously untold stories about past sexual assaults. When it comes to planning, scholars and practitioners should feel a sense of urgency around the issue of street harassment and assault experienced in public spaces, both of which can present gendered barriers preventing access to full rights to the city (Fenster, 2005). As with the accounts revealed during the #MeToo campaign, women are not the only people to experience street harassment. A recent report suggests that almost 70% of women and 26% of men have experienced sexual harassment in the public spaces of parks, streets, transportation, and more (Kearl, 2018).

However, harassment experiences in public space are not always sexual in nature. Although the term street harassment traditionally refers to undesired sexual advances such as catcalling, groping, or leering, in this paper I propose that street harassment is only one category within a broader range of harassment experienced in public spaces. I use the term public harassment, which is more inclusive of incidents that may be driven by systems of advantage and oppression such as racism, heterosexism, nationalism, ableism, and more. In this paper I present ideas for moving toward a typology of public harassment.

This paper extends the work of my dissertation research on street harassment, in which I analyzed 10,000 tweets to examine how virtual public spaces are used to share experiences with—and to resist—street harassment occurring in physical public spaces (Flores, 2016). In the present study I developed a database of news stories, blogs, and social media posts about harassment incidents occurring in public during the past year. For the purposes of this study, criteria included stories that demonstrate that a person(s) intend to initiate unwanted or derogatory contact with another person in public. From here, I was able to perform a content analysis and take the first steps toward developing a typology of the range of harassment that occurs in public space.

By expanding our understanding of the types of harassment than can occur in public spaces, and the systems of advantage and oppression that drive that harassment, this research and further work toward developing a typology of public harassment has implications for planning literature, education, and practice.

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Key Words: gender, street harassment, sexual harassment, public space

CHOOSING A NEW NEIGHBORHOOD? : THE CASE OF RECENT IMMIGRANTS AND ETHNIC NEIGHBORHOOD CONTEXTS IN NORTH TEXAS

Abstract ID: 1134

Individual Paper Submission

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Substantial researchers explain the social networks within ethnic neighborhoods and its significant contribution on how immigrant households make neighborhood choice with respect to racial composition. Ethnic neighborhoods so-called “ethnic enclaves” (Wilson and Portes, 1980) and “ethnic niches” (Waldinger, 1994), provide greater benefits as a result of repeated actions of social networks and information flow that connect newcomers to housing and employment opportunities close to their settled co-ethnics. Despite widespread interest in social networks within ethnic neighborhoods, there is lack of in-depth studies on how recent immigrant choose their new neighborhoods in terms of social, economic, and physical characteristics of neighborhoods.

This research refers to neighborhood choice of recent immigrants and ethnic neighborhoods' context in North Texas. North Central Texas, which is primarily the area of Dallas-Fort Worth Metroplex, is one of the most populous metro areas with immigrants (American Community Survey, 2016), however relatively little scholarly studies conducted on ethnic neighborhoods and recent immigrants in this region. This study extends that literature by figuring out the location of immigrant neighborhoods by examining the spatial arrangement of socioeconomic and physical factors within North Texas region. It mainly focuses on the classification of ethnic neighborhoods in North Texas area from 2012 to 2016.

How to classify ethnic neighborhoods is key in this study. According to literature and dataset, three factors of social, economic, and physical characteristics are considered to select variables of ethnic neighborhood classification and the cluster analysis is applied for classification. The main conceptual measures are introduced:

1. Social factors: racial isolation index, which describes the majority ethnic group in the neighborhoods, recent immigrant concentration, household size, and so on.
2. Economic factors: many factors determine the income segregation including income inequality in the region. In this paper, it denotes the uneven family distribution of different household income levels, renter ratios, job-housing balance, employment accessibility, and job density.
3. Physical factors: residential density, accessibility by transit (bus and rail), and food accessibility.

This study contributes to better understanding of how recent immigrants chose their neighborhoods in a new destination, especially in consideration of socioeconomic and physical characteristics of their neighborhoods. The findings from this research draw further attention to a significant role of accessibility, affordability, ethnic capital, and preference for neighborhood choice and spatial mismatch between residence and workplace.

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Key Words: Ethnic neighborhood, Immigrants, Residential mobility

GENDER, PARTICIPATION, AND RESILIENCE: MAKING THE INVISIBLE VISIBLE

Abstract ID: 1162

Individual Paper Submission

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Facing hazards, women, especially those in the disadvantaged communities, are exposed to greater risks while their capacities in building community resilience have not been sufficiently explored (Nelson & Stathers, 2009). Meanwhile, planners have applied different participatory approaches to address community needs, mobilize resources, and build trust and leadership, especially in the Global South (Chu, Anguelovski, & Carmin, 2016). Nontraditional participation is increasingly called for to emphasize the inclusiveness and potential transformation from the perspectives of affected populations, with particular attention to marginalized populations (Chandrasekhar, Zhang, & Xiao, 2014). Recently, photovoice, as a participatory action research method, has been increasingly utilized in various fields for hazard preparedness, mitigation, and recovery (Crabtree & Braun, 2015). The application of photovoice aims to discover critical issues, recognize the resources of marginalized populations, and develop transformative strategies. However, photovoice is seldom used by planning scholars and practitioners (Harris, 2017). This participatory action research integrates photovoice with social media to examine how community resilience building can be gendered in the Philippines. The Philippines consistently ranks among the most vulnerable countries regarding disaster exposure, susceptibility, coping and adapting capacities. Through the visual narratives, unstructured observations, and semi-structured interviews, the study: (1) reveals gendered risks and adaptation through the lens of a marginalized population and (2) discovers the challenges and opportunities for a more inclusive and effective resilience planning. Specifically, this work explores a gendered resilience planning in three informal settlements in metropolitan Manila and Cebu, Philippines. It presents participatory resilience building in Southeast Asia, an emphasis on urban poor women. The integrated approach of photovoice and social media disseminates local knowledge, brings in empowerment, and transforms the gendered community resilience through collaboration beyond the affected populations. As an uncommonly used method in planning, photovoice demonstrates significant value in revealing the invisible local lens, promoting participation, transforming community power structures, and linking knowledge with action. This integrated research emphasizes community resilience building that directly shaped by the marginalized urban poor populations instead of the external experts. It contributes to the growing literature in the nontraditional participation of resilience planning with an emphasis on gender, cultivating inclusiveness and transformation in the era of social media.

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Key Words: gender, resilience, participation, photovoice, Facebook

THE RELATIONSHIP BETWEEN HOUSING IMPROVEMENT AND NEIGHBORHOOD SEGREGATION: A CASE OF BROWNSVILLE, TEXAS

Abstract ID: 1186

Individual Paper Submission

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Income inequality in the United States grew between 1970 to 2000 and affected the growth of income segregation, further pronounced when measured by race (Reardon & Bischoff, 2011). Critique of 'desegregation' programs called for a shift of focus to the role of the market in housing segregation as it dictates housing prices, which determine who can live where (Slater, 2013). Even though many studies examined the impact of housing market and planning policy on racial and ethnic segregation, very few examined their role in income segregation in the U.S (Dwyer, 2007; Lens & Monkkonen, 2016; Rothwell & Massey, 2010). This study expands on this literature and examines the relationship between income segregation and the processes of housing production. This study hypothesizes that neighborhoods with housing stock produced through small scale, incremental construction are associated with more socio-economically diverse neighborhoods. The hypothesis is tested in the case of a U.S. - Mexico border city: Brownsville, Texas, where several incremental housing processes can be found. Historic fabric built prior to the 1910s ascendance of the Community Builder comprises small-scale, incrementally improved housing (Ames & McClelland, 2002). Housing in the colonias along the U.S. – Mexico border has been built predominantly incrementally (Giusti & Estevez, 2011; Ward, 1999). Finally some incremental housing techniques have been identified within the Latinx Urbanism literature in cities with high proportions of Latinx population in the Southwest (Davis, 2000; Diaz & Torres, 2012; J. Rojas, 2010; Talen, 2012).

To determine whether a correlation between incremental construction and the production of socio-economically diverse neighborhoods exist, a novel approach has been tested. Tax appraisal district data were aggregated into subdivisions and house value variance was used as a proxy for socio-economic diversity. Geographically weighted regression was used to determine correlation between levels of socio-economic diversity and the number of housing increments.

Preliminary results show that socio-economically diverse neighborhoods are not associated with incremental construction in unincorporated colonias, or the historic downtown areas - where predominantly low-income population lives. Retirement communities, which allow for incremental construction show higher levels of socio-economic diversity. Newer neighborhoods on the edges of the city limits have lower levels of housing improvements and socio-economic diversity.

The results will inform future federal 'desegregation' programs in areas dominated by Latinx population aimed at reducing income segregation: (1) without the relocation of low-income population, (2) allowing for cultural norms and values of Latinx population to be expressed in the physical form of the housing stock.

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Key Words: U.S. - Mexico border, housing segregation , Incremental construction, GIS, colonias

THE QUEST FOR GENDER-RESPONSIVE PLANNING: A COMPREHENSIVE STUDY OF COLOMBIAN MUNICIPALITIES

Abstract ID: 1207

Individual Paper Submission

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Despite the stereotype as a patriarchal region, several Latin American countries score higher in the global gender gap index than some developed countries. According to the UNWOMEN (2013), these countries are making substantial progress in terms of critical aspects of the feminist agenda, such as political and economic empowerment. In countries like Colombia, a unitary state, the path towards gender equality for women usually starts from nationwide mandatory laws to be enacted by the local level, where the only form of municipal government is of a Mayor-Council system. Colombia has nominally strong laws that seek to advance gender equality. However, legalism does not necessarily lead to compliance and for Colombia, achieving gender-responsive planning (GRP) is a matter that goes beyond the existence of good laws (Lozano-Torres & Doan, forthcoming). What are then the elements that lead to having a Gender Responsive City? What are the conditions that help with gender equality at the local level in countries that have weak ties between laws and law implementation?

The feminist literature highlights several variables that play an important role in advancing progressive agendas to reduce gender inequalities (Burgess, 2008; Damyanovic & Zibell, 2013). I contend that responsiveness towards women's needs is a function of the following four dimensions: (1) WHO is doing the planning, (2) for WHOM is the plan done, (3) the INSTITUTIONAL context surrounding the process, and (4) the planning APPROACH used. In other words, GRP depends on having women in power (Park, 2013), the community's characteristics, the institutional readiness for gender equality, and the planning method. Since governments and urban planners still struggle to develop strategies to address women's interests effectively (Fainstein and Servon, 2005), this study represents a contribution in identifying effective strategies to serve women's needs.

From a sample of 297 Colombian cities, I built an index (GRP) of gender responsiveness using Content Analysis and identified the variables that make a city more gender progressive, using an OLS regression. Results indicate that the responsiveness to women's needs from a city highly depends on the institutional context surrounding the planning process and the characteristics of the people for whom the plan is done. The WHO dimension was found significant but negative, which needs further research because the number of women in power was less than 20 percent. Additional research is forthcoming.

This study provides an in-depth quantitative analysis that can help planners, public administrators, and decision makers not only understand the variables determining responsiveness to women's interest, but also define what strategies can be used to achieve gender equality. It also helps to corroborate or dismiss different assumptions that planners have followed in terms of what helps advance gender equality.

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Key Words: Gender Equality, Feminist Planning, Local Planning, Latin America, Colombia

LANGUAGE TOPOGRAPHIES AND THE CITY: INSTITUTIONS OF SPOKEN LANGUAGE USE AND LANGUAGE MAINTENANCE AMONG SIX LINGUISTIC MINORITY GROUPS ACROSS NEW YORK CITY

Abstract ID: 1249

Individual Paper Submission

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Large urban areas are sites of intense linguistic and cultural diversity: ‘multipli-cities’ that have been expanded by global migration (Sandercock 1997, 28). The world’s largest urban centers now hold unprecedented linguistic diversity as global migration patterns have shifted and more people from a greater variety of places move to urban centers, a process that has resulted in super-diverse cities (Vertovec 2007). In New York City alone, it is estimated that over 800 languages are spoken, many of which are vulnerable or endangered. At the same time, the global trend towards language shift (the process by which a group of people stop speaking one language, and start speaking another), often occurs in response to the social and economic pressures migrant families face upon moving to a new country. While second languages can be a powerful economic asset - for individuals and urban areas - second language ability typically disappears completely by three generations after migration or urbanization. Despite being such a fundamental aspect of identity, the topographies of language usage and institutions (beyond access to translation or exclusion from public processes) have been little-studied in planning literature to date.

And yet, languages are only maintained when speakers use them, and cities are sites of speaker concentration. By analyzing the spatial organization of language use in New York City, this paper interrogates how minority languages are organized in the city and the relationship between institutional infrastructure – public, private, religious and civic –but excluding commercial- and language maintenance and pride.

To examine the ‘topography’ of spoken non-English language use, we used an embedded single case study framework (Flyvbjerg 2001), drawing on network analysis, institutional analysis and spatial clustering to identify meaningful patterns of language organization within New York City. This complements findings from linguistics that studies of language maintenance and language shift traditionally require a mixed-methods approach, combining qualitative and quantitative data to develop a more complete picture of the how individual speakers’ attitudes inform larger social trends.

Drawing on a year of analyses by a large multi-disciplinary team, deep-dive examinations of six languages (Armenian, French, Haitian Creole, Thai, Tagalog and Russian), identify the relevant institutions of language use across New York City by frequency, intensity, and scale. The analyses combined census data with sites of language use and speaker interviews to determine if and how places outside of the home where the language is used affects its maintenance and transmission to the next generation. Though data analysis and mapping, the paper illustrates how languages are situated in the city and the relationship between where speakers live and speak.

Preliminary results suggest several distinct patterns of institutional topographies, including ‘lines’ of migration along transit corridors and the typified ethnic enclaves as spatial clusters (Waldinger 1993). Time and privilege matter; languages with earlier and wealthier immigrants tend to have more ‘brick and mortar’ structures to support language use. Yet for some languages, such as Haitian Creole, the meaningful institutions are not physical

buildings, but permanent and annual events such as parades, concerts and celebratory gatherings. Religious institutions, and their divisions, particularly connect and splice some communities of speakers, such as Tagalog and Armenian; for Russian speakers, 'takeovers' of public institutions, such as library events, appear to have the strongest connection with the likelihood of language maintenance. Planning understands difference; power in planning processes often stems from cleavages in identity (Huxley and Yiftachel, 2000), yet little work examines the ability of language maintenance as part of the planning project. Through the 'patterned heterogeneity' of findings, this paper traces institutions of meaning for language as a critical facet of diversity and identity present in urban areas worldwide.

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Key Words: language maintenance , non-English languages, enclaves, New York City, language urbanism

FRAMING GENTRIFICATION: BALANCE AND DIVERSITY IN AN URBAN ETHNIC ENCLAVE

Abstract ID: 1264

Individual Paper Submission

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Since the early 2000s, Los Angeles Chinatown has been identified as a gentrifying neighborhood. However, gentrification has also become a politically contested term about how new people, developments, and investments are coming into a low-income community and perpetuating urban inequalities and segregation (Brown-Saracino and Rumpf, 2011; Newman and Wyly, 2006). While there are scholars, political advocates, and the media who argue that gentrification leads to the displacement of the urban poor, concerns about the persistence of areas of concentrated poverty have also led to policies and approaches of reinvestment that focus on "social mixing" and "diversity" as a way to combat neighborhood decline. Despite mixed evidence that policies promoting social mixing have a positive impact on improving the socioeconomic status of individuals living in areas of concentrated poverty (Lees, 2008), this concern to create a "diverse" and "balanced" neighborhood was an underlying logic about gentrification among many Los Angeles Chinatown community leaders. This narrative was expressed whether in resistance or accommodation to changes that would potentially shift the neighborhood identity away from a predominantly poor and working-class immigrant community.

Drawing from ethnographic research on Los Angeles Chinatown from 2014-2017, this presentation examines these local framings of diversity and balance to provide insight to how ethnic communities understand and respond to gentrification. Using a narrative analysis of interviews and observation data, I identified three categories of frames about Chinatown: temporal, spatial, and ethnic community. The temporal and spatial narratives showed that those who were concerned with gentrification, and the possible diversity that came with it, linked it to a lack or weakening of community control given the housing and commercial developments proposed for the neighborhood. While those who felt there was strong local leadership were more likely to see gentrification as a neutral or positive change and supported diversifying the neighborhood through these new developments. The ethnic community narratives also showed concerns with community control. The lack of Chinese American engagement and investment, especially from the middle-class, positioned Chinatown for decline and ultimately vulnerable to gentrification. These narratives indicate that concerns over gentrification was less about the type of physical changes. Gentrification was seen as an issue of community political power and how it is shifting, and in some cases, threatened.

The findings show how ethnic neighborhoods have diverse community actors who vary in how they make sense of change. Some may even specifically reconceptualize arguments about gentrification to assert control over neighborhood change. Yet, these changes may only reflect a specific voice of the community and may not always lead to equitable planning that benefits the most disenfranchised in the neighborhood. The presentation underscores the importance of understanding the use of framing in understanding power differentials within communities when addressing how ethnic neighborhoods and communities are situated in the city's gentrification debates.

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Key Words: gentrification, ethnic enclaves, communities, diversity

THE RESILIENCE PLANNER'S PARADOX: RESILIENT AFRICAN-AMERICAN 'NEW TOWNS' OF FLOOD-PRONE, NEW ORLEANS

Abstract ID: 1282

Individual Paper Submission

AIDOO, Fallon Samuels [University of New Orleans] faidoo@uno.edu, presenting author

Between 1950 and 1980, New Orleans East, Inc. and LaKrat Corporation sponsored professional planning of single-family subdivisions exclusively for “colored” middle-class New Orleanians. This paper, which draws on traditional and innovative preservation research such as title searches, oral history, remote sensing and participatory GIS, explores how the majority of homeowners in these deed-restricted subdivisions rebuilt their residences after extreme weather events (hurricanes, tornados and excessive rainfall) with remarkable consistency, reinforcing their historical significance and economic value. Through two case studies, namely Pontchartrain Park and Academy Park, this paper further illuminates how contemporary projects of hazards mitigation at once jeopardize grassroots resilience planning and reinforce generational means of African American stewardship of the built environment. Likewise, the social and spatial integrity of these planned communities, which helps makes them eligible for the National Register of Historic Places, present opportunities and obstacles to their protection from environmental and economic threats such as storm surges and gentrification. These trade-offs are illuminated through data visualization, specifically ESRI StoryMaps co-produced by homeowner associations and the author's research team. Altogether, the research presented will expand the evidentiary basis of preservation planning to the epicenter of suburban gentrification: historic suburbs.

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Key Words: new towns, stormwater management, community resilience, suburban gentrification, ethnoburbs

WE WILL NOT BE MOVED! DETROITERS REFUSE THE DISPLACEMENT AND DOMINATION OF GENTRIFICATION

Abstract ID: 1321

Individual Paper Submission

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This paper reports on ethnographic research from the campaign against displacement, resegregation, and gentrification in Detroit Michigan, led by the resident group Charlevoix Village Association (CVA). Like most of Detroit, CVA's neighborhood has been in dire need of resources for decades. Since the 1970s, CVA has fought for improvements to the neighborhood like streetlights, alleyway cleanup, and home repair funding. Meanwhile, their neighborhood libraries all closed, garbage pickup became sporadic, and a new "drainage" fee was added to the already inflated water bill. As a hardest hit city by the foreclosure crisis, Detroit's lower eastside lost 44% of its population between 2000 and 2010. Studies now show that a large proportion of the foreclosures were based on unconstitutionally high tax assessments and therefore were illegal. Like the majority of Detroit, the majority of the lower eastside is poor and working class African-American residents. Inflated tax assessments, plus late fees, were enough to force a significant number of people from their homes.

After the 2013 municipal bankruptcy and the heaviest bouts of foreclosures, the City and developers branded CVA's area "Islandview" -- indicating a concerted effort to transform it. Homeowners received letters from strangers offering to buy their houses. Rents started rising. The City of Detroit hired contractors; speculators purchased land; nonprofits and community development corporations (CDCs) wrote plans; and developers made deals. Between 2010 and 2015, the white population in CVA's area grew by 116%, while the black population decreased by 15%. In 2017, it was estimated that more than half a billion dollars will be invested in the CVA's district.

When the community engagement portion of the City's neighborhood master planning process for Islandview began, long-term residents saw the deck stacked against their interests. The new wayfinding signs for "Islandview", the fancy coffee shops, and the elaborate bike lanes were not at all designed for their enjoyment or to meet their pressing needs. This increased "quality of life" would bring them cost of living increases without income increases. Long-term residents read the signals of change to mean that they are being replaced in favor of a wealthier, whiter population. How would they afford to stay?

Planners are increasingly studying gentrification as a neoliberal phenomenon, but most studies focus on quantitative, economic, and aggregate effects. This results in an inadequate understanding of how and why gentrification affects long-term residents and its role in supporting inequality and segregation within urban areas. This paper corrects for these shortcomings with ethnographic data that foregrounds the voices of long term Detroiters and focuses on their experiences and analyses. It also explores how a variety of entities participate in the process of displacement.

My participant observations and interviews center on the general membership of the CVA and the CVA's campaign to defeat displacement, resegregation, and gentrification. As I participated with/observed CVA, I also documented the role of Detroit's City Council and many departments in the Mayor's administration (primarily Planning & Development and Housing & Revitalization); several nonprofit organizations and CDCs; several for-profit developers and designers; and a number other grassroots organizations. This paper reports on the role of each of these entities in the planning process for Islandview.

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Key Words: Displacement, Resegregation, Gentrification, Detroit, Insurgent and radical planning

ETHNICITY AND GENDER IN THE URBAN STUDIES AND PLANNING FIELD: IS DIVERSITY IMPORTANT IN MAKING DECISIONS THAT AFFECT MINORITY COMMUNITIES?

Abstract ID: 464

Poster

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In planning schools, students learn how to plan more efficient cities with diversity in mind. Diversity is also the forefront of most city and community plans. In fact, many planning schools throughout the United States include diversity in their curriculum; but how diverse are planning agencies and those in the urban studies and planning field themselves?

With an increase in ethnic diversity, it is important to remember that planning decisions affect all races, ethnicity, genders, religions, sexual orientation, and income levels. Previous studies on diversity in the urban studies and planning have found that there is an over-representation of one ethnic group in the field. This could be due to the lack of diversity in planning schools, which leads to a lack of diverse urban planners (Tiarachristie, 2016).

Currently, there are only few studies that focus on diversity in the planning field, and the meaning of diversity in terms of decision making. So, the primary question being explored in our study is: is diversity in the planning field important in making decisions that affect minority communities? This research focuses on gender and ethnic diversity in the urban studies and planning profession. The aim of our research is to explore the meaning of diversity to urban studies and planning professionals, and its implications (if any) on decision making in minority communities.

In order to understand the views and perspectives of those in the urban studies and planning profession, data is collected through surveys of urban planners in multiple sectors. The survey consist of nine socio-demographic and six Likert scale opinion questions on diversity, and three open-ended questions. The survey reaches a variety of professionals from the public, private and non-profit sectors, academics, and students in the urban studies and planning field.

The data analysis consists of both qualitative and quantitative methods. Content analysis of the open-ended questions assists in finding a potential connection or relationship among planners and their views on whether diversity in the planning profession influences decision making processes. Descriptive and advanced statistical analysis produces results on the casual relationship between ethnic and gender diversity and its implications in the urban studies and planning field.

This research is expected to yield results that urban planners in the field may feel that they do not have to be an ethnic-minority to understand, and advocate for minority communities. In contrast, urban planning students and nonprofit planners may feel that ethnic and gender diversity is significantly important and it impacts minority communities, or the city at large.

With scarcity of research that focuses on gender and ethnic diversity in the urban studies and planning profession, this research has great significance in informing the planning community of the importance of diversity and inclusion. Urban Planners know that cities are becoming multicultural (diverse), and they understand the importance of planning a multicultural city. Therefore, planners from multiple sectors need to recognize a common ground in city and community planning, particularly when it comes to decision making in low income and minority communities. And that answer is through diversifying the urban studies and planning professionals.

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Key Words: Ethnic diversity, Gender diversity, Urban Studies and Planning, Minority communities

THE LINKAGE BETWEEN SINGLE FAMILY ZONING AND WOMEN'S COMMUTING PATTERNS IN THE PUGET SOUND REGION

Abstract ID: 1140

Poster

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Women's travel patterns are impacted by their household status and responsibilities. Women are still primarily responsible for household care and maintenance activities such as childcare, shopping, and caring for the home (American Time Use Survey, 2016). And the majority of American women also engage in work outside of the home, meaning that women's journeys to work are often more complex than those of traditional male commuters. Women's work trips are also shorter than men's, their labor markets are smaller, and their employment opportunities are accordingly more limited (Crane, 2007). The explanation being that women's traditional gender roles inhibit their labor market status by constraining their space-time budget. Women have less time to travel to and from work than men thereby reducing the quantity and quality of jobs to which they have access (Rapino & Cooke, 2011; Kwan, 1999).

This poster builds on previous research by incorporating the spatial structure of a woman's community as an additional constraint to her mobility and employment options. Using a 2015 household travel study of the Puget Sound region of Washington, this poster demonstrates the impact of land use regulations on women's commute time and distance. This expands on previous studies of women's spatial entrapment by incorporating a dummy variable for single-family zoning. The inclusion of this variable is of particular importance to the study of gendered travel patterns because it acknowledges the impact of land use regulations on gender roles. This work also helps to advance the discussion of gendered differences in planning from a theoretical discussion of the embeddedness of traditional family values in municipal zoning regulations to a testable hypothesis: that women living in lower density areas, or those regulated by single use zoning ordinances, will face different spatial constraints than their male counterparts; than women in different locations within the same metropolitan area; and that these differences will vary by age, race, and income.

This poster utilizes an existing household travel survey of the Puget Sound region conducted in 2015 by the Puget Sound Regional Council as its primary source of data. The final dataset contains information for 4,786 individuals in 2,495 households identified at the census tract level. Additional data for the regression analyses is pulled from the American Community Survey 5-year estimates. Preliminary results indicate that white, married women with children have significantly shorter commute time regardless of location within the region (city or suburb). Women with higher levels of educational attainment or income and those women with a reliance on public transportation have the longest commute times. After accounting for differences in individual and household level characteristics, single-family zoning is positively correlated with commute time for men and negatively for

women. These findings demonstrate that women, especially married women, have shorter commutes because their traditional role as family caretaker results in more domestic responsibilities, lower labor market status, and consequently fewer transportation options.

Citations

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Key Words: gender, transportation, women, commuting, zoning

THE END OF THE DIVERSE CITY?

Abstract ID: 1319

Poster

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The current state of affairs worldwide signals the emerge of regressive social movements and political forces that challenge the acceptance of diversity or, at least, question very seriously this idea, with evident implications for urban planning and urban life. Although, the seeds of this rejection have always been in place, many, even in progressive settings, decided to take them lightly or to ignore them, assuming they would not gain terrain. In urban planning, the acceptance and promotion of the idea of diversity was manifested in practice by the policies to support the so-called diverse city. This ideal city would welcome and accept all differences and would promote interactions among diverse groups. According to some theorists of the diverse city, the more the diversity of identities comprised in it, the more it would reflect its level of justice, innovation and progressiveness. Policies attending the needs of diverse groups, based on race, ethnicity, gender, age, disability, and religion, among others, had the intention of creating an innovative urban area according to the demands of the XXI century.

On the other hand, in the late nineties a movement of organized groups against the idea and practice of the diverse city emerged slowly and silently. Representatives of this movement participated in city councils and were decision makers with the power to apply urban policy to crush and reverse the idea and practice of diversity. By the 2000s, the attack against the idea of the diverse city was on its way in the form of anti-immigrant measures and zoning ordinances to expel the different and the unregulated. This anti-diversity movement has strengthened worldwide.

On one hand, this paper identifies the emergence of the idea of the diverse city and the urban theory and policy that promoted it, as well as its implications for urban planning and practice. On the other hand, it identifies the current context that has led to the rejection of the idea de the diverse city, as well as the responses from the diverse populations, the planning community, and policy makers in diverse cities in order to elucidate the implications for urban planning and urban theory and practice. It explores questions of identity and power, globalization, individualization, and migration in order to answer the following questions: Are we witnessing the end of the diverse city? And, if not, what are the alternatives to deal with such a rejection as the reality of cities continues being diverse? What would be the implications of for planning? And if so, what could be the next utopia or dystopia for cities in the current century?

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Keywords: the diverse city, anti-immigration, regressive movements, dystopia, utopia

TRACK 5 - HOUSING & COMMUNITY DEVELOPMENT

ROUNDTABLE: THE DREAM REVISITED - SEGREGATION AND URBAN PLANNING

Abstract ID: 94

Roundtable

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Despite the diversification of the United States population, residential segregation based on race continues to characterize both our schools and our living environments. Residential and school segregation based on income have also risen significantly over the past two decades, at the same time as the gap between rich and poor Americans has reached levels not seen since the early 1900s. This roundtable engages key contributors to the forthcoming *Dream Revisited* book to discuss causes and consequences of both racial and economic segregation and different approaches planners might take to address them. Participants will consider the impact of segregation on health, education, job access, and political discourse, and will consider how state, local, and federal housing policies, such as the Low Income Housing Tax Credit, the Housing Choice Voucher program, and inclusionary zoning, can help to ameliorate both segregation and its effects. Is racial or economic integration of neighborhoods or schools necessary to achieve economic and racial equality? What are the causes of residential and educational segregation today? To what extent are the neighborhood inequalities and the divergence in individual outcomes associated with residential segregation caused by segregation itself or by other factors? What are the merits of different policy responses?

Citations

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Key Words: Segregation, Inequality, Racial Justice, Economic Justice

ROUNDTABLE: OTHER GEOGRAPHIES OF GENTRIFICATION

Abstract ID: 268

Roundtable

CHARLES, Suzanne [Cornell University] slc329@cornell.edu, moderator
GREENLEE, Andrew [University of Illinois at Urbana-Champaign]
HARWOOD, Stacy [University of Illinois at Urbana-Champaign]

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HUQ, Efadul [University of Illinois at Urbana-Champaign]

Lees (2000) argues that scholars needed to think more critically about the geography of gentrification to analyze how its processes differ by spatial context and location. A number of studies have given attention to these questions in diverse communities across the U.S. and the world. This panel will address how scholarship that applies a critical geographic lens has and can continue to advance scholarly work on gentrification. This includes questions about what a critical geography of gentrification looks like, current gaps in existing scholarship, and how studies of “other” geographies can inform effective urban policy, planning, and community organizing responses aimed at mediating the negative impacts of gentrification on marginalized groups and communities. The panel will bring together scholars studying gentrification in different U.S. contexts, including urban, suburban, and rural communities in high-growth and declining Rustbelt metropolitan areas in the Midwest and Northeast. This roundtable is a continuation of the discussion that began at a roundtable of the same name at last year's ACSP conference and is updated to incorporate the viewpoints of different scholars.

Citations

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Key Words: Gentrification, Urban geography, Suburbs, Displacement, Redevelopment

ROUNDTABLE: PAUL DAVIDOFF'S CRITIQUE - STILL RELEVANT AFTER ALL THESE YEARS?

Abstract ID: 1163

Roundtable

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ARIANI, Camilla [University of Massachusetts Boston] camilla.ariani@umb.edu
VELASQUEZ, Carlos [UMass Boston] carlos.velasquez001@umb.edu

Central Theme/Research Hypothesis:

This roundtable session will discuss the relevancy of Paul Davidoff's critique of mainstream planning contained in his classic JAIP article, "Advocacy and Pluralism in Planning". This article questions whether or not planners can be value neutral in their professional practice. It also challenges the existence of a unitary public interest by emphasizing the divergent interests existing within our increasingly diverse metropolitan regions. Furthermore, it highlights the tendency of municipal planning agencies to advance policies that favor privileged segments of society at the expense of the poor and racial minorities. The article concludes with an argument for planners to assist the disadvantaged in preparing quality plans representing their interests. According to Davidoff, these advocacy plans provide planning commissions with alternative data analysis, policy goals, and planning proposals that will improve the quality and fairness of planning decision-making. More than fifty years after its publication, this article remains one of the most frequently cited planning theory articles and a required reading within the core curricula of most ACSP member schools.

Research Approach/Methodology

The state of urban America and the nature of urban planning practice have changed dramatically since 1965. The participants in this roundtable will share their differing perspectives on two essential questions. First, is Paul Davidoff's critique of and prescription for "reforming" professional practice in the US still relevant? Second, what are the most important contemporary implications of Davidoff's critique of and proposed reforms of professional practice? The panelists who will initiate the discussion of these two important questions represent a diverse group of scholars in terms of cultural identity, professional specialization, age and gender.

The panelists' remarks will be based upon findings emerging from The Paul Davidoff Tapes Project at the University of Massachusetts Boston. This mixed-method research initiative is committed to documenting, on a public website, research materials illuminating Davidoff's contributions as a scholar, educator, practitioner, and activist to our profession (www.pauldavidoff.com).

Findings

While in its initial phase, this project has surfaced a number of previously unexamined aspects of Davidoff's work. Among these were his effort to serve as a co-developer of a Garden City-inspired development for autoworkers in suburban Mahwah, NJ; his 1969 campaign as a peace and justice candidate for Congress; and the divergence between Davidoff and his followers in terms of the locus of their practice – he focused on integrating suburban communities while most advocacy planners concentrate on the revitalization of inner city areas.

Roundtable participants interested in sharing their research on Paul Davidoff and advocacy planning will be encouraged to use the Paul Davidoff Taped Project Website as a vehicle for doing so. The session organizers are particularly interested in collecting and posting advocacy plans produced by scholars in support of resident-led planning in low-income urban and rural communities on this site.

Relevance

Paul Davidoff has been disturbed by the uneven pattern of development characterizing metropolitan regions and the role planners often play in reinforcing this dynamic. More than fifty years following his *Advocacy and Pluralism in Planning* article income, wealth, and power disparities in metropolitan regions continue to grow.

Citations

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Key Words: Advocacy Planning, Participatory Design, Social Justice, Planning Education, Professional Practice

PRE-ORGANIZED SESSION SUMMARY

GENTRIFICATION, NEIGHBORHOOD TRANSFORMATION AND THE ROLE OF PLANNING AND POLICY

Session ID: 4

Abstract ID: 74

Abstract ID: 75

Abstract ID: 76

Gentrification describes the transformation of neighborhoods from poor/working class to middle/upper class, accompanied by changes in the built environment, increased real estate values, and shifts in local social and cultural practices. Planners and policy makers have a complicated relationship to these processes. They often initiate and support measures such as building bike paths, designating historic districts or encouraging infill development, that are likely to catalyze gentrification processes. They are also, simultaneously, concerned with housing affordability and inclusive neighborhood development. Case studies of neighborhood level planning and policy in Columbus, Washington DC and Pittsburgh inform this panel which seeks to understand responses to gentrification and neighborhood change in the light of the contradictory role of planning/policy. Among the themes considered are planning for inclusive neighborhood development, tools that can improve disadvantaged neighborhoods while maintaining affordable spaces and the role of grassroots leadership. Comparisons between the case studies will be elucidated by the discussant.

Objectives:

- Participants will gain an understanding of neighborhood transformation processes in multiple North American urban neighborhoods as well as the role of planners/planning in promoting and/or mitigating impacts of such transformations
- Participants will gain an understanding of actors and tools involved in mitigating the impacts of gentrification in multiple urban settings.
- Participants will gain a critical perspective on the role of planning and policy in shaping housing markets and neighborhood conditions.

GENTRIFICATION IN PITTSBURGH: A COMPARISON OF METHODS ACROSS COMMUNITIES AND INDIVIDUAL IMPACTS IN ONE COMMUNITY

Abstract ID: 74

Group Submission: Gentrification, neighborhood transformation and the role of planning and policy

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In recent years, gentrification has attracted a great deal of attention from policymakers, community groups, residents, and the media. Gentrification is a complicated social and economic process that generally refers to changes in a neighborhood that result in some residents being displaced. The process of gentrification is often argued as a means to revitalize urban neighborhoods with new residents and populations, while opponents of gentrification argue that it displaces long-time residents. While much has been written on gentrification over the past thirty years, there has been little research on gentrification or possible gentrification in Pittsburgh. Though the term was coined fifty years ago (Glass, 1964), much of the literature on gentrification focused on the revitalization of American city neighborhoods in the 1980s and 1990s in cities such as San Francisco and New York City. The recent upsurge in investments in cities has brought about renewed interest in gentrification and new interest in cities where such investment trends had not been recognized until recently. Pittsburgh, a shrinking city with decades of population loss, was not part of those urban changes in the past. Its population continued to decline into the 21st century, and gentrification seemed far from most declining neighborhoods in need of revitalization. That has changed. This paper will compare data and trends on gentrification, by employing three different research methods and comparing their results. Though the indicators are similar in these studies, each includes a slightly different focus to understand neighborhood change and potential gentrification outcomes. The data will focus on demographic conditions and housing market factors, beginning with a baseline year of 2000 and analyzing change through 2016 with secondary datasets. We identify neighborhoods of gentrification in Pittsburgh, with new residents distinguished from long-standing neighborhood residents. This analysis will also identify communities continuing to experience decline and disinvestment. By identifying communities that are vulnerable to rapidly changing demographic and housing prices, policymakers and community groups can better plan for such shifts.

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Key Words: housing

A NEIGHBORHOOD FOR ALL PEOPLE? THE HOLISTIC APPROACH TO SUPPORT EQUITABLE REDEVELOPMENT IN COLUMBUS'S SOUTH SIDE

Abstract ID: 75

Group Submission: Gentrification, neighborhood transformation and the role of planning and policy

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Gentrification is recognized as one of the primary factors reshaping North American cities in the 21st century. While the scholarship on the exact impacts of gentrification is mixed (Freeman, 2005 & Freeman, 2006), it is clear that long term impacts such as displacement are destructive forces which further urban inequity (Hwang & Sampson, 2014). While an abundance of anti-displacement toolkits can be found among practitioners (PolicyLink, 2018), case studies documenting successful anti-displacement efforts are less prevalent.

Gentrification forces vary based on the dynamics of the housing market. Gentrification processes unfold differently in these diverse housing markets found throughout North America. The gentrification experiences of coastal markets (or global cities such as Toronto or New York) vary substantially from experiences found in places like the rust belt. Case studies of anti-displacement efforts or gentrification processes tend to focus on global cities or coastal housing markets (e.g. Freeman & Bracon, 2004; Newman & Wyly, 2006). To fully understand the complexity of gentrification processes, case studies must document experiences in a variety of housing markets. This case study seeks to contribute to scholarship through documentation of the process of combatting displacement in a neighborhood within a Midwestern housing market.

The following case study documents the experience of South Side neighborhood, which is undergoing transformation in Columbus OH. Columbus is a Midwestern market, which has not followed the trajectory of typical rust belt regions. While pockets of disinvestment still abound, redevelopment is reshaping urban core communities in the city. These next generation areas of redevelopment are at the forefront of planning efforts to foster revitalization without gentrification and displacement. The South Side efforts have utilized a variety of planning tools to stem gentrification, ranging from leadership development, public private partnerships, youth development, economic development and housing stabilization.

The case study utilizes a mixed methods approach, including document review, interviews and secondary data analysis to present an assessment of the process and outcomes in neighborhood efforts to foster redevelopment without displacement. The case study will document not only the particular planning tools and community development models utilized, but also the complexity of the process. For example, understanding how efforts were communicated, how public support and funding has been maintained and understanding the conflict or challenges which have unfolded during implementation.

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Key Words: gentrification, equity planning, revitalization, racial equity, anti-displacement

WINNING IN A LOSE-LOSE ENVIRONMENT OF ECONOMIC DEVELOPMENT: OPPORTUNITIES, BARRIERS AND CONTRADICTIONS OF AFFORDABLE HOUSING AND REDEVELOPMENT IN WASHINGTON, DC

Abstract ID: 76

Group Submission: Gentrification, neighborhood transformation and the role of planning and policy

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Gentrification critiques are often framed around direct displacement from neighborhoods due to rising rents and home values. However, physical displacement is only one mechanism of change in neighborhoods, and framing it thus limits the way we understand neighborhood change (Howell 2017). Instead, the contests over public spaces that have emerged in spite of – or concurrent to - the preservation of affordability in some gentrifying neighborhoods have created social and cultural displacement of residents (Shaw and Hagemans 2015, Aptekar 2015). Like its physical counterpart, this displacement is depoliticized as the promise of “vibrant” future neighborhoods and its counter-factual, the dangerous and disinvested neighborhood, are pitted against the loss of culture in changing neighborhoods (Summers 2015).

Planning has had a troubling relationship to displacement from slum clearance and Urban Renewal Programs of the early and mid-20th Century to the large-scale redevelopment projects that have marked the past 30 years. Taking a traditional planning approach that focused on exchange value over exchange value, many of these redevelopments created a racialized economic landscape that continues to change the physical and cultural landscapes of cities around the world. However, as planners and elected officials have begun to understand the impacts on affordable housing, they have developed a variety of tools to prevent direct displacement. However, because formal planning often ends where implementation begins, we fail to anticipate the ongoing process of displacement that occurs through the life-cycle of a project, and, more importantly, the role that power plays in the way plans interact.

Starting in 1996, Washington, DC saw massive growth and redevelopment outside of the downtown core for the first time since the 1950s. Driven by the announcement of a new metro stop, the reacquisition 13-acres of land by the City atop the proposed transit stop and a growing demand for housing that moved north and east from U Street and Adams Morgan, the redevelopment of Columbia Heights included a massive big box retail center, new grocery store, open public space, mix-use and mixed income developments and set asides of space and funding for small and local retail. The project relied on a year-long community process for the master plan and another plan focused on the neighborhood’s central public spaces – both highlighted diversity and inclusion as key tenets of the development. In addition, the project used a mix of housing and planning tools that helped to maintain the neighborhood’s African American and Latino population and resulted in 20% of the total housing units remaining affordable. Many of these were in buildings with extended Section 8 contracts and in limited-equity cooperatives purchase through the District’s unique right of first refusal. In all, more than 2,200 units were preserved or created.

While the construction and preservation of hard units enabled many low- and moderate-income, primarily minority residents to remain in Columbia Heights, the changes in the neighborhood have also led to a shift in values and a change in implementation. Far from remaining in the hands of planners and affordable housing practitioners, implementation now rests with the Departments of Parks and Recreation, Police, Public Works and Consumer and Regulatory Affairs – who now answer to current residents. This has meant that while residents remain in the neighborhood, the terms under which they stay can be strained. This paper takes a look at Columbia

Heights a decade after the opening of the neighborhood's 13-acre redevelopment to understand the challenges will continue to complicate the relationship between planning and displacement or gentrification. It also demonstrates that displacement is an on-going process that extends beyond planning to implementation, management and future decision-making about the built environment.

Citations

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Key Words: Displacement, Affordable Housing, Public Spaces

PRE-ORGANIZED SESSION SUMMARY

GROUP SUBMISSION: SINGLE FAMILY RENTALS: TRENDS, IMPACTS, AND PLANNING IMPLICATIONS

Summary ID: 10

Abstract ID: 178

Abstract ID: 179

Abstract ID 180

This session will explore the rise of the single-family rental, which is home to an increasing proportion of U.S. renters. Single-family rentals are an enduring effect of the recent Great Recession, when real estate investors purchased and converted former foreclosures into rentals, and many households entered the rental market after experiencing foreclosure. This session will explore trends in single-family rentals, including where these rentals are located and the kinds of households who are making them home. We also will explore the impacts of rental conversions on single-family neighborhoods and the extent to which these rentals are helping to alleviate escalating crises of rental housing affordability and availability. Finally, we will consider what roles planners should play in managing the effects of single-family rentals, if any.

Objectives:

- Attendees will learn about a current housing trend and how this trend affects the planning profession.

NEWLY RENTER-OCCUPIED NEIGHBORHOODS IN THE WAKE OF THE GREAT RECESSION: TRENDS AND PLANNING IMPLICATIONS

Abstract ID: 178

Group Submission: Single Family Rentals: Trends, Impacts, and Planning Implications

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An enduring but underexplored trend in the wake of the recent U.S. Great Recession is the growth of rental opportunities in single-family home neighborhoods. Close to two and a half million homes switched from owner- to renter- occupied between 2007 and 2011; the proportion of renters living in single-family homes increased

from 31% in 2005 to 34% in 2011 (Joint Center for Housing Studies 2013). Many new single-family rentals were former foreclosures purchased by investors, who ranged from small mom-and-pops to Wall Street companies.

Relatively little is known about communities that experienced growth in single-family rentals. More disadvantaged inner city communities of color had a greater volume of investor activity; however, investors' reach in the housing market also was wide (e.g., Immergluck & Law 2014; Pfeiffer & Lucio 2015). We do not have a clear sense of how the switching of properties from owner- to renter-occupied has affected neighborhood quality of life, and what role planners should play in moderating these dynamics if any. There is concerning evidence that neighborhoods with higher rates of investor-purchased foreclosures had higher crime rates and other adverse outcomes (Fisher & Lambie-Hanson 2012; Pfeiffer, Wallace, & Chamberlain 2015).

This paper will help to fill these gaps by using a multi-method approach to examine the characteristics and experiences of neighborhoods that experienced different kinds of growth in single-family rentals between 2005 and 2016. First, data on demographic, socioeconomic, and housing market characteristics for single-family neighborhoods in the 100 largest urban regions will be collected from the U.S. Census and American Community Survey during three time periods: 2005 to 2007, 2008 to 2010, and 2012 to 2016. Descriptive statistics and econometric modeling will be used to determine how the characteristics of neighborhoods that experienced growth in single-family rentals differed from neighborhoods that did not experience growth in single-family rentals over the study period. Particular attention will be paid to differences among communities experiencing short- and long-term rental opportunities. Second, content on single-family neighborhoods experiencing growth in rentals will be purposively sampled from diverse media during the study period. Qualitative content analysis will be used to understand how the growth and endurance of single-family rentals has affected neighborhood dynamics. The findings from the analyses will be triangulated to draw conclusions on the neighborhood geography, characteristics, and effects of single-family rentals and identify possible roles for planners.

Citations

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Key Words: housing, neighborhoods, rental

MAKING SENSE OF THE SUDDEN RISE OF SINGLE-FAMILY RENTALS SINCE THE GREAT RECESSION

Abstract ID: 179

Group Submission: Single Family Rentals: Trends, Impacts, and Planning Implications

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The classic image of the American Dream is a nuclear family that owns the single-family house it occupies. The single-family rental (SFR) is thus an odd hybrid—it encompasses the housing type that lies at the apex of aspiration in the United States even as its occupants lack the ownership tenure with which it is traditionally

conflated. Single-family renters may thus gain some of the American Dream—ample physical space, a quiet street away from heavy traffic, and (depending on location) access to high-quality public amenities. However, they lack the security of tenure and wealth-building potential long seen as foundational to the American Dream, and in certain locations they may actually enjoy fewer legal protections than other types of renters.

The SFR is nothing new, but its share of the housing stock surged dramatically in the wake of the Great Recession (Drew, 2015). As the economic recovery has unfolded over the past decade, SFRs have not dwindled to their pre-2008 levels. Instead, and considering that many observers expect homeownership rates to drop in coming decades (cf. Nelson, 2016), we might predict that SFRs are here to stay. These trends suggest a fundamental question: are SFRs an “unexpected opportunity” that emerged from the Great Recession (Pfeiffer and Lucio, 2015)? Or are they a dead end and possible trap for the millions of households that have moved into them in recent years?

Scholars have begun to answer these questions, providing basic profiles of the phenomenon (Drew, 2015; Goodman and Kaul, 2017). Others have described the rapid evolutions in capital markets, property management, and information technology that have allowed large institutional investors, perceiving an opportunity in the foreclosure crisis, to play an outsized role in owning a rental housing format that they shunned until a short time ago (Allen et. al, 2017). Our contribution is to further the exploratory task by posing basic questions: in what types of places have SFRs surged the fastest since the Great Recession? What types of people live in them? And what are the emergent media narratives surrounding them? We believe that these questions are essential to both identifying the policies needed to grapple with the SFR phenomenon, and the political constraints that will shape them.

To answer these questions, we deploy two basic methods. First, we analyze Census-reported microdata within Public Use Microdata Areas (PUMAs), home to about 100,000 people apiece, spanning the nation. Second, we conduct a media analysis of purposively sampled content from US-focused traditional news outlets, advocacy and professional organization publications, and relevant social media dating back a decade to the Great Recession. We then analyze the extent to which emergent narratives either reinforce the geographic and sociodemographic patterns unearthed from our microdata analysis, or else contribute to stereotypes that are not borne out by actual data.

Our results thus far suggest that SFR renters are, on the whole, slightly less vulnerable than the renter population overall, although they resemble the broader renter population far more than single-family owner occupiers. SFR households’ most distinguishing feature is their large household size and share with children—according to both of these indicators, they exceed the general rental population, the renter population in 2-4 unit housing, and, by a wide margin, even owner-occupants of single-family houses. Thus, our results suggest that SFRs amount to an accidental housing policy that is now playing an outsized role in housing a subcategory of renters with particular constraints: those raising children.

Our continuing work on the media analysis will pay particular attention to this noteworthy finding, and relate it to other emergent themes shaped by media coverage of SFRs.

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Key Words: Single-family rentals, family housing, Great Recession , foreclosure crisis, American Dream

ESTIMATING THE GAP IN AFFORDABLE AND AVAILABLE RENTAL UNITS FOR FAMILIES

Abstract ID: 180

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Migration and development trends over the last decade have challenged the availability of rental housing suitable for families. Millennials and baby boomers have returned to urban neighborhoods in the back to the cities movement and outbid moderate-income families for large units. At the same time, new rental construction in cities and suburbs primarily consists of higher-end units. Conversions of single-family homes have contributed to the rental supply but may be affordable only to higher-income households. Municipal officials witnessing these dynamics have expressed concern that middle- and low-income families are not able to find suitable housing at a price they can afford. Meanwhile, a higher share of renter households than owner households have children, pointing to a need for units that can accommodate families.

Families contribute to the economic health of cities (Reese, 2012). It is important to plan for families as a mechanism to retain young professionals as they move through the life cycle and start to have children (Warner & Rukus, 2013). Planners have noted that families promote community sustainability and diversity, but they have identified the lack of affordable housing as the biggest barrier to creating family friendly communities (Israel & Warner, 2008). To attract middle-class families and provide geographic options to low-income families, cities and suburbs must have a supply of adequate, affordable, and available rental housing. This paper asks whether there is a sufficient number of units to meet the demand of renter families at all income levels and what role single-family houses play in providing affordable, family-sized rental units.

We use the 2015 American Community Survey Public Use Microdata Samples to examine the potential gap in the supply of rental units suitable for families with children. We define family households as those in which any children under the age of 18 are present. Using HUD's reported median incomes, we estimate the number of family households that fall within each area median income band in 358 metropolitan areas. For each household, we determine the number of bedrooms needed by using HUD's Keating standard of two persons per bedroom. We calculate the number of units in each metro that are affordable within each income band, that are not occupied by a non-family or higher-income household, and that are adequately sized for a family household. We estimate the supply gap at the national level and for select metropolitan areas by taking the difference between the number of renters - accounting for household size and AMI - and the number of affordable, available, and adequate units.

We find that the family-sized housing supply gap is largest for extremely low-income (ELI) renters. While 3.1 million ELI renter households live in our sample metros, only 666,000 affordable units are available to meet this demand. Two-bedroom units are in particularly short supply, with more than five ELI families for every affordable, available two-bedroom unit. We find that single-family houses are an important supply of rental housing for higher-income families. However, the largest gaps in the market are among low-income households, and these single-family units are generally not affordable to them. For planners, the findings highlight the need to increase the low-income rental supply and provide assistance for households in the private market in an effort to build family-friendly communities.

Citations

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Key Words: affordable housing, rental housing, families

PRE-ORGANIZED SESSION SUMMARY

BUILD BABY BUILD: ASSESSING THE IMPACT OF NEW HOUSING DEVELOPMENT ON AFFORDABILITY AND DISPLACEMENT

Summary ID: 15

Abstract ID: 140

Abstract ID: 141

Abstract ID: 142

Abstract ID: 143

Abstract ID: 144

The ongoing crisis of housing affordability in high cost cities has placed renewed focus on both the constraints to and impacts of housing development as a supply side solution to the problem. Elected officials, planners and advocates are engaging in political debates over the role and impact of housing development on communities. In response to these debates, a new wave of research is investigating the neighborhood effects of market-rate housing development. This session will present new methods and finding from across the country about the impacts of new market rate housing production on housing affordability, neighborhood change, and displacement pressures.

Objectives:

- Learn about advancements in methodologies and findings on the affordability and displacement impacts of housing development

SUPPLY, AFFORDABILITY AND DISPLACEMENT: UNTANGLING THE RELATIONSHIPS IN THE SAN FRANCISCO BAY AREA

Abstract ID: 140

Group Submission: Build Baby Build: Assessing the impact of new housing development on affordability and displacement

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A growing movement of supply-side activists, known as YIMBYs (for “Yes In My Back Yard”) argue for increasing the production of market rate housing as a solution to the housing affordability crisis in California (McCormick 2018). Simultaneously, anti-displacement activists, or “supply skeptics” as coined by Been and coauthors (Forthcoming), argue that investment in market rate housing in the high-cost state will only accelerate displacement pressures and do nothing for low income households in nearby neighborhoods. Research for either side is limited, however there is both evidence that supply lowers median rents (Been, Ellen, and O’Reagan Forthcoming) and that infill may have spillover price effects (Brunes et al. 2016; Ooi and Le 2013), exacerbating the cost burden of low income households (Zuk and Chapple 2016). This study seeks to fill this research gap in one of the costliest and politically volatile environments in the country: the San Francisco Bay Area. In this study, we combine county tax assessor data with credit score, transaction, and census data to begin to understand the relationship between market rate multi-family housing production, affordability and displacement for high cost regions. Using a difference in difference approach, our preliminary findings suggest that effects vary significantly by geography, building type, and affordability level. This then suggests that current one-size-fits-all approaches will fall short in mitigating negative impacts, particularly in jurisdictions lacking renter and affordability protections.

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Key Words: Housing Supply, Displacement, Affordability

WHEN THE NEIGHBORHOOD GOES: THE EFFECTS OF GENTRIFICATION ON INDIVIDUALS AND COMMUNITIES

Abstract ID: 141

Group Submission: Build Baby Build: Assessing the impact of new housing development on affordability and displacement

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We develop and test a new dynamic framework to understand gentrification and use this framework to study open empirical questions. We identify gentrifiable neighborhoods as those that (i) have attractive exogenous features and (ii) are occupied by low-income residents. When a neighborhood gentrifies, forward-looking house prices should rise in advance of income. We classify gentrifiable neighborhoods as at-risk of impending gentrification if house prices have risen well above incomes, and then document that at-risk neighborhoods see future demographic change consistent with gentrification. We then turn to the open empirical questions. First, we provide evidence that at-risk neighborhoods experience higher rates of out-migration, consistent with displacement. We show that housing construction within at-risk tracts is correlated with higher out-migration, but construction nearby at-risk tracts is correlated with lower out-migration. We also show that out-migration rates are elevated for both likely renters and likely homeowners, although the processes inducing these moves may be different. Finally, we highlight the potential costs beyond displacement that are felt by whole communities--in particular low-income communities and communities of color--when gentrification restricts access to central job-rich transit-oriented neighborhoods.

Citations

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Key Words: gentrification, displacement, housing supply

NEW HOUSING DEVELOPMENT AND NEIGHBORHOOD CHANGE IN LOS ANGELES

Abstract ID: 142

Group Submission: Build Baby Build: Assessing the impact of new housing development on affordability and displacement

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Existing research shows that metropolitan regions with more elastic housing supply have lower increases in rents and housing prices with population and economic growth. However, there is significant disagreement in most metropolitan areas as to where that housing should be built, with most neighborhoods resisting it be built within their borders. Traditionally, community groups opposed new housing construction in their neighborhood because of concerns that building new multi-family housing would lead to lower housing prices. Recently, community groups in neighborhoods experiencing or facing the prospect of gentrification are concerned that new multi-family housing will lead to higher rents, thus displacing families that cannot keep up with rent increases. This discussion is a challenge because there is surprisingly little empirical evidence on the relationship between new housing supply and neighborhood change. In this paper, we bring available evidence to bear on the relationship between new construction and neighborhood change for the County of Los Angeles. Using Census and administrative data, we analyze where new housing is added, and how neighborhoods that add new housing change, in terms of the incomes, educational attainment, and other characteristics of their residents, as well as evictions and changes in the composition of neighborhood schools.

Citations

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Key Words: Housing supply, Neighborhood change, Los Angeles

NEW HOUSING DEVELOPMENT IN NEW YORK CITY

Abstract ID: 143

Group Submission: Build Baby Build: Assessing the impact of new housing development on affordability and displacement

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ELLEN, Ingrid [New York University] , co-author

New housing development is important for keeping housing affordable, because a lack of supply to meet increasing demand makes housing more expensive (Glaeser and Gyourko, 2003). However, affordable housing advocates and community members fear that new luxury housing will replace older, more affordable units, and that new developments will attract high-income households, trigger gentrification, and drive up the housing price (Been, Ellen, and O'Regan, 2018; Bachrach, Monkkonen, and Lens, 2018). This paper provides a detailed look at new housing development in New York City from 2006 to 2015. We analyze how density and price of new housing compare to surrounding neighborhoods and examine whether higher priced developments are concentrated in areas with high or rising prices.

First, we will merge certificates of occupancy with NYC Furman Center subsidized housing database to learn how many new developments are subsidized? What kinds of programs? Who could benefit from these subsidized housing? Second, we will merge certificates of occupancy with NYC PLUTO data, we aim to describe and compare the characteristics (building classes, number of floors, etc) of the new developments to surrounding residential properties. Third, we will merge certificates of occupancy with housing sales price and rental income information from NYC Department of Finance. We'll compare housing prices of new developments with other

properties in their neighborhoods (Boro-Block, Zipcode, and Community District). We aim to figure out whether all new developments are more expensive than the median housing prices of their neighborhoods.

Based on the above analysis, we will analyze the locational distribution of new developments and examine whether high-priced developments are being created throughout the city or whether they are concentrated in particular neighborhoods. Using American Census Survey (ACS) 2006-2010 and 2011-2015 five-year estimates, we will learn whether new developments “select” into gentrifying neighborhoods.

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Key Words: housing supply

LOCAL EFFECTS OF NEW CONSTRUCTION ON EXISTING RENTS: AN ANALYSIS OF MINNEAPOLIS, MN

Abstract ID: 144

Group Submission: Build Baby Build: Assessing the impact of new housing development on affordability and displacement

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Many US metropolitan areas are experiencing a severe housing affordability crisis which has resulted in high housing cost-burdens and has contributed to displacement pressure for low-income residents. In part due to the lack of federal support for affordable housing programs, there is growing interest in using new market rate production as a mechanism to improve housing affordability and prevent displacement. There is compelling evidence that increasing housing supply at the regional level results in greater housing affordability. However, less is understood about the neighborhood-level effects of building new market rate housing on nearby rents. What effects, especially in the short term, do new market-rate construction have on housing affordability for existing tenants?

There are two hypothesized, but countervailing local effects of new market rate housing construction on rents in existing buildings:

1. The supply effect: The additional housing contributes to the total supply of housing, reducing competition for units which results in lower rents for existing tenants.
2. Amenity effect: New, market-rate construction creates a positive externality due to the fact that individuals are willing to pay more to live near wealthy households all else being equal.

My data include a panel of unit-level rent data for the city of Minneapolis, MN between 2012-2017. I combine that dataset with data on public and private real estate investment as well as new construction. My analysis will include a spatial difference-in-difference (SDID) model in order to identify local spatial spillover effects of new construction after controlling for other time-varying factors.

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Key Words: housing, housing supply, gentrification

PRE-ORGANIZED SESSION SUMMARY

PLANNING AND HOUSING AFFORDABILITY - SPACES OF STRUGGLE

Summary ID: 16

Abstract ID: 112

Abstract ID: 113

Abstract ID: 114

Abstract ID: 163

Abstract ID 1362

Whether through zoning, development control, programs for affordable housing, or lack thereof, planning practice interacts with geographies of housing to impact affordability. This session brings together research that explores these issues from different perspectives and places, touching on housing type, tenure, cost, location, development, and displacement. The papers grapple with adverse impacts of planning on affordability, the tensions between housing as a place to live and as a vehicle for (re)investment, and suggest strategies for securing housing as a public good. In contradictory and complex ways, these papers trace topographies of policy and practice and how they connect to the economics of home in New York City, Boston, Seattle, Madison, London and Toronto.

Objectives:

- how planning impacts housing affordability

CHAIN DISPLACEMENT: AN EMPIRICAL INVESTIGATION IN DANE COUNTY, WISCONSIN

Abstract ID: 112

Group Submission: Planning and Housing Affordability - Spaces of Struggle

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While much attention has been given to Marcuse's (1985) typology of displacement, few empirical tests have been carried out on the more challenging categories among the four he originally proposed. Marcuse's typology is characterized by a movement from the most readily observable form of displacement—"last-resident displacement"—to increasingly less measurable forms of "exclusionary" displacement and "displacement pressure." Thus while the overall typology weighs heavily toward demographic transition, Marcuse also included a possibly contradictory form of displacement—"chain displacement"—that suggests a form of non- or pre-gentrification displacement without demographic change. This possibility was meant to draw attention to the seemingly paradoxical juxtaposition of gentrification and abandonment in the late 1970s and early 1980s. This paper offers the first empirical investigation of Marcuse's notion of chain displacement. Using geocoded data from sixteen years of eviction records in Dane County Wisconsin, the research first demonstrates the existence of eviction-based displacement neighborhoods. These neighborhoods—operationalized as block groups—are not only sites of disproportionate evictions, but also exhibit persistent forms of disadvantage and relative demographic "stability" rather than transition. The paper argues that a key mechanism behind the formation of chain displacement neighborhoods is the Wisconsin Consolidated Court Automation Program (CCAP) which provides free and easy access to civil and criminal court records. We contend that CCAP effectively functions to limit renters' housing options and negatively impacts tenants with previous eviction records, thus constraining

them in eviction-based displacement neighborhoods in a type of displacement that resembles Marcuse's notion of chain displacement.

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Key Words: displacement, eviction, gentrification , neighborhood change

DOES INCLUSIONARY HOUSING PROMOTE SOCIAL MIX?

Abstract ID: 113

Group Submission: Planning and Housing Affordability - Spaces of Struggle

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GUO, Zhan [New York University] , co-author

The spatial distribution of subsidized or affordable housing can be an important factor that shapes the (de)concentration of urban poor and minorities (Bolt, Phillips & Van Kempen, 2010; Kontokosta, 2014; Massey & Kanaiaupuni, 1993), which may in turn affect the well-being of affordable housing beneficiaries (Galster, 2012). Inclusionary housing policies, which require private, market-rate housing developments to include a portion of affordable units, often aim at not only creating affordable homes, but also mixed and inclusive communities. This study examines the effectiveness of such strategy in London, where inclusionary housing has become a major source of new affordable homes since 2000 (Crook et al., 2006). It seeks to answer two research questions: 1) Are affordable units delivered under inclusionary housing more spatially dispersed than those produced by the public sector? 2) Is the on-site inclusion of affordable housing units among market-rate developments related to neighborhood characteristics? In other words, do developers disproportionately provide affordable housing in poor, disadvantaged, segregated neighborhoods, or does inclusionary housing successfully enhance the residential options of low income families by delivering more affordable homes in high opportunity areas with better labor market, education, and quality of life outcomes?

We examine the spatial distribution using the London Development Database, which contains all residential development permits issued between 2004 and 2014. Among them are 1,293 mixed developments under inclusionary housing, offering about 75,000 affordable homes. While inclusionary housing developments include an average 33% of affordable housing on-site, the affordable share varies across individual sites. We find that affordable homes delivered under inclusionary housing are more geographically concentrated than either market-rate homes or homes in conventional, public sector affordable housing developments. 85% of the inclusionary affordable units are located in 20% of all neighborhoods, as opposed to 73% of the conventional affordable units or 65% of the market-rate units.

We believe the concentrated and uneven distribution of affordable homes delivered under inclusionary housing may reflect both the cherry-picking practice of developers, who often have an incentive to undersupply affordable housing in the most desirable locations, and the trade-off of local planning authorities, who may prioritize providing new housing in the jurisdiction over social mix or inclusive development. We then adopt a zero-inflated regression model to test these hypotheses, using principal component analysis to derive primary neighborhood characteristics. The results suggest that market-rate developments are more likely to include affordable housing on-site – and tend to have higher affordable shares when they do so – if they are located in neighborhoods with higher poverty and unemployment rates, more minorities, lower income levels and housing values, and a greater

concentration of existing public housing. Local policy agenda (the annual target for new housing production) and political landscape (Labour vs. Conservative) only partly explain the strong linkage between neighborhood characteristics and the on-site inclusion of affordable housing.

These findings raise sharp questions about the role of inclusionary housing in promoting social mix and mitigating economic and ethnic segregation. The first to evaluate the development-level performance of a large scale inclusionary housing program, this study lends valuable insights into the heated policy debate on inclusionary housing and mixed-income housing development. We urge policymakers, planners and researchers to revisit an important objective of inclusionary housing policies – to create mixed, inclusive communities – and reexamine the design and implementation of these policies so they are tailored towards providing better housing options for low-income households.

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Key Words: affordable housing, inclusionary housing, social mix, neighborhoods, London

NEGOTIATED DEVELOPMENTS: USING ZONING AND ENTITLEMENT POWER AS LEVERAGE TO ADDRESS HOUSING AFFORDABILITY

Abstract ID: 114

Group Submission: Planning and Housing Affordability - Spaces of Struggle

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This paper analyzes the merits and drawbacks of negotiating zoning on a project-by-project basis vis-à-vis the traditional command-and-control zoning system. I compare the experience of two major U.S. cities, Boston and Seattle, using data on development projects approved in 2016. These two cities represent two opposing styles of land use regulation. In Boston, most, if not all, large-scale developments need to be negotiated with city officials and the community to secure development rights, whereas Seattle's zoning is incentive-based and leaves little room for negotiation.

In both Boston and Seattle, I have compiled development data of all projects over 50,000 square feet that secured development entitlement during the year of 2016. I have also conducted interviews with the conclusions drawn from the analysis of the development data.

Compared to projects approved under Seattle's definitive zoning system, Boston's negotiated developments yielded greater public benefit packages, including the contribution towards the production and preservation of the city's affordable housing stock. Moreover, Boston's projects took less time to secure approval and incorporated numerous and substantive public participation opportunities. Based on these findings, I argue that negotiating zoning for large-scale developments can become a valuable planning tool for local governments, and that common pitfalls of negotiating zoning can be avoided.

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Key Words: Negotiated zoning

WHATEVER THE PROBLEM, THE SOLUTION IS LUXURY DEVELOPMENT: NEW YORK CITY'S 21ST CENTURY PLANNING PARADIGM

Abstract ID: 163

Group Submission: Planning and Housing Affordability - Spaces of Struggle

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Since 2001, the US' largest city has been governed by two very different politicians. From 2001 through 2013, New York City's mayor was Michael Bloomberg, a finance and media mogul who advanced an unrepentantly neoliberal agenda (Brash, 2011; Larson, 2013). Since 2014, the mayor has been Bill de Blasio, a former democratic socialist who presents himself as a representative of the country's progressive vanguard (Viteritti, 2017; González, 2017). While in many ways these two could not be more different, this paper asks: what are the continuities between their approaches to planning and development? Through a historical analysis of their policy initiatives, I find that: both have pursued controversial rezonings in working class, majority people of color neighborhoods; both have maintained close ties with the Real Estate Board of New York, the city's primary developer lobby; and, most importantly, both have subscribed to the same planning philosophy: whatever the problem facing their city, the solution—in part or in whole—is more luxury development. Whether it be rising rents, widening public housing budget gaps, unemployment, insufficient transit, demands for new parks, environmental pollution, failing schools, segregation, or a desire to support the arts, both conservative Michael Bloomberg and liberal Bill de Blasio have pursued real estate-driven strategies to address urban crises of all sorts. This paper will provide an overview of the ways New York City urban planning has come to be dominated by real estate in a manner that seems to stretch beyond partisan politics and suggest something more fundamental about our 21st century urban political economy. It thus makes interventions into both the scholarly and practical debates around progressive mayors, neoliberal planning, and the implications of current trends toward hyper-investment in land (Weber, 2015) on the meaning and practice of urban planning.

Citations

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Key Words: Real estate, development, gentrification, neoliberalism

GENTRIFICATION-INDUCED DISPLACEMENT IN DETROIT: PERSPECTIVES FROM BELOW

Abstract ID: 1362

Group Submission: Planning and Housing Affordability - Spaces of Struggle

Gentrification-induced displacement has long been a topic studied and hotly debated in scholarly and in policy-making circles for decades. Yet, despite the amount of research that has been generated, the magnitude of the association to gentrification remains uncertain and subject to polarizing debate. This could be due to methodological challenges with measuring displacement. For one, it is difficult to locate displaced households because “by definition, displaced residents have disappeared from the very places where researchers go to look for them” (Newman & Wyly, 2006: 27). To address this issue, some quantitative studies have relied on census data to infer displacement, which is problematic, as it does not directly measure displacement (Atkinson, 2002), and does not take into account indirect displacement (Davidson, 2008).

Moreover, despite the large body of literature, some scholars (e.g. Davidson, 2008) argue that displacement processes are still not well understood and have been undertheorized given that direct last-resident displacement is often the focus of researchers, leaving indirect displacement pressures relatively under-examined. However, indirect displacement holds serious implications for planning initiatives that seek ‘revitalization without displacement’, as these initiatives only address physical dislocation. As displacement pressure (Marcuse, 1985) occurs, existing neighborhood stores, restaurants and services may close or change to cater to the tastes of new higher-income residents, which can lead to a significant loss of sense of place for low-income households (Shaw & Hagemans, 2015).

This research contributes to the growing body of qualitative research that explores indirect displacement and helps to inform planning practice by examining direct and indirect displacement experiences in a resurgent U.S. shrinking city. This paper uses Detroit as a case study to examine the displacement effects of recent regeneration initiatives by using evictions data as a proxy for direct displacement and by exploring tenant experiences with indirect displacement in a changing downtown. By documenting the lived experiences of subsidized tenants living in a rapidly gentrifying neighborhood, planners can obtain a better understanding of tenant perspectives, which might help them to develop more effective social planning interventions that address social exclusion and can help build more socially cohesive and just communities.

The research investigates the following central research question: What are the displacement impacts of regeneration initiatives in Detroit? To address this question, this study employs a mixed methods research approach to understand the extent of direct and indirect displacement in downtown Detroit. The quantitative component draws upon a spatial analysis of evictions based on court records of eviction proceedings in Detroit. I also used GeoLytics Neighborhood Change Database Tract Data and American Community Survey data to identify census tracts within the city that showed signs of gentrification based on an aggregated measure that looked at relative increases in rent, income, home values and share of college-educated residents and professionals (1990-2015). The qualitative component is based on semi-structured key informant interviews with: tenants living under displacement pressure; housing and community workers; tenant organizers; and community development financial professionals.

Initial findings suggest that subsidized tenants have experienced displacement pressure, as the shops they once frequented slowly disappear and they feel excluded from the neighborhood changes that are occurring. Further, they no longer feel a sense of belonging in their neighborhood, continue to have fears of displacement despite assurances that their respective subsidized building will not be converted to market-rate housing, and there are feelings of resentment, which illustrate the tensions between ‘old’ and ‘new’ Detroit.

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Key Words: gentrification, displacement, shrinking cities

PRE-ORGANIZED SESSION SUMMARY THE FAIR HOUSING ACT AT 50

Summary ID: 20

Abstract ID: 310

Abstract ID: 311

Abstract ID: 312

Abstract ID: 318

One week after Martin Luther King Jr.'s assassination in 1968, Congress passed the Fair Housing Act, prohibiting discrimination on the basis of race, religion, national origin, or sex, in the sale or rental of a home. Leading up to the Act's 50th anniversary, it has received increasing attention. In 2015, HUD created the Affirmatively Furthering Fair Housing Rule to clarify what municipalities must do to address disparities in housing needs and in access to opportunity. The Supreme Court in 2015 and 2017 decided cases affirming the reach of the Act to cover claims based on disparate impact and to encompass claims by municipalities. Then, in January 2018, HUD suspended the AFFH Rule. And in March, HUD rewrote its mission statement to remove the explicit anti-discrimination commitment. Levels of residential segregation by race remain high, racial disparities in homeownership rates are wide, some are describing restricted access to mortgage financing as a new wave of redlining, and predatory contract buying schemes are on the rise. The papers on this panel explore various aspects of the state of fair housing today.

Objectives:

- To analyze the state of fair housing today.
- To understand reasons for continuing high levels of segregation, and racial disparities in home financing and homeownership rates.
- To better understand policy responses to continuing racial disparities in neighborhoods.

GENTRIFICATION AND FAIR HOUSING: DOES GENTRIFICATION HINDER OR FOSTER INTEGRATION?

Abstract ID: 310

Group Submission: The Fair Housing Act at 50

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In cities throughout the United States, the pace of gentrification has accelerated in the past two decades (Ellen and Ding, 2017), and debates around the appropriate policy response have intensified. Many critics demand that governments take actions to slow the pace of change, charging that this gentrification leads to displacement and resegregation. But at least in the short-run, gentrification increases economic integration, and often furthers racial and ethnic integration as well, as affluent white households opt for diverse, city neighborhoods over high-income, racially homogenous suburbs. The key question is whether this integration is only fleeting, or whether cities experiencing greater gentrification end up with more economically and racially integrated neighborhoods over time. Yet there is surprisingly little research examining the longer-run trajectory of neighborhoods experiencing gentrification, so fair housing advocates are left to speculate.

We aim to fill this gap. Using the Neighborhood Change Database (NCDB), we examine the long-run dynamics of neighborhoods that undergo gentrification (defined as an increase in income, percentage college-educated, or percentage white). We show the degree to which gentrification in U.S. cities in one decade has led to stable economic and racial integration in subsequent decades, and in what contexts. In brief, we find that the integration produced by gentrification is considerably more stable than many think, but the rising rents that accompany it mean that lower-income households, absent subsidies, will likely find it increasingly difficult to move in and remain in gentrifying neighborhoods over time.

With these stylized facts as background, we consider implications for fair housing, and weigh a set of policy interventions. Most policy discussions surrounding gentrification center on efforts to protect individual residents at risk of displacement through legal representation or tenant-based vouchers. Yet while these efforts can be critical in helping individual tenants, they will do little over the longer run to preserve economic and racial diversity, which are shaped much more by the composition of people moving into a neighborhood than by the pattern of exits. Thus we also consider a set of policies that can help to make gentrifying neighborhoods more inclusive, or more welcoming to a diverse set of households over the longer-run, including the place-based subsidized housing investments that fair housing advocates have traditionally scorned.

Citations

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Key Words: Gentrification, Fair housing, Racial integration

SURVIVAL OF THE FAIREST? ANALYSIS OF AFHS SUBMITTED PURSUANT TO THE AFFIRMATIVELY FURTHERING FAIR HOUSING RULE

Abstract ID: 311

Group Submission: The Fair Housing Act at 50

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The Department of Housing and Urban Development's 2015 Affirmatively Furthering Fair Housing Rule requires municipalities to formulate new plans to address obstacles to fair housing and disparities in access to opportunity. Although the rule provides a more rigorous structure for plan compliance than previous regimes, as a form of meta-regulation, it still gives substantial flexibility to localities. Are municipalities creating more robust fair housing plans under the new rule, and what types of municipalities are creating more rigorous goals? Analyzing the goals in all of the plans submitted before HUD suspended the rule in January 2018, we find that municipalities propose significantly more robust goals under the new rule than they did previously.

Citations

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Key Words: Fair housing, regulation, segregation, mobility, place-based

MULTIDIMENSIONAL DISCRIMINATION IN THE ONLINE RENTAL HOUSING MARKET: IMPLICATIONS FOR FAMILIES WITH YOUNG CHILDREN

Abstract ID: 312

Group Submission: The Fair Housing Act at 50

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Despite the existence of federal, state, and local fair housing laws, studies have consistently documented continued discrimination against home seekers on the basis of race and familial status (Pager and Shepherd 2008; Oh and Yinger 2015). Although overt forms of racial discrimination have declined since the passage of the Fair Housing Act, more subtle forms of discrimination still persist (Massey 2005). Practices such as racial steering and information withholding reinforce segregation by limiting residential mobility and exacerbate racial wealth gaps by restricting the ability of minorities to accumulate home equity.

The current study is a field experiment to analyze whether discrimination on the basis of race, family structure (i.e. the presence of children and marital status), and/or receipt of a housing voucher (i.e. Section 8) shapes disparate outcomes among families in the online rental housing market in 30 large cities in the United States. The project enhances scholarship on race, family, and segregation by examining a potential mechanism through which spatial and racial inequalities manifest: limited housing mobility due to discrimination. Importantly, because we systematically assess discrimination against voucher recipients, our findings will have direct policy implications as we will assess the efficacy of state and municipal policies intended to protect voucher holders from discrimination. Although studies have investigated discrimination along one or two dimensions of potential disadvantage, no prior work has simultaneously measured what we propose. This gap in the literature leaves unanswered questions about efficacy and equity in policy implementation for households potentially facing multidimensional discrimination. Furthermore, it is crucial to understand heterogeneity in how voucher recipients experience the search for housing.

More broadly, these concerns are key to understanding whether and how multidimensional discrimination manifests to harm families with children (Rosenblatt and DeLuca 2012). Because one of the primary means of improving the life chances of one's children is moving to a safe neighborhood with rising home values and quality schools, housing discrimination constitutes an important barrier to social mobility. Therefore, developing an intersectional understanding of bias in the housing market will contribute to theories of race, family, and economic status by empirically linking discrimination originating from each identifying characteristic and evaluating the ways in which the real, lived experiences of competing privileges and disadvantages—often evaluated independently in empirical work—shape disparate outcomes.

Consistent with prior audit studies, results show substantial discrimination against racial minorities, who receive fewer responses from landlords. Family structure also plays a role in shaping discriminatory patterns, as signaling the presence of a husband decreases response rates, while signaling the presence of children increases response rates. Importantly, this study shows that racial disadvantage is compounded by signaling housing voucher receipt, which raises serious concerns about the role of this policy in exacerbating residential segregation and housing opportunity more broadly.

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Key Words: Discrimination, Housing, Race, Segregation, Social Policy

WHAT'S FAIR? WHERE'S FAIR? THE GEOGRAPHY OF METROPOLITAN FAIR HOUSING CHOICE IN CHICAGO

Abstract ID: 318

Group Submission: The Fair Housing Act at 50

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The 1968 Fair Housing Act prohibits discrimination in the sale, rental, and financing of dwellings, and in other real estate-related transactions because of race, color, religion, sex, familial status, national origin, or disability. The Act requires that HUD administer programs and activities relating to housing and urban development in a manner that affirmatively furthers the policies of the Act. The affirmatively furthering mandate of the Act requires the recipients of federal funds to do more than simply not discriminate - recipients also must address segregation and other outcomes of processes driving housing inequity.

On July 16, 2015, the U.S. Department of Housing and Urban Development (HUD) published a final rule on Affirmatively Furthering Fair Housing to create a unified externally monitored and enforced framework. The AFFH rule discusses fair housing choice as follows: "Fair housing choice encompasses (1) actual choice, which means the existence of realistic housing options; (2) protected choice, which means housing that can be accessed without discrimination; and (3) enabled choice, which means realistic access to sufficient information regarding options so that any choice is informed." (AFFH Rule Guidebook, 2015).

This paper jointly examines the geography of existing fair housing choice and patterns of residential mobility within and between neighborhoods that exhibit different levels of fairness. Using the Chicago metropolitan area as a case study, I illustrate the interdependence between neighborhoods based upon their fair housing choice attributes and the qualities of residential mobility flows between the neighborhoods. I use this joint analysis as a means of classifying existing patterns of mobility in relationship to fair housing choice, and also to highlight how interdependence between neighborhoods may influence or complicate the pursuit of localized interventions to address spatial imbalances in fair housing.

To conduct this analysis, I rely upon several sources of information. My analysis of the existing geography of fair housing choice relies on the suite of neighborhood-level fair housing indicators produced by HUD. I describe the geography of fairness in two ways – first by mapping out the unique combination of neighborhood-level attributes within the region, and second, by analyzing the statistical relationships contained within the suite of indicators using exploratory factor analysis. The second major source of information which I use in this analysis is household-level data on residential mobility histories for more than 8 million households residing in the Chicago Metropolitan Statistical Area between the years 2006 and 2016. I transform these household-level data into a network of flows that describe residential mobility between neighborhoods within the region, as well as general demographic characteristics of movers and households who do not move over this time period.

The findings from my analysis have several important implications for the future of fair housing policy. First, my analysis of the geography of fairness reveals the need for analytical approaches that go beyond descriptive analysis of fair housing indicators. Understanding latent characteristic and mixes of fairness conditions help to produce a more nuanced map of fair housing choice that can in turn inform policy formation and deliberation. The second set of important implications come from the joint analysis of the geography of fairness with relationship to

residential mobility flows that connect the tapestry of neighborhoods within the region. The patterns revealed from these flows illustrate the interdependence between origin and destination neighborhoods as well as the potential for some neighborhoods to serve springboards to areas of opportunity and supportive conditions and for other neighborhoods to serve as traps within cycles of inequity and lack of fair housing choice.

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Key Words: Fair Housing, Geography, AFFH, Mobility, Equity

PRE-ORGANIZED SESSION SUMMARY

MAPPING GENTRIFICATION AND DISPLACEMENT: APPLICATIONS AND APPROACHES

Summary ID: 21

Abstract ID: 342

Abstract ID: 343

Abstract ID: 344

Abstract ID: 345

Recent literature regarding gentrification and displacement pressure has focused on moving past descriptive historical accounts of these phenomena towards attempting to predict and verify neighborhood change, gentrification, and displacement in the imminent future. These methods build on past work on identifying gentrification, yet diverge in their methods for warning and future prediction. This session convenes researchers creating, adapting, and validating a diverse range of methods for mapping gentrification and displacement pressure.

Objectives:

- Understand different methods for analyzing gentrification and residential displacement
- Compare methods for validation and refinement of gentrification and displacement tracking

MAPPING GENTRIFICATION AND DISPLACEMENT PRESSURE: A COMPARATIVE ANALYSIS OF CURRENT METHODS ON BOSTON

Abstract ID: 342

Group Submission: Mapping Gentrification and Displacement: Applications and Approaches

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As reinvestment and declining affordability drive urban gentrification, cities face demands from long-time residents for protection from displacement and neighborhood change. While the type and degree of displacement that occurs due to gentrification has been a topic of debate within the literature, cities are nonetheless adapting

models developed within academia for the purpose of identifying neighborhoods that may be susceptible to gentrification and displacement. Cities are incorporating these analyses into strategic planning documents, as planning departments consider where to encourage commercial and residential development, in order to achieve equitable growth. With models for gentrification and displacement moving from theory to practice, it is of the utmost importance that the models used accurately represent the reality on the ground.

In this paper, we compare five gentrification and displacement risk models developed by and for the cities of Seattle; Los Angeles; Portland, Oregon; and Philadelphia and apply the methodologies to Boston. Seattle's Displacement Risk Index and Los Angeles's Index of Displacement Pressure are composed of expansive sets of demographic and spatial indicators to prospectively identify areas of their respective cities susceptible to displacement. The Displacement Risk Ratio, developed by The Reinvestment Fund and incorporated into Philadelphia's Assessment of Fair Housing, uses fewer indicators, providing a more straightforward method of analysis for displacement. Lisa Bates's Gentrification and Displacement Study, conducted for the City of Portland as a result of the City's commitment to anti-displacement planning under the 2012 "Portland Plan," builds on Lance Freeman's 2005 method for identifying gentrification in New York City primarily using demographic indicators from the census. Additionally, we include an analysis of gentrification developed by Lei Ding et al. from the Federal Reserve for identifying residential mobility in Philadelphia. Where robust descriptions of the methodologies were not publicly available, we worked with city staff to replicate their methods as closely as possible in order to apply the methodologies to the city of Boston.

In applying these five methods to Boston, we identify some geographic areas of agreement among them. However, even amongst the neighborhoods where the models agree, the degree of vulnerability deviates significantly in many cases. The use of racial or economic thresholds in some methodologies to exclude tracts presents a further challenge to the consistency across the models as some tracts that are excluded altogether in one model are identified as at high risk for gentrification related displacement in other models.

Our findings indicate the need for cities to critically consider the underlying assumptions of models included in policy documents, as thresholds and the choice of indicators may include or exclude neighborhoods in the liminal space of gentrification and displacement. This novel comparison of governmental analyses of gentrification provides insight as modeling moves from theory to practice.

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Key Words: gentrification, residential displacement, modeling, gis

MONITORING STREETS THROUGH TWEETS: USING USER-GENERATED GEOGRAPHIC INFORMATION TO PREDICT GENTRIFICATION AND DISPLACEMENT

Abstract ID: 343

Group Submission: Mapping Gentrification and Displacement: Applications and Approaches

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The overheating of the housing market, as well as the planning of new infrastructure systems, has led to new interest in understanding neighborhood change, specifically in the form of gentrification and displacement. Researchers have devised online “neighborhood early warning systems,” interactive maps that create typologies of neighborhood change and even predict future transformation, for instance using machine learning to assign gentrification risk to neighborhoods (Reades and Hubbard, forthcoming). Yet, the predictive power of these typologies has proven surprisingly poor, perhaps in part because they rely on census data that is out-of-date or unreliable at a fine geographic scale (Chapple and Zuk, 2016). Moreover, most analyses focus on gentrification rather than displacement, due to the greater availability of conventional data on gentrification (e.g., influx of capital and/or high-educated newcomers) than displacement (forced moves or exclusion).

Might real-time data on activity patterns improve the accuracy of these models by pinpointing the areas of dynamic change? For this paper, we develop typologies of neighborhood change from 2000 to 2016 for two regions: the San Francisco Bay Area and New York. From this analysis we identify areas which have not gentrified, but are considered at risk, based on loss of low-income households and increase in property values. Next, to validate and refine the models, we analyze geotagged tweets from 2012 to 2016, looking at both the extent to which outsiders spend time in at risk neighborhoods, and the transformation of home neighborhoods (based on the methodology in Shelton, Poorthuis, and Zook 2015). We expect to find that real-time geographic information refines and narrows the set of neighborhoods considered at risk for gentrification and displacement via conventional data. We conclude by exploring ways to represent neighborhood change on a more real-time basis and discussing the policy implications and implementation possibilities for smart cities.

Citations

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Key Words: gentrification, displacement, user-generated data, GIS

GENTRIFICATION AND DISPLACEMENT: BRINGING COMMERCIAL AND RETAIL IN

Abstract ID: 344

Group Submission: Mapping Gentrification and Displacement: Applications and Approaches

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The neighborhood change typology map has been widely used to assess the risks of residential gentrification and displacement, but there has been less study on how commercial activity is associated with the neighborhood change mechanisms. Commercial gentrification may provoke indirect displacement pressures of vulnerable population groups by the loss of services which low-income incumbents rely on for their everyday life. The major concern of commercial gentrification is significantly related to changes in nearby communities, either stimulating or responding to residential demographic shifts (Chapple and Jacobus, 2009). One remarkable research (Chapple et al., 2017) proposed measures of the commercial gentrification and found that commercial gentrification may precede residential gentrification in the Bay Area and vice versa in the Los Angeles area.

The purpose of this research is not to elucidate the entangled relationship between residential and commercial gentrification (chicken-and-egg question). Rather, the research aims to suggest the new framework to examine gentrification and displacement risks comprehensively by incorporating commercial gentrification dimension into the previous neighborhood change typology by Bates (2013). The research questions are two-fold: How are the changes in commercial activity? Does the new typology with commercial gentrification better perform as predictors of gentrification and displacement risks?

The research examines the trajectory of neighborhoods' commercial activity in Portland, Ore. with particular focuses on commercial rents, vacancies, and shifts in businesses from 2010 to 2015 by utilizing CoStar, USPS Vacancy data, and NAICS code data. Next, the research analyzes how neighborhoods are rated differently by the previous method and the new method. This research will enlighten a discussion for the existing gentrification typology on the importance to take account of commercial gentrification for a comprehensive understanding of neighborhood change dynamics. We will also discuss both the contentious conceptual framework for understanding gentrification and displacement by linking residential and commercial gentrification and the limitations of data available for operationalizing the commercial gentrification fully.

Citations

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Key Words: getrification , displacement, neighborhood change typology

THE EFFECTS OF GENTRIFICATION ON ORIGINAL NEIGHBORHOOD RESIDENTS: EVIDENCE FROM LONGITUDINAL CENSUS MICRODATA

Abstract ID: 345

Group Submission: Mapping Gentrification and Displacement: Applications and Approaches

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During the past two decades, college-educated and high-income households have increasingly located in urban neighborhoods. We use new longitudinal Census microdata to study the effects of this gentrification process on original neighborhood residents. We first develop a local labor markets model of gentrification, which yields two insights. First, gentrification's effect on original residents' observable well-being is approximated by its combined effects on their incomes, housing costs, commuting costs, and neighborhood amenities, regardless of whether they move or stay. Second, its effect on their unobservable well-being is proportional to its effect on out-migration. Uniquely, our data allow us to estimate these effects for tens of thousands of original residents of central city neighborhoods in all major metropolitan areas of the United States. We define gentrification as large increases in the number of college-educated individuals living in a neighborhood and employ various identification strategies to help address endogeneity from selection, omitted variables, and reverse causality. Our results suggest that gentrification may lead to small increases in original resident out-migration but that it has no effect on original resident employment, income, commuting distance, neighborhood quality, or rents paid and positive effects on original resident house values. Aggregating these estimates suggests that on average, gentrification benefits original resident homeowners and has little effect on the observed well-being of original resident renters. However, our results are consistent with well-being losses for original resident out-migrants if unobservable neighborhood preferences are strong.

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Key Words: Gentrification, Mobility, Displacement

PRE-ORGANIZED SESSION SUMMARY

PRIVATELY-OWNED RENTAL HOUSING IN THE US: CHANGES IN TENANT & OWNER BEHAVIOR

Summary ID: 29

Abstract ID: 569

Abstract ID: 570

Abstract ID: 571

Abstract ID: 572

Abstract ID: 573

This session will examine how the owners of the US rental stock and their tenants behave and how these behaviors have changed over time. Rising rentership rates and major changes in the ownership of rental properties make this topic timely. Most of the papers will focus on recent changes, but one paper will provide a historical perspective on a major federal program for privately owned rental housing to provide context to contemporary policy discussions.

Objectives:

- To understand recent and past changes in the behavior of tenants and landlords in the US

CREDIT, COMMUNITY, AND RISK

Abstract ID: 569

Group Submission: Privately-Owned Rental Housing in the US: Changes in Tenant & Owner Behavior

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In this article we explore the cyclical nature of credit abundance and scarcity and how it shapes low-income and communities of color over time. Though one might expect communities that lack access to credit to benefit from credit expansions, in the 1970s, 1990s, and 2000s, an expansion of credit contributed to waves of foreclosures. Here we explore how sometimes credit is rationed leaving some people unable to access it and at other times it is overabundant creating a situation where those same people and or places are flooded with higher-risk loans and lending processes. To explore this duality, we look at the Federal Housing Administration (FHA) Section 235 lending in Philadelphia, PA in Newark, NJ during the late 1960s and 1970s and contrast it with the style of lending that layered risk through high-cost, nontraditional, and piggyback mortgage lending in the lead-up to the global financial crisis in the 2000s.

Though both periods had the potential to expand quality access to credit for those who lacked it in the past, neither did. Instead, the expansion of credit brought communities in touch with risky lending processes and products. We are particularly interested in the relationship between secondary market activity and the scale and quality of mortgage credit across urban neighborhoods. The centrality of the private label security (PLS) market in the growth of nonprime loans in the early 2000s is well known. Similarly, Bradford (1979) explains some of the effects of the 235 program as the result of an easy ability to sell the insured mortgage loans into the secondary market. We explore these experiences with differential access to credit through governmental hearings, testimony,

archival data, Home Mortgage Disclosure Act data, and foreclosure filings. We supplement our analysis with geographic data on historical property sales.

Redlining has often been framed as a lack of access to credit. But when it was named in the 1970s, the term reflected a differential access to credit. There was a bifurcated market with some communities who had access to conventional credit and others who had access primarily to FHA government-insured loans. Though FHA's Section 235 program was intended to increase access to credit for borrowers who lacked it in the past, the implementation of the program ran into a number of problems with speculators buying homes and selling them at inflated costs with excessively high home appraisals that went to foreclosure (Bratt 1976; Fox Gotham 2000).

Citations

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Key Words: housing, community development, credit

SHARP RENT INCREASES & THE NATURALLY-OCCURRING AFFORDABLE STOCK

Abstract ID: 570

Group Submission: Privately-Owned Rental Housing in the US: Changes in Tenant & Owner Behavior

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The US is currently in a rental affordability crisis that strains the finances of low- and moderate-income (LMI) renters and limits their access to opportunity neighborhoods. A number of signs suggest that this crisis would be even worse were it not for a large stock of unsubsidized rental units that are nevertheless below market rate, probably because they are not professionally managed. Some municipalities provide property tax abatements to landlords who keep rents below market rate. While existing scholarship suggests that implementation of a land-value taxation regime may improve rental affordability over the long term by inducing the generation of more housing, in the short term it should induce the owners of the unsubsidized below market rate (BMR, or naturally affordable) stock to raise rents. A better understanding of the tenants, ownership, and property characteristics of the BMR stock will help policymakers in the development tax systems that fit their policy objectives. My dissertation will examine two research questions that are important to scholarly and policy debates on rental housing affordability and property taxation and valuation. First I will examine the current drivers of sharp rent increases to assess the potential effects of land-value tax or property tax abatement programs on affordability and access goals. Second I will examine the tenant, property, and ownership characteristics of the BMR units to assess: (i) the extent to which the BMR stock provides LMI renters with quality housing in quality neighborhoods, (ii) the extent to which the BMR stock is under-built relative to zoning, and (iii) whether non-professional ownership is in fact the primary reason the units were BMR.

The BMR stock is under-studied in large part because of a dearth of data on rents and the difficulty of establishing that a unit is below-market. My dissertation will identify BMR units by observing rent increases (or rent spikes) that far exceed what can be explained by neighborhood changes and are not the result of property improvements. These rent spikes provide a strong indication that the unit had been rented at below market rates before the spike. My analysis will use 3 datasets that track rental units over time: (i) the American Housing Survey (AHS), (ii) the Bureau of Labor Statistics CPI Housing Survey, and (iii) listings data scraped from Craigslist by the Urban

Analytics Lab at UC Berkeley. The latter two datasets are under-used in housing studies but I have used both in my prior work. The use of multiple datasets allows for a larger sample size, triangulation of my results, and will shed light on the strengths and weaknesses of the datasets themselves, which is important given that the latter two datasets are rarely used despite the dearth of rental data generally. By gaining access to the restricted version of the AHS and CPI Survey I will be able to join these datasets to ownership data provided to UC Berkeley by Zillow and neighborhood-scale Census statistics. I will examine the entire US from 1995 to 2015, a period of multiple real estate cycles, and a period long enough for me to observe many instances of rent spikes I will first identify the drivers of sharp rent increases by creating a logit model. I will then analyze and describe the tenant, property, and ownership characteristics of the BMR stock before rent spikes.

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Key Words: rental housing

EVOLUTION IN THE OWNERSHIP OF RENTAL PROPERTIES IN THE UNITED STATE

Abstract ID: 571

Group Submission: Privately-Owned Rental Housing in the US: Changes in Tenant & Owner Behavior

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The financial crisis of 2007–2008 and subsequent recovery have reshaped the U.S. housing market, as homeownership has plummeted to its 50-year low, despite a recent uptick, and household growth has slowed down. Indeed, while there has been almost no growth in the number of owner-occupied households in the last decade, most of the household growth has been attributed to the rental market, especially single-family rental units. However, despite the growth of rental market, there has been a substantial upward shift in rents that is reducing supply of naturally occurring affordable units (JCHS, 2017). In addition, there has been a tremendous amount of activity in the sale of rental properties, in terms of the values and volumes of transactions. Given the defining issues of the current housing market, it would be quite natural to ask: What has happened in the rental housing market?

The recently released 2015 Rental Housing Finance Survey (RHFS), combined with the 2001 Residential Finance Survey and its 2012 wave, depicts the structural changes in the rental ownership in the United States, especially after the Great Recession (Lee, 2017). Among others, one of the most striking features is the rise in the share of rental properties that are owned by non-individual entities (e.g., property management companies, REITs). The trend could be not only found in single-family rental housing market, which has recently drawn the attention of media, but it applies to all sizes of properties. Given that one multi-unit property contains dozens of housing units, even slight changes in the ownership of those properties might have substantial effects on the whole rental housing market.

While informative, the RFS and RHFS do not provide more detailed information on the rental side of the market, geographically and temporally. Thus, in the collaboration with CoreLogic, a private company that provides property tax and transaction data, we will study the evolution in the ownership of rental properties. The CoreLogic's deed records cover almost all of the nation's transactions, and its property tax files provide terrific information on the housing units, including geographic identifiers that enable us to link neighborhood

characteristics. Using this data set, the paper (1) describes how ownership of rental properties has changed over time, (2) examines the determinants of rental ownership change, and (3) ultimately analyzes the effects on renters and local housing markets.

The shift in the rental ownership from mom-and-pop landlords to institutions might have substantial implications for both renters and broader housing market, as they have different motivation and thus respond differently to policy incentives (Mills, Molloy, and Zarutskie, 2017; Reina and Begley, 2014). In addition, Raymond and her colleagues (2016) present that large corporate landlords and investors were far more likely to file eviction notices than smaller landlords, suggesting the evolution in the rental ownership could result in potentially negative outcomes among the most vulnerable population. With detailed analysis based on the comprehensive data on the rental ownership, we discuss these issues in the paper.

Citations

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Key Words: rental housing market, institutional investors, ownership entity, rental affordability

HIGHER EDUCATION, HIGHER RENTS: COLLEGES, UNIVERSITIES, AND RENTAL HOUSING

Abstract ID: 572

Group Submission: Privately-Owned Rental Housing in the US: Changes in Tenant & Owner Behavior

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Full-time undergraduate and graduate student enrollment rose 45% from 2000 to 2010 in the US, as Millennials attended college and graduate school at unprecedented rates, according to the National Center for Education Statistics. From the enrollment peak in 2010, full-time enrollment leveled off and declined 6% by 2015. Still, more students live in US cities than ever before; and educational attainment rates for young adults are substantially higher than previous generations. While some students live in dormitories provided by their university, many live in private (or university-private partnership) rental housing in adjacent neighborhoods.

In this research, we examine how increases in college and university enrollment, as well as growth in college-educated young adult populations, have affected demand for rental housing. Our analysis evaluates demand in both university and college adjacent neighborhoods and wider regions in the US from 2000 to 2015. We consider how these increases in rental housing demand, housing supply constraints, and other housing and labor market conditions have affected housing affordability for both young college graduates and those without college degrees.

To study changes in postsecondary enrollment in the context of neighborhood and regional housing market conditions, we link data on colleges and universities from the Integrated Postsecondary Educational Data System

(IPEDS) with Census and American Community Survey data for Combined Statistical Areas (CSAs) and census tracts interpolated to 2010 census tract boundaries. We supplement this data with detailed population and housing estimates from the US Census Bureau Population Estimates Program, as well as employment, wage, and establishment figures from the Bureau of Labor Statistics Quarterly Census of Employment and Wages.

We measure changes in enrollment and campus residency from 2000 to 2007 and 2007 to 2015 to estimate changes in student rental demand in the neighborhoods surrounding colleges and universities and aggregated CSAs. We analyze changes in rental demand, supply, and prices for different types of institutions located in urban, suburban, and rural contexts, as well as in economically successful and declining regions. We then turn our attention to housing affordability for young people aged 25-34, measuring housing outcomes for both college graduates and those without college degrees in regions with varying degrees of demand pressure and housing supply constraints.

We find that where the housing supply is constrained, even economically successful regions with high densities of educational institutions lost young college graduates relative to other regions. And, in those same high-cost, housing-constrained regions, young adults without college degrees faced the greatest housing affordability challenges. On the neighborhood level, we find sharp increases in young college graduates living in formerly low-rent neighborhoods.

This research lies at the nexus between higher education institutions and their impact on place. It expands upon research that asks how college-educated populations affect regional labor markets, adding a housing-focused dimension to economic talent attraction and retention questions (Andreason, 2015). The findings reveal the ways housing demand is shifting alongside significant growth in college-educated young adults; more broadly, the research assesses the impacts of universities and colleges beyond their campus walls and in their neighborhoods and regional housing markets. The discussion engages with contemporary planning challenges about housing demand and affordable housing supply, with an emphasis on the ways Millennials continue to shape their local and regional markets (Moos, 2015; Myers, 2016; Pfeiffer, Pearthree, and Ehlenz, 2018). This research also contributes to ongoing discussions in higher education circles, particularly around the impacts of university and college anchor institutions on neighborhoods (Ehlenz, 2017) and the trends for higher education institutions to pursue growth through development.

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Key Words: housing affordability, higher educational institutions, neighborhood change, Millennials, housing

'THAT'S LIKE MY PENSION, THE PASSIVE INCOME:' WHAT DRIVES AMATEURS TO SPECULATE IN THE LOW-END RENTAL MARKET

Abstract ID: 573

Group Submission: Privately-Owned Rental Housing in the US: Changes in Tenant & Owner Behavior

The majority of rental properties in the U.S. today is owned by small- to medium-sized investors, many of whom enter the trade with little prior experience. While some are able to survive long enough to make a profit (Desmond 2016), small-scale urban landlords and property flippers operate with high levels of volatility (Brown 2004). Financial data on amateur real estate investment is limited, but the analyses that do exist suggest that the expected returns for this type of speculation are low and inadequate to compensate for its risks (Bayer et al. 2011, Depken II et al. 2009, Garboden and Newman 2012, Mallach 2006). Furthermore, because amateur real estate investments are highly leveraged and often individually guaranteed, the costs of failure extend well beyond the loss of invested capital, jeopardizing the investor's credit rating and personal assets as well.

This paper considers the economic, demographic and cultural factors that motivate these amateurs to purchase low-end real estate, despite consistent evidence of its high risks and relatively poor returns.

Methods: The paper draws on in-depth interviews with a stratified random sample of rental property owners in Baltimore, MD, Dallas, TX, and Cleveland, OH. Of the 127 interviews collected, 93 represent amateur investors for whom real estate investment represents a supplemental rather than primary income source. The interviews, which lasted between one and three hours, cover not only respondents' business strategies but their personal and professional histories as well. Data from these interviews is combined with participant observation of 22 real estate investment association meetings (REIAs),

Findings: Amateurs who decide to become investors often do so during periods when their professional identities are insecure or they perceive their retirement portfolios to be insufficient. Respondents manage the financial and emotional cost of failing to establish economic security through traditional means by adopting a new economic identity.

My respondents rationalize the risk of real estate investment by adopting a set of beliefs regarding the value of investment. Inductive analysis of transcripts and fieldnotes reveals three ideologies shared by the majority of amateur investors: 1) self-sufficiency, particularly self-employment, is a key aspect of personal well-being; 2) land and real estate is preferable to stocks, bonds, and other savings because the former are materially available and require no elite expertise; 3) in order to succeed, a person cannot hold back, he or she must be willing to take risks. Even when their investments prove more labor intensive and less profitable than they had hoped, amateur investors continue to utilize these ideologies to legitimate and motivate future investment behavior, even to their economic detriment.

The choice to embrace real estate investment, while certainly influenced by individual predispositions, is not entirely endogenous. I find that a host of profit seeking third-party actors including real estate gurus, paid mentors, and private lenders evangelize real estate investing. Investor seminars hosted by the REIAs, for example, serve a dual function of information transfer and collective public celebration of investment. This process serves the interests of third-party actors who manipulate investors' desire for a new economic identity to sell them additional training, recruit them for un- or low-paid labor, and lend them money at extremely high interest rates. This process pushes some investors into highly leveraged financial positions, increasing their economic insecurity, and, in some cases, moving them towards insolvency.

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Key Words: rental, investment, real estate

PRE-ORGANIZED SESSION SUMMARY

PARTICIPATION, GOVERNANCE, AND COMMUNITY DEVELOPMENT IN POST-DISASTER RECOVERY: LESSONS FROM PUERTO RICO, CHICAGO, NEW YORK, AND ABROAD

Summary ID: 39

Abstract ID: 646

Abstract ID: 647

Abstract ID: 649

Abstract ID: 1238

This panel will examine coordination mechanisms that emerge after disasters to address recovery concerns as well as the role of community organizations as they participate when disasters hit. Few studies exist on the role of coordination and networking in the short and long-term recovery after disasters and those that do, tend to focus on multi-sector coordination between public, private, and civil sector organizations. This panel will examine coordination between a specific set of actors (local community organizations, community development corporations, housing providers, builders, among others) in spaces that were directly affected by disasters as well as communities that received evacuees. We will present examples from Puerto Rico, the Puerto Rican diaspora in Chicago, New York and abroad.

Objectives:

- How socioeconomic and community development systems are affected by disasters?
- How planning, governance, decision-making, and community organization can create more resilient and adaptive systems to provide for shelter, food, and other basic community needs?
- The panel will bring key disciplinary areas of expertise, with the aim of formulating a community development and engagement framework for how to build resilient communities.

PUERTO RICANS AND HURRICANE MARIA: RECONSTRUCTING OWNERSHIP AFTER THE STORM

Abstract ID: 646

Group Submission: Participation, governance, and community development in post-disaster recovery: Lessons from Puerto Rico, Chicago, New York, and Abroad

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Planning research has shown that renters, low-income individuals, those without housing insurance and people of color vulnerabilities multiply after a disaster strikes (Bates 2006). In Puerto Rico more than half of housing units are informal or illegally constructed (Viglucchi 2018). Given the situation, and that many have not obtained legal titles, this has made them ineligible for post-disaster housing aid, and they are cut off from programs that finance rebuilding or major repairs. About 60 percent of all applications received by FEMA have been ineligible for individual and household grants because of the lack of providing evidence of ownership. This research project is based on the stories of 10 individuals who could not provide a property deed or otherwise prove that they own their home. The author also conducted 5 interviews with government officials and non-profit organizations involved in advocating for these individuals at the Federal level. This is a participatory action research project, the author is part of a national working group on disaster housing recovery in Puerto Rico which led to many meetings on the topic and additional interviews with experts who have worked in New York, New Orleans, Houston and other disasters advocating for low-income individuals. These organizations were key in advocating that HUD shall consider evidence such as water, phone, utility, or other bills, and affidavits affirming such occupancy or tenancy. Preliminary findings show that most issues arise from: (1) cultural misunderstandings, (2), differences in legal interpretations, (3) frequent changes and errors and, (4) the scale of informal communities. This article provides recommendations how non-profit groups can participate in post-disaster recovery efforts as well how to advocate at the local and federal level for disaster victims effectively. In terms of theory, the following article seeks to understand cultural groups' diverse perspectives surrounding conceptions of ownership while simultaneously interrogating the means by which these groups contest, the impositions of dominant forms

of ownership (that is, deeds). Despite the claims of economists of the potentiality of homogenous development, it is of utmost importance that planners begin to come to terms with the empirical fact that communities' housing markets are built around historically contingent and path-dependent traditions and evolving cultures of their own (Hodgson and Knudsen 2013; Veblen 2009).

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Key Words: Housing , Disaster, Ownership , FEMA , Community development

CHICAGO'S RESPONSE TO HURRICANE MARIA EVACUEES

Abstract ID: 647

Group Submission: Participation, governance, and community development in post-disaster recovery: Lessons from Puerto Rico, Chicago, New York, and Abroad

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On September 20, 2017, Hurricane Maria made landfall as a Category 4 hurricane causing wide spread devastation throughout the island of Puerto Rico leaving behind over four million residents with limited infrastructure, electricity, potable water, and housing. The exodus of Puerto Ricans to the mainland United States, right after the Category 4 Hurricanes of Harvey and Irma has created a housing crisis for temporary shelter and housing in Texas and Florida. What makes this devastating is that these three hurricanes transpired within 30 days of each other. Where residents on the mainland could evacuate through car and plane, those on the island were castaways for weeks before accessing air and ship transport. Recovery efforts are difficult as Puerto Rico needs to adhere to strict cumbersome regulations for recovery and humanitarian access/efforts to the island.

Since 2005, Hurricane Katrina caused the academic world to produce materials on the built environment and infrastructure, and social equity discourse based on race, ethnicity and disability. The lessons learned from this literature seems to have been discounted after a decade without such harsh devastation and this literature has been discounted now with the emergence of new hurricanes it is important to revive this discourse. This paper is the launching ground for a larger research agenda on marginalized populations and the responses governmentality has to accessing Maslow's first and second tiers of hierarchy of needs. We use the mixed methods approach of grounded critical visualization concentrating on the life experiences of the Puerto Rican evacuees and stakeholders (specifically housing providers, government partners, and displaced residents) in the Chicagoland area. Through in-depth interviews, we broach the continuing struggle of providing and accessing affordable housing and access to governmental community amenities. This paper provides planning scholars and professional's: rich narratives of the struggles and resolve from stakeholders; of lessons learned from the evacuation process to finding housing; and, of integrating to interim daily life. We suggest a planning process for evacuation receivership at the local level in the hopes that the lessons learned will assist planning and housing officials at all levels of government and community development in preparing better policy responses to similar future crises.

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Key Words: Housing, Hurricane Maria, Puerto Rico, Marginalized Populations, Social Equity

PARTICIPATION WOES: PUBLIC PARTICIPATION IN POST-DISASTER RECOVERY PLANNING IN HAITI

Abstract ID: 649

Group Submission: Participation, governance, and community development in post-disaster recovery: Lessons from Puerto Rico, Chicago, New York, and Abroad

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How do communities affected by disasters decide whether or not to participate in post-disaster recovery planning processes? What are the factors that hinder or enable their participation? Despite a growing literature on planning for post-disaster recovery, our understanding of factors that can enable or create challenges for disaster survivors' participation remains limited. To fill this gap in the literature, we examine these factors in the context of post-earthquake Haiti. Our study is based on fieldwork conducted in three socio-economically diverse communities (Pétionville, Delmas and Canapé Vert) in Port au Prince in Haiti after the 2010 earthquake that claimed more than 220,000 lives. Our data collection methods include twelve focus groups (n= 63); in-depth interviews (n=54); two Town Hall Meetings; participatory site observation and review of secondary sources. Based on an NVivo analysis of our data, we argue that there were four main factors that hindered or enabled disaster survivors' participation in planning for post-disaster recovery: formal institutions (i.e., lack of rules and regulations that mandated public participation); organization-related factors (i.e., lack of emphasis on cultural competencies in international donor agencies); planner-related factors (i.e., lack of trust in the public); and disaster survivor related factors (e.g., faith and spirituality; and lack of trust in government and its representatives). Based on our findings, we provide policy recommendations on how planners and policy makers can better enable public participation in planning after disasters by introducing flexible, participatory institutions; nurturing cultural competencies; working to build trust and by collaborating with leaders of faith-based organizations.

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Key Words: public participation, disaster , recovery, Haiti, earthquake

HURRICANE SANDY'S LESSONS IN RESILIENCE

Abstract ID: 1238

Group Submission: Participation, governance, and community development in post-disaster recovery: Lessons from Puerto Rico, Chicago, New York, and Abroad

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In recent years, the relationship between the built and the natural environment has been dramatically affected by climate change, severe storm events, and rising sea levels. The extensive damage to low-lying waterfront zones caused by Superstorm Sandy in October 2012 reinforced the need for resilient infrastructure and redevelopment strategies for existing coastal communities throughout the greater New York area. The Rockaway Peninsula, a sandy stretch of land at the southeastern corner of the Borough of Queens, was particularly hard-hit by the effects of the storm. Costly damage to buildings, roads, and utility systems by the storm raises the controversial question of whether areas of particular geographic vulnerability should be rebuilt, maintained and defended, or simply abandoned. With these and other questions in mind, and given the scarcity of land and the significant need for housing and economic development in outlying areas of our nation's urban centers, the FAR ROC design competition "For a Resilient Rockaway" was organized to solicit creative ideas for resilient development strategies that can be implemented not only in New York City but also in vulnerable communities facing the severe effects of a changing climate all around the world. During the first of two phases, the competition garnered 117 innovative design proposals from firms and individuals in more than 20 countries around the world. Four of those teams proceeded to Phase II of the competition, which resulted not only in an expanded and rigorous exploration of resilience in architectural design but also in an engaged collaboration with the surrounding community. This paper discusses the premise behind the design competition and the role that architecture and planning can play in developing innovative processes and solutions that may be used to better serve and protect vulnerable communities everywhere. The paper further explores community-driven initiatives that followed in the wake of the storm and the design competition, including the creation of the pop-up "Sandy Design Help Desk," which traveled between hard-hit communities to provide direct technical assistance for homeowners and businesses seeking to rebuild following the storm.

FAR ROC was jointly sponsored by L+M Development Partners, The Bluestone Organization, Triangle Equities, the City of New York Department of Housing Preservation & Development, Enterprise Community Partners, and the Committee on the Environment of the New York Chapter of the American Institute of Architects (AIANY).

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Key Words: Resilience, Hurricane Sandy, Climate Change, Design Competition

BEYOND THE SUCCESS STORY: PATTERNS IN CANADIAN RENTAL HOUSING POLICY

Abstract ID: 13

Individual Paper Submission

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Rental housing has emerged as a critical housing and tenure type in the housing continuum, which represents increasing levels of affordability and independence from emergency shelters to market ownership. Despite the fact that an increasing percentage of households cannot afford market ownership, very few new developments create rental housing; most Canadian rental stock is over 40 years old. This study aims to synthesize knowledge

from case study cities on barriers and solutions to rental housing protection and development through systematic case comparison, a method that offers significant opportunities in knowledge development and analytic generalization.

Many studies documenting barriers to implementation focus on a single city (e.g. Mendez 2016). This study aims to determine how cities have or have not overcome barriers to developing and protecting rental housing in case study cities across Canada, and to develop more generalizable findings than would be possible with a single case study (Thomas and Bertolini 2014). The findings can then be used to facilitate policy learning among local stakeholders in rental housing development (e.g. Grin 2010, Thomas and Bertolini 2015). With the roll-out of the new National Housing Strategy beginning in 2018, municipalities may be able to implement more rental housing. It is an ideal time to learn from other cities to affect broader implementation of programs and policies that are already achieving results (e.g. increase in the number of rental units, preservation of existing units targeted to low-income renters, rental renovation programs enabling seniors to age in place, governance structures that facilitate land development for affordable rental housing).

Fifteen mid-sized and large Canadian cities were chosen to represent a range of success, or even failure, in implementing and preserving rental housing. The study approach includes the development of case studies through review of municipal and regional policies/housing strategies and a survey of planners, policy makers and housing authority staff in each city (Part 1). Once the case studies are completed, a meta-analysis of the cases will determine cross-case patterns (Miles and Huberman 1994) and a policy learning exercise will be used to determine whether ideas common to other cities can be integrated into local policy development (Part 2). This paper will concentrate on the findings from Part 1, the policy review and survey, which are now complete.

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Key Words: housing, rental housing, municipal policy, case studies, case comparison

LAND, URBAN FORM, AND POLITICS: A STUDY OF DUBAI'S HOUSING LANDSCAPE AND RENTAL AFFORDABILITY

Abstract ID: 25

Individual Paper Submission

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A major indicator of urban livability and equity worldwide is the availability of sufficient, diverse, attractive, and affordable housing stock for a wide range of income classes (Tighe, 2010). Affordability is central to sustainable development as it relates to housing provision (Aribigbola, 2011). Implementing affordable housing policy presents several challenges. High land costs, inflexible zoning codes, market control, and lack of sufficient financing all limit the realization of low-income housing projects (Cowan 2006; Goetz 1993). Aggravating these structural forces are individual preferences for homogeneous neighborhoods and reluctance on the part of

proprietors to take personal risks to realize racial and economic integration (Tighe, 2010; Alawadi and Benkraouda, 2017).

This study aims to expand the discussion on affordable housing literature with a particular focus on the major drivers of affordability issues. Dubai, a rapidly developed city, appears as a unique case where its land use system aggravate affordability figures. There is a general perception that Dubai is built for the well-off. The construction of mega developments feeds a longstanding narrative that Dubai is solely a luxurious place. This study assesses this portrayal of Dubai and explores Dubai's residential landscape in terms of morphology and affordability. Dubai has received more recognition than any other city in the Gulf region for creating its own form and flavor of urbanism (Alawadi, 2016).

The majority of work written about Dubai in the urban planning literature portrays either the city's history, its rapid pace of development, or its informal urbanism. This study is designed to provide precise and detailed knowledge about existing housing patterns and rental figures in Dubai. Mapping urban form was used to understand and analyze rental affordability figures. The research provides a snapshot of the most prevalent formal attributes that shaped Dubai's housing landscape in the course of the city's urbanization process, accompanied by a rental affordability analysis for every identified housing landscape. In particular, we ask: What are the different housing patterns prevailing in Dubai's built landscape? What are the major driving factors that influenced Dubai's housing transformation? How affordable is Dubai to its residents? Does Dubai's built landscape accommodate a large spectrum of income classes?

The study utilizes the study of Dubai's urban morphology and evolution to assess and understand affordability issues. Analysis of literature and geospatial mapping reveals nine distinct residential patterns in Dubai. The identified patterns are presented under six thematic periods stretching from 1900 to 2016 to highlight the contributing forces that shaped Dubai's housing landscape. Results expand the boundaries of affordable housing issues into concerns including land use control and its impact on housing forms. Findings reveal that Dubai's land use policy creates spatial and housing affordability challenges. The state housing policy of providing large plots and exclusive suburbs for natives and the government's partnership with the private sector to brand Dubai through projects for the well-off have created a formidable housing challenge for the middle class. One major challenge is the lack of sufficient affordable housing units for the middle-class population; rental figures for this group are at crisis point. Only 23% of total housing units, which corresponds to a mere 7% of the total housing floor area in Dubai, are affordable for this group. To eradicate these ills of housing affordability, the planning profession in Dubai must derive practices from a number of internationally recognized planning and rental control policies.

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Key Words: Housing Affordability, Land use, urban form, Dubai

HOUSING RESILIENCE TO THE GREAT RECESSION: A GEOGRAPHICALLY WEIGHTED REGRESSION APPROACH TO INVESTIGATING THE SPATIALLY-VARIED BUILT-ENVIRONMENT EFFECTS ON HOUSING PRICE

Abstract ID: 38

Individual Paper Submission

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Many cities have experienced housing downturn, an average drop of 30% in housing prices, since the financial crisis occurred in 2008 (NaKajiMa, 2013). Since then, there have been studies that focused on the effects of urban form on housing res For instance, Dong (2015) found that the effects of new urbanist's features were overall moderate in the case study of Portland, Oregon. A drawback of these studies is the neglect of the local effects of built-environment features on housing resilience. A built-environment feature might have positive effect on housing prices at some locations while having neutral or negative effect at some others. These positive and negative effects might cancel out and therefore are not captured in a general regression model. Another concern is whether these effects would be statistically significant everywhere over the region. Furthermore, the spatial pattern of local built-environment effects estimated in the period of recession might be different from that in the period of recovery. These all echo to the need of a spatial housing price evaluation model to better understand how resilient each of the built environment features performs locally in both the periods of recession and recovery.

Hedonic pricing modeling has been widely used to account for the effects of various housing components on housing price, including internal configuration, location effects, neighborhood quality, and environmental amenities (Freeman Iii, 1979; Xiao, 2017). From the perspective of planning, this method could be extended to examine which built-environment feature is more resilient to the impact of recession by looking at their marginal effects on both housing price decline and recovery. In addition, spatial autocorrelation is one of the major criticisms of using a hedonic model. For instance, houses in the same neighborhood are likely to have similar internal attributes, neighborhood quality, and environmental features. The ignorance of spatial autocorrelation might result in biased or inefficient estimated results. A geographically weighted regression (GWR) model is selected to examine the local built-environment effects on housing price decline and recovery during and after the recession, because GWR models allow for the estimated relationships in a regression model to vary in a geographical space.

In this study, the housing price decline and recovery will be computed and then mapped using ArcGIS. A GIS analysis will follow to overlap the mapping results with the map of community opportunity index (COI) This index, developed by Wang and Chen (2017), was computed by a set of socioeconomic characteristics, showing the distribution of community opportunities and vulnerabilities in Columbus, Ohio. The purpose of the COI is to support the argument that where individuals live could affect their socioeconomic outcome. The overlapping results will visually reveal who are the winners and losers during and after the recession. Next, a GWR model will be estimated to capture the spatially regression framework by allowing local parameters to be estimated.

The mapping results will show whether the recession would impact socially-disadvantage neighborhoods more than the others, and whether the housing price in these neighborhoods would take a slower step to recover from the recession. Additionally, the GWR results will reveal (1) the marginal effect of each built-environment feature on housing resilience, and (2) the spatial variations of these effects over the region. The results of marginal effects and spatially-varied effects can be used to help locally allocate land uses and public infrastructure and facilities toward a housing-resilient city and a fair community opportunity framework.

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Key Words: Housing resilience, Built environment, Community opportunity, Spatial Heterogeneity, Geographically Weighted Regression

WHAT MAKES RESIDENTS SATISFIED WITH THEIR NEIGHBORHOODS? AN IMPACT ASYMMETRY ANALYSIS USING THE MACHINE LEARNING TECHNIQUE

Abstract ID: 41
Individual Paper Submission

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Neighborhood satisfaction has been widely studied as an important domain of life satisfaction. Research shows that neighborhood satisfaction has positive correlations with well-being and mental health. It also has significant impacts on residential mobility, which affects the stability of communities. Examining the determinants of neighborhood satisfaction can provide implications for neighborhood improvements for both planning researchers and practitioners, thus making it an important topic to study. Using the data collected in Minneapolis, Minnesota, this study explores how neighborhood characteristics affect neighborhood satisfaction. Compare with the state of the art, this study resolves several limitations of the traditional regression by applying a machine-learning technique. It also employs the impact asymmetry analysis (IAA), which has rarely been used in planning, to provide a more in-depth understanding of the subject matter and to provide better-reasoned implications.

The impact asymmetry analysis (IAA) is a methodology used in the field of management and marketing to improve service qualities. IAA categorizes service attributes into five factors based on their impact on the overall satisfaction. Among these five types, dissatisfiers cause dissatisfaction when performing poorly, but do not lead to satisfaction when performing well. Frustrators are the extreme cases of dissatisfiers. On the contrary, satisfiers lead to satisfaction when performing well, but do not cause dissatisfaction when performing poorly. Delighters are the extreme cases of satisfiers. Finally, hybrids are the attributes than can cause both satisfaction and dissatisfaction.

Using the gradient boosting algorithm, we calculate the relative influences of 31 variables on neighborhood satisfaction. Then, we apply the IAA and classify these variables into the five factors based on their abilities to generate dissatisfaction/satisfaction. In Table 1, we summarize the factor classifications of the variables with a relative influence higher than 1%, as well as the average performance of each variable.

The four variables that have the largest relative influence are the looks/design of the neighborhood, safety from crime, cleanliness, and noise of the neighborhood. Among them, the look/design is a satisfier that can increase the satisfaction when performing well but does not decrease the satisfaction when performing poorly. The safety from crime, cleanliness, and noise of the neighborhood are all hybrids, suggesting they can increase and decrease satisfaction, depending on their performances.

Table 1 The factor classification and average performances of relatively important variables

Classifications	Service attributes	Average performance	Relative influence (%)
Delighter	Bike trail/paths in your neighborhood	3.677	2.167
Satisfiers	The looks or design of the neighborhood	3.950	16.100
	Air quality in neighborhood	3.841	3.355
	Street cleaning in your neighborhood	3.790	2.447
	Safety from traffic in your neighborhood	3.460	1.574
	Neighborhood greenery	4.167	1.298
Hybrid	Safety from crime in your neighborhood	3.460	9.064
	Neighborhood cleanliness	3.628	8.918

	Noise in the neighborhood	3.418	8.321
Frustrator	Access to quality schools and other education facilities	3.900	5.781

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Key Words: quality of life, subjective well-being, residential satisfaction, built environment, community development

THERE GOES OUR FAMILY FRIENDLY NEIGHBORHOOD: RESIDENTS' PERCEPTIONS OF INSTITUTIONALLY DRIVEN INNER-CITY REVITALIZATION IN BUFFALO, NY.

Abstract ID: 52

Individual Paper Submission

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Central Theme. This paper examines residents' perceptions of urban revitalization. It focuses on neighborhoods undergoing revitalization in a legacy city, Buffalo, NY. The revitalization process in legacy cities follows an eds and meds strategy, since it is heavily influenced by institutional actors from government and the education and medical sectors (Mallach & Brachman, 2013; Adams, 2014). Although the eds and meds strategy is cited as a core component of urban revitalization, scholars have argued that it can spur gentrification, displacement, and disrupt the fabric of neighborhood life (Silverman et. al., 2014). This paper argues that the revitalization driven by the eds and meds strategy heightens resident concerns about changes in the structure and function of neighborhoods. In particular, this form of revitalization, which focuses on mixed-use development and attracting new residents who are students and members of the creative class, transforms core city neighborhoods from affordable, working class residential spaces to places that accommodate the needs of more transient constituencies. In part, this shift reflects the replacement of neighborhood control mechanisms based on primordial ties with transactional relationships (Suttles, 1968). It also is reflective of the greater emphasis that the eds and meds strategy places on exchange versus use values (Logan and Molotch, 2007).

Methodology. This paper draws from data collected in Buffalo, NY for a larger research project called Turning the Corner which was sponsored by the Urban Institute. The focus of that project was to identify planning strategies to address negative externalities caused by neighborhood change and heightened risks of displacement due to revitalization. Data were collected through a series of focus groups with residents and stakeholders in working class, minority neighborhoods which were identified as being in the early stages of revitalization. A total of nine focus groups were held across three neighborhoods experiencing encroachment due to institutional investments from the eds and meds sector and real estate speculation. The focus groups were held during the fall of 2017. The data were coded and analyzed using ATLAS.ti software by multiple investigators from the research

team who adopted an analytic framework guided by standpoint theory, which focuses on amplifying the voices of groups traditionally disenfranchised from the planning and policy processes.

Findings. Three themes emerged from the analysis. First, residents perceived urban revitalization to have a destabilizing effect on residential spaces. Change brought about by revitalization was perceived to reduce residents' quality of life and their access to amenities that primarily benefited working class households. Second, the influx of newcomers with more transient residential patterns and the greater emphasis on mixed-use development was perceived to threaten long-term residents' control of neighborhood spaces. Residents expressed concerns about increased unpredictability in their surroundings and social interactions as a result of revitalization. Third, residents perceived revitalization driven by eds and meds strategies as detrimental to family friendliness at both the neighborhood and city levels. This was due to the transformation of neighborhood services, housing, and retail spaces with a focus on accommodating the needs of growing student and professional populations.

Relevance to Planning. This paper provides planners with residents' perceptions of a popular approach to inner-city revitalization, the eds and meds strategy. Insights from the analysis are used to identify planning tools that can be applied to future revitalization aimed at protecting minority, working-class neighborhoods when institutionally driven revitalization occurs. This is particularly important when the interests of minority, working class residents are perceived to come into conflict with those of newcomers and mixed-use development strategies. The paper also identifies a key concern for the long-term sustainability of revitalized areas, the production of neighborhood spaces that are family friendly.

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Key Words: Neighborhood Revitalization, Eds and Meds, Residential Displacement, Family Friendliness

INVESTIGATING SERIOUSLY DELINQUENT MORTGAGES IN HISPANIC/LATINO NEIGHBORHOODS IN METROPOLITAN STATISTICAL AREAS IN THE UNITED STATES

Abstract ID: 62

Individual Paper Submission

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While some scholars have discussed the different housing outcomes among Hispanic/Latino subgroups, not much is known about rates of seriously delinquent mortgages among neighborhoods in which different Hispanic/Latino subgroups reside (Rugh and Hall, 2016). I utilized data from the 2010 Neighborhood Stabilization Program (NSP) 3 and the 2005/2009 American Community Survey (ACS) for all MSAs in order to answer two research questions. First, what determinants influence the rate of seriously delinquent mortgages among Census tracts in which different Hispanic/Latino subgroups reside? Second, what determinants influence the rate of seriously delinquent mortgages in Census tracts? I ran descriptive statistics and a Weighted Least Squares (WLS) regression.

My dependent variable was the rate of seriously delinquent mortgages (i.e., delinquent or in foreclosure for 90 or more days in June 2010) at the Census tract level. The independent variables were Census tract demographic characteristics, Census tract socioeconomic characteristics, and Census tract housing characteristics. The U.S.

Bureau of the Census differentiates among the following Hispanic/Latino subgroups: Mexican, Puerto Rican, Cuban, Dominican; Central American (i.e., Costa Rican, Guatemalan, Honduran, Nicaraguan, Panamanian, Salvadoran, and Other Central American); and South American (Argentinean, Bolivian, Chilean, Colombian, Ecuadorian, Paraguayan, Peruvian, Uruguayan, Venezuelan, and Other South American).

Results shows that there are large differences in the rate of seriously delinquent mortgages at the Census tract level among the different Hispanic/Latino subgroups for select thresholds (10, 20, and 30 percent). For example, Census tracts with Nicaraguan households have the highest rate of seriously delinquent mortgages (19.36 percent at the 10 percent threshold), followed by Census tracts with Cuban households (18.83 percent), Census tracts with Uruguayan households (16.23 percent), and Census tracts with Guatemalan households (13.92 percent). Interestingly, Census tracts with Paraguayan households have the lowest rate of seriously delinquent mortgages (3.84 percent), followed by Census tracts with Chilean households (5.58 percent), Census tracts with Bolivian households (7.79 percent), and Census tracts with Panamanian households (8.93 percent).

The regression model explains 41.12 percent of the total variation in the rates of seriously delinquent mortgages for all analyzed Census tracts. Twenty-three out of 28 independent variables were significant at the 5 percent level. Almost all signs are consistent with the literature and expectations. In terms of economic factors, Nicaraguans, Uruguayans, and Guatemalans may have few financial resources due to past political unrest that may have affected their incomes and wealth, including savings for downpayments. Many may have few financial resources due to relatively high remittances, as in the case of Nicaragua and Guatemala. Although Cubans enjoy immigration protections, are disproportionately middle class, and have a relatively high homeownership rate, many Cubans are self-employed and thus may have experienced difficult times during and after the Great Recession.

In terms of social factors, most Latin and South American nations, with the exception of Cuba, have had a relatively short immigration history to the U.S. and have thus benefitted from the Immigration and Nationality Act of 1965. Some subgroups may live in ethnoburbs along with ethnic brokers and lenders as well as mutual aid benefit societies, which may help in becoming a homeowner, although homeownership may result in foreclosure.

These quantitative findings are consistent with qualitative findings by Pfeiffer et al. (2014 and Reid 2016). Potential strategies to address these issues could be linguistically and culturally competent homeowner education, counseling, and lending, along with legislation to protect homebuyers, regardless of race, ethnicity, nativity, or class. Future approaches could also utilize focus groups and in-depth interviews to unpack the relationship between foreclosure and cultural factors in a comprehensive fashion.

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Key Words: foreclosure, Latinos, Hispanics, neighborhood

HOMEOWNERSHIP AFTER THE GREAT RECESSION: DO PLACE-BASED CHARACTERISTICS EXPLAIN LONGER RENT SPELLS AMONG "OWNER-READY" FAMILIES?

Abstract ID: 66

Individual Paper Submission

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Homeownership rates across the U.S. have declined from a peak of over 69 percent in 2006 to 62 percent in 2016. This historic decline was concurrent with the mortgage market breakdown and the Great Recession. Most studies show that massive waves of foreclosure, together with tighter lending regulations after the recession, are the two main factors that explain higher rates of exit from homeownership, and lower rates of entry to it. Curiously, however, homeownership rates also declined among middle- to higher-income families with fewer financial barriers. In this paper I focus on this group, i.e. renters with sufficient financial resources to afford a standard mortgage in their area of residence. I call these renters “owner-ready,” and ask why they do not become homeowners, after the recession, at the same rates as they did before.

Specifically, I focus on the role of place in homeownership decisions after the recession, and pose three questions about place-based factors that could affect time-to-ownership among “owner-ready” families. First, I test the role of access to employment opportunities and job markets in homeownership decisions, which concerns how time-to-ownership for financially-stable families could vary by the density and types of available jobs. Second, I examine whether living in areas with more favorable characteristics could lead to longer waiting periods among higher-income higher-skill renters. These areas might have higher homeownership costs and provide a more limited set of affordable options. Third, I ask if exposure to foreclosures discourages families from investing in homeownership. Renters always take into account the trade-offs between homeownership and all the above place-based qualities when considering homeownership, but I specifically take interest in how those trade-offs may have changed after the Great Recession.

The study sample is a longitudinal subset of the Panel Study of Income Dynamics (PSID) family data between 1999 and 2013, which only includes renters that can secure a mortgage each year. I employ logistic regression and survival models to estimate the likelihood of, and time to, homeownership as affected by place-based characteristics. I document that the typical “owner-ready” renter takes about 2 years longer after the recession to become homeowner, compared to before. Areas with higher density of high-salary jobs, better access to public transportation, larger supply of rental units, and lower crime rates are correlated with longer rent periods after the recession, ranging between 7 and 11 months depending on the model specified. While foreclosure is a significant determinant of time-to-ownership, I do not find the post-recession effect to have significantly changed compared to the pre-recession period. Overall, I find that time-to-ownership became longer among “owner-ready” renters after the recession, manifested especially in areas with more favorable place-based characteristics.

These findings contribute to the scholarship on the trade-offs between choice of tenure and qualities of place. Studying affluent renters is important because their resources can affect—primarily via tenure and locational choices—other income groups’ access to affordable housing. Changes in their homeownership decisions could also exacerbate spatial disparities in access to housing, jobs, and services. I recommend for housing policy to take measures to strengthen rental markets in areas that are attractive to “owner-ready” renters, in order to mitigate excessive rent burdens for lower-income renters in those areas. These measures include bolstering the supply of affordable rental units through providing incentives for new construction, diversifying homeownership assistance options for lower income renters, and expanding on housing choice voucher programs. Pursuing a more diverse array of land ownership options, e.g. land banking or collective ownership, could help decommodify land, reduce rent costs, and alleviate spatial disparities within and among urban neighborhoods.

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Key Words: Homeownership, Great Recession, Owner-ready, Place-based characteristics

UNDERSTANDING WHY BABY BOOMERS LEAVE HOMEOWNERSHIP: LESSONS FROM THE 2007-2009 GREAT RECESSION

Abstract ID: 99

Individual Paper Submission

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With the aging of the baby boomer generation and increased longevity, America's older population (age 50 and over) is projected to equal 132 million in 2030. Under this demographic upheaval, old households will continue to serve as the most influential key factor on the near future's housing market.

This study relies on the data from the 1968 – 2015 Panel Study of Income Dynamics (PSID). In using Cox Proportional models to track the elderly's transition from homeownership, this study conducts survival analysis, which investigates the time it takes for the transition from homeownership to occur. Particularly, this study examines how the U.S. recession of 2007 – 2009 has an effect on the elderly's tenure decisions, using mortgage distress and foreclosing information released by the PSID 2009 data. This study mainly examines the reasons why the elderly make the transition from homeownership to rental status or downsize to smaller owned homes. The findings suggest that age itself is not associated with the elderly's tenure decision. Instead, life cycle factors such as marital status, disability, retirement, income, and wealth, which are time-varying variables, encourage old households to become renters or to downsize to smaller homes. However, when mortgage distress and foreclosing variables are included, the results are quite different. Above all, the loan to value ratio serves as a significant role in liquidating their housing wealth. Households who reconstructed or refinanced their original mortgage consistently decrease the likelihood of making the transition. But against expectations, households who have had difficulties recently making mortgage payment never tend to be renters or downsize their homes.

This study provides insight into understanding old households' housing tenure decisions that lead to becoming renters or downsize to smaller owned homes. As the baby boomers start to retire, the evidence for old households is growing in importance. If a large enough number of baby boomers, by making this decision, return to urban cores from suburbs, it could have important implications for densities in cities.

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Key Words: Baby Boomers, Housing Tenure Choice, Homeownership, Cox Proportional Model, PSID

SHAPING THE PLACE OF SUBURBAN POVERTY: A POLITICAL ECONOMY PERSPECTIVE ON THE SUBURBANIZATION OF POVERTY

Abstract ID: 106

Individual Paper Submission

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Suburbanization of poverty is a popular framework for examining the changing location of poverty in the United States (Cooke and Denton, 2015). Yet, despite evidence for the differentiation of suburban places beyond a simple inner/outer ring binary (Hanlon, 2009), previous research on the suburbanization of poverty largely has not examined how these finer variations may influence the process. While recent research has begun to examine the trend with more nuanced approaches to suburban differences (Cooke and Denton, 2015; Lee, 2011), these approaches tend to obscure the social basis of place differentiation. A perspective from political economy is

useful in foregrounding this social basis, allowing planners and scholars to examine the process for potential inequalities in the placing of suburban poverty.

The political economy framework suggests that places are shaped, in part, by the actions of residents seeking to enhance the use values of the areas in which they live. Privileged residents have a greater ability to do so because of their access to social, political, and economic resources. This generates places that are more privileged than others, creating a system of place stratification which reinforces (and is then further reproduced by) social status stratification (Logan and Molotch, 1987). The recent literature on neighborhood typologies and trajectories (Wei and Knox, 2014) suggests the possibility of identifying a stratified neighborhood hierarchy that may be useful in examining various trends in the metropolitan areas of the United States through the lens of political economy. This includes the suburbanization of poverty.

Using this political economy neighborhood stratification framework, the following research questions are addressed in this study. First, what suburban neighborhood types existed in large population metropolitan statistical areas of the United States in 1990? Second, what are the poverty rate changes between 1990 and 2010 for each of the identified suburban neighborhood types? Finally, what are the determinants of the poverty rate changes in each of the neighborhood types?

It is hypothesized that there is a hierarchy of suburban neighborhoods and that the poverty rate change is different between the types of neighborhoods in the hierarchy, with the more privileged types experiencing less poverty increase than less privileged types. Furthermore, it is hypothesized that there are differences in the determinants of poverty rate changes in each of the neighborhood types of the hierarchy.

A multivariate clustering technique is used to identify types of neighborhoods (operationalized as census tracts) in 1990 in the 55 most populous metropolitan statistical areas in the United States. Data is drawn from the Neighborhood Change Database, which normalizes 1990 Census data to 2010 census tract boundaries. Analysis of variance (ANOVA) and t-tests are conducted on individual level poverty rate changes between 1990 and 2010 to determine significant differences in these changes, and linear regressions are used to analyze determinants of poverty rate changes.

Six suburban neighborhood types are identified in 1990 and arranged in a socioeconomic hierarchy: Elite, Newer, New Start, Stable, Mixed, and Minority. Each have significantly different mean poverty levels in both 1990 and 2010, and all six have significantly higher mean poverty rates in 2010 than in 1990, but with significant differences between the types. Preliminary regression results indicate that the determinants of these changes largely fall in line with previous research, with socioeconomic change variables and regional location being especially important. From a scholarly perspective, these results indicate the importance of understanding the politics of producing suburban place in the shifting locations of poverty. From a planning and policy perspective, the results suggest the need for place-based and democratic community interventions that benefit less privileged residents.

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Key Words: suburbanization of poverty, neighborhoods, place stratification, political economy

GATEWAY METROPOLITANS, ETHNIC NEIGHBORHOODS: IMPACTS OF MULTI-SCALE RACIAL CONCENTRATION ON NEIGHBORHOOD FORECLOSURE RISK

Abstract ID: 107

Individual Paper Submission

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Since the 1965 Hart-Cellar Immigration Act passed, the U.S. has experienced significant demographic changes. Immigrants who arrived after 1965 settled in established gateway cities, such as New York, Los Angeles, Chicago, and Boston, increasing Latino and Asian populations. With economic expansion and refugee resettlement programs, new immigrant gateways emerged after the 1990s in new cities and regions, such as the Midwest and South (Singer, 2008).

America's shifting immigrant population impacts local and regional residential segregation and housing markets. Immigrant gateways may reinforce segregation because of established ethnic enclaves; newer immigrant gateways would provide opportunities for immigrants to live in integrated neighborhoods. However, there is mixed evidence on residential segregation in new immigrant gateways. For example, Park and Iceland (2011) found that immigrants have lower levels of segregation in newer gateways than established gateways. In contrast, Hall (2013) identified that immigrants in new destinations were more segregated, after controlling for immigrant group and metropolitan characteristics. The mixed findings demonstrate that settlement patterns vary depending on the geographic scale and regional effects.

Residential segregation also relates to the local housing market for several reasons. Immigrants have lower homeownership rates than native-born residents in newer gateways, a gap which last 15 to 20 years (Painter & Yu, 2008). Recent evidence also showed that minority and immigrant neighborhoods were targeted by subprime lenders (Mayer & Pence, 2008). With the foreclosure crisis, these neighborhoods also had higher rates of foreclosure, which affect neighborhood stability and local government revenue. After the Recession, neighborhoods with large proportions of immigrants also have recovered at slower rates in home values after the foreclosure crisis compared to predominantly white neighborhoods.

Thus, immigrant concentration may affect neighborhood stability. Yet, it is unclear if immigrant neighborhoods have differing impacts on foreclosure risk based on the metropolitan and neighborhood-level characteristics. Housing markets also have their own local and regional scale effects, where neighborhoods within a region have more volatile prices than others. This study fills the gap in literature on understanding how differing immigration patterns affect neighborhood homeownership risks, after controlling for neighborhood and metropolitan characteristics.

This article uses multivariate regression analyses of tracts in the largest 37 metropolitan areas with varying immigration histories using data from the U.S. Census Bureau and U.S. Department of Housing and Urban Development (HUD) Neighborhood Stabilization Program (NSP) data. While these metropolitan regions were immigrant gateways at some point, we test the relationship between newer gateways and neighborhood foreclosure risk. We also use a typology of neighborhood-level segregation based on racial composition, class, and nativity to see if neighborhood composition affects the relationship between metropolitan regions and risk. Finally, we add in individual metropolitan housing markets to test additional regional effects on foreclosure risk scores. Our study also demonstrates the importance of understanding the reasons for racial segregation, with differing impacts on housing outcomes.

The findings illuminate multiple factors that help to explain the persistence of segregation patterns and the implications for neighborhood stability. The study also demonstrates the importance of disentangling class and racial segregation in neighborhood choice. By using a more comprehensive analysis of the intersections between race and class, planners can work to develop cities that are inclusive, support neighborhood stability, and access to socioeconomic resources.

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Key Words: segregation, foreclosures, metropolitan regions, immigration, ethnic neighborhoods

PRESERVING DECENT AFFORDABLE HOUSING IN DETROIT: LOW-INCOME HOUSING TAX CREDIT PROJECTS AT YEAR 15

Abstract ID: 121

Individual Paper Submission

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This study examines the efforts to preserve decent affordable housing developed under the Low-Income Housing Tax Credit (LIHTC) program in Detroit that are facing the expiration of their 15-year affordability compliance requirement. The LIHTC program is the largest federal affordable housing production program (Schwartz, 2015). In Detroit the program has funded 298 projects with about 13,000 low-income units since its beginning in 1986. When projects reach 15 years of operation, the tax-credit investors sell or transfer their ownership, usually to another partner in the project. From 2016 to 2022, 104 LIHTC projects, 7,700 low-income units (about half of the city's total LIHTC housing stock), have reached or will reach year 15.

Research has not addressed what happens to LIHTC projects facing year 15 in very weak housing markets. The national characterization of outcomes such as studies conducted by Schwartz and Meléndez (2008) and Khadduri et al. (2012) do not describe Detroit's because of the deterioration of Detroit's housing market. In addition, most existing research uses data on projects that reached year 15 before the recession and relied on interviews and surveys of those involved in LIHTC development. Prior research has lacked project-level data needed to identify challenges and find solutions.

For the past two years, we have been working with city leaders and LIHTC industry stakeholders including nonprofit developers and syndicators in Detroit to examine the year-15 challenges for LIHTC projects in Detroit. First, we have been studying the outcomes of earlier LIHTC projects that have passed year 15 to learn whether they remain as decent affordable housing. Second, we have collected financial audit reports for as many projects as we could that are reaching year 15 from 2016 to 2022 to help us understand how severe the financial challenge is. Third, we have been interviewing our partners to learn about what happened to their projects and what they have done in dealing with this issue. Fourth, we have also studied how other cities with similar housing markets are addressing the year-15 issue for their LIHTC projects.

As a result of our financial analysis, we found that a substantial share of LIHTC projects in Detroit are in a weak financial position; net operating income may not cover hard debt or may not be sufficient to allow borrowing for physical improvements. Those projects need to restructure their financing so that they could stay viable. If debt is not renegotiated, some of them might be facing foreclosure. As LIHTC projects approach year 15, their ownership structure also needs to be restructured. Previous studies have shown that preserving LIHTC housing in the long term will depend on mission-focused nonprofit organizations who can step into ownership (Schwartz and Meléndez 2008; Khadduri et al. 2012). However, many nonprofit general partners in Detroit lost so much capacity

during the recession that they are not able to take on full ownership or do not want to do so. Our study examines these challenges at the individual project level. With information gathered from our community partners and lessons learned from the study of practices in other weak-market cities, we also provide suggestions on what be done to address those challenges in Detroit.

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Key Words: Preserving, Affordable Housing, Detroit

UNDERSTANDING LARGE HOUSING ESTATES IN EUROPE: AN INQUIRY ABOUT POVERTY, SEGREGATION, AND POLICY CHALLENGES

Abstract ID: 176

Individual Paper Submission

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Large housing estates built between the 1950 and 1980 in European cities were once envisioned as social Utopias that would solve many urban problems at times of rapid industrialization and urbanization. These estates were carefully planned with the aim to provide middle class families with high quality living environments in a cost-efficient manner. But despite good intentions by the planners, many of these large housing estates are now often seen as problem areas, which are undesirable to live in. As a result, housing estates are now often populated by households with few options on the urban housing market. Despite more than a decade of investments in large housing estates in cities across Europe, problems in many of those estates have deepened. This article investigates the role that large housing estates play in the reproduction of inequalities, poverty, and segregation in European cities today. The article is based on several in-depth analyses and case studies of housing estates in 14 European cities—Athens, Berlin, Birmingham, Brussels, Budapest, Bucharest, Helsinki, Madrid, Milan, Paris, Moscow, Prague, Stockholm and Tallinn. The main contribution is delivered in the form of nine takeaway lessons on the origins, trajectories of change and the future prospects of large housing estates in Europe.

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Key Words: housing estates, standardized apartments, Europe, poverty, segregation

VISIONS OF A SOCIAL CAPITAL UTOPIA MEETS THE MESSY HUMAN REALITY

Abstract ID: 186

Individual Paper Submission

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Planning and social theorists from Jane Jacobs (1993) to Robert Putnam (2000) theorize that social capital is important for individual and community well-being. Multiple studies suggest communities with a significant amount of social capital may offer residents benefits ranging from improved physical and mental health to greater access to employment opportunities through their social ties. Based on the perceived positives, planning practitioners, social theorists, and local policy makers increasingly have sought to create communities that foster social capital. DeFilippis (2003) and Coleman (1988) suggest social capital, like other forms of capital, may not be equally distributed – nor may those who possess it choose to share it broadly. My paper explores an assortment of factors potentially shaping the presence and effects of social capital in a residential community in suburban Washington, DC, the Blueberry Hill Cohousing Community (BBHC). BBHC is nearly 20 years old with 19 single-family homes and 60 residents (adults and children).

Cohousing, a planning approach developed in Northern Europe in the 1960s, is grounded in using a mix of physical design, community self-management, and social activities to ensure residents' social interactions build ties, resulting in a community with abundant social capital. The original builder-residents of BBHC chose to design and live in a cohousing community due to the approach's critique of and response to modern American community design as isolating residents. American architects, Kathryn McCamant and Charles Durrett introduced cohousing to the United States in the late 1980's, yet currently there are only 165 completed communities and cohousing remains a little-known planning approach. Correspondingly, the research literature is limited in scope. Currently, the literature has a lack of data on: the functioning of non-hierarchical systems and self-management processes; how do cohousing proponents and residents acknowledge and manage power relations; and how do the communities adapt over time to new residents. This last factor is important to understanding cohousing longer-term. The initial resident-builders had to dedicate considerable time and monetary resources to bring the community to fruition. New residents do not enter the community with that perspective.

This paper seeks to illuminate some of these issues through the lens of BBHC. Over a five-month period, I examined how social capital develops in cohousing and these residents' perceptions of living in a community designed and managed by cohousing precepts. I conducted open-ended, qualitative interviews with 15 current and former residents ranging in age from 18 to mid-80s. All were college-educated and economically middle-class, and all, save two, were Caucasian. In addition to interviews, I participated in community meals and management meetings; documented the community through photography and wrote memos. Prior to the 5 months, I spent two separate 2-month periods, one in 2011 and another in 2012 at BBHC conducting research to examine environmental sustainability in cohousing and to explore the motivations driving cohousing as a movement. I gathered data using open-ended, qualitative interviews with residents and other individuals involved in cohousing, and participated in workshops, conferences, and tours of Mid-Atlantic cohousing communities located in suburban, urban, and rural locations. The findings from that data allowed me to refine this paper's research questions and designs, shifting from environmental to social sustainability. The data from all research stages informs this paper.

My research suggests that DeFilippis and other theorists' criticism that social capital is not necessarily a win-win is with merit. Social capital can be unevenly distributed or deliberately withheld, even within a small community. The findings also suggest that although cohousing stresses the use of consensus decision-making and non-hierarchical management, interpersonal relations, power dynamics, and in-group/out-group interactions can dramatically alter the original intent of the community's decision-making processes.

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Key Words: Cohousing, social capital, consensus decision-making, social ties

ASSESSING THE QUALITY AND IMPACT OF THE CONSOLIDATED HOUSING PLAN

Abstract ID: 193

Individual Paper Submission

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Housing plays a central role in connecting individual, family, and society in human life. Provide decent housing at an affordable price, in a suitable living environment is the ultimate goal of housing policy in the United States, as well as many other countries. The U.S. Department of Housing and Urban Development (HUD) creates a financial mechanism that requires the submission of a Consolidated Housing Plan to support affordable housing development and other housing-related activity in a city, as a condition of receiving funding through the Community Development Block Grant (CDBG) and HOME Investment Partnership (HOME) funds). These funds are used to support the proposed affordable housing development agenda of the local jurisdiction. The plan plays a crucial role in increasing affordable housing choice and quality for local people, especially for low-income households. Yet little research undertakes an evaluation of plan quality for Consolidated Housing Plans. Only two studies that tackled the housing issue in plan evaluation literature were found in a thorough literature search, and the most recent one was published a decade ago. More importantly, the impact of Consolidated Housing Plan has never been assessed.

This research develops evaluation protocol by which Consolidated Housing Plans may be assessed, based on a thorough review of academic journals, legal documents, and best practices identified in the housing literature. It then applies to more than 50 cities in the U.S. Using four major criteria including Decent Housing, Suitable Living Environment, Economic Opportunity, and Fair Housing. The paper assesses the quality of Consolidated Housing Plan by applying the grading approach used in plan evaluation literature. Each plan will be evaluated based on five components: Factual basis, Goals, Policies, Implementation, and Participation. The total score represents overall quality of the plan. The results demonstrate the correlation between the criteria and components of the plan and the outcomes in real life. By examining the change in different groups of housing tenure and household income, this study will reveal the impact of Consolidated Housing Plan on renter/owner or low-income/high-income population

After that, three cities, represented high-, medium-, and low-score in plan quality, are randomly chosen for neighborhood-level analysis. For each city, we apply spatial statistics analysis for Census Tract data to scrutinize the concentration of low-income population in the local neighborhoods. Then, using points data of affordable housing and community development activities for density analysis, we show the spatial pattern of these federal housing programs. The mismatch between the location of needed population and where the public money goes shed the light on the effectiveness of Consolidated Housing Plan. The findings also suggest further studies on the link between plan preparation and implementation process. These raise some serious questions about the way we use public money as well as how to effectively plan and implement planning documents. Finally, the findings are expected to create guidelines not only for policymakers but also for local authorities and researchers in supporting the affordable housing and community development nationwide.

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Key Words: plan evaluation, Consolidated Housing Plan, affordable housing, community development

ADAPTIVE MANAGEMENT: NONPROFIT HOUSING DEVELOPMENT ORGANIZATIONS DURING THE GREAT RECESSION

Abstract ID: 194

Individual Paper Submission

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Nonprofit developers have struggled for many years to maintain adequate capital and operating reserves to preserve their affordable housing stock (Bratt, R. G., Vidal, A. C., Schwartz, A., Keyes, L. C., & Stockard, J., 1998). These financial issues worsened during the Great Recession; in fact, nonprofits experienced unprecedented financial strain as demand for their services increased (Anheier, 2007; Johnson, 2011). While these conditions affected nonprofits throughout the country, the degree of impact varied across places due to contextual differences. In California, for example, financial stress for nonprofit developers was exacerbated by the 2012 elimination of local redevelopment funding. Within this harsh environment, nonprofit housing developers in California responded by implementing adaptive management approaches.

Adaptive management is typically used for environmental resource management and not for low-income housing development and related services. Moreover, management scholars acknowledge some of the inherent challenges in the adaptive management model and propose related approaches, such as dynamic strategic planning. Walters (1986), a proponent of adaptive management, suggested that managers use an iterative process because of the uncertainties of managing renewable resources. Favoring a dynamic strategic planning approach for technology and engineering projects, Neufville (2000) recognized the risks associated with forecasting the future and recommended building flexibility into a plan designed with long-term benefits and short-term objectives. Adaptive management and its variants were developed for fields seemingly very different from nonprofit housing development. Nonetheless, some nonprofit developers in California adopted practices from adaptive management to cope with the financial crisis beginning in 2007.

This research examines the management practices of nonprofit housing developers in California during a period of severe financial strain. Following on my quantitative analysis of data from over 800 nonprofit developers in the state, this research draws upon in-depth interviews with 18 executive directors and managers of nonprofit developers and housing associations in California. This research reveals that funding cutbacks on all levels of government (federal, state, and local) compelled some nonprofit developers to rethink standard organizational practices and strategically manage their housing development pipeline, real estate portfolios, staffing levels, programs, and services. Organizations that survived and performed well implemented adaptive management and dynamic strategic planning regarding funding and organizational structure. The lessons learned and management tactics from these developers can inform other organizations about how to cope during tough economic times.

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Key Words: affordable housing, nonprofit management, Great Recession

ABANDONMENT AND QUALITY OF LIFE: A COMPARISON OF URBAN AND SUBURBAN AREAS

Abstract ID: 206

Individual Paper Submission

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Excessive structural abandonment is typically associated with negative neighborhood perception. Additionally, abandoned structures can decrease nearby housing values and economic potential, further increasing the risk of neighborhood decline. Both scenarios can lead to degraded quality of life, which the Broken Windows Theory explains as negative consequences of abandonment. While the existing literature generally supports these positions, how abandonment contributes to quality of life has not been comprehensively examined in these studies. Further, these studies have concentrated primarily on only urban areas. While abandonment is known to be a major issue in declining urban areas, recent trends also show that suburban areas also experience abandonment. However, the effects of abandonment may not be the same when comparing urban settings to suburban areas. The varied effects of abandonment in suburban and urban neighborhoods have not been fully examined yet.

This study aims to 1) measure the effects of abandonment on quality of life using neighborhood satisfaction and housing values as a proxy and 2) compare these effects in suburban and urban areas, using American Housing Survey (AHS) data for the 20 largest U.S. Metropolitan areas. While abandonment has primarily been measured at the neighborhood scale in many studies, municipal and metro-scaled comparative measurements are rare. AHS abandonment data creates an opportunity to examine the effects of abandonment on quality of life using microdata, but applied to a national scale.

Neighborhood abandonment was measured using the AHS questionnaires on abandoned structures and boarded-up windows within 1/2 block of where the respondents reside. As noted, quality of life was measured using 1) neighborhood satisfaction scores and 2) economic benefits – to measure both perceptual and economic aspects that promote quality life. Residents' satisfaction of the neighborhood was identified using the neighborhood ratings from AHS. Respondents are asked to rate surrounding neighborhood conditions on a scale 1 to 10. Economic benefits were identified using self-recorded home values. Property values can also represent the economic risk that can lead to neighborhood decline when the property values decrease. To measure the effects of abandonment on neighborhood satisfaction and property values, two regression models were specified separately. Through these models, the effects of multiple types of abandonment (i.e. a single abandoned structure vs. severe abandonment) were analyzed. Then, the responses in suburban areas were delineated from urban areas to examine and compare the different effects of abandonment.

Results indicate that abandonment decreases the quality life in terms of both neighborhood satisfaction and property values. Also, the effects are larger in suburban neighborhoods than urban areas. Specifically, an abandoned structure in a suburban area is likely to decrease neighborhood satisfaction by 0.65 ~0.68 score more and decrease property values by 17.8K~20.5K U.S. dollars than an urban area. The effect size becomes larger when the neighborhood has more severe abandonment. This study implies that abandonment in suburban areas shows a greater negative impact on the quality of life than urban settings. At the same time, urban areas show lower neighborhood satisfaction than suburban areas. Despite the efforts of cities to achieve quality of life in urban areas over time, results are indicating that suburban neighborhoods bring a higher satisfaction than urban

areas. This study contributes to bringing attention to suburban abandonment and extends the understanding of the impact of abandonment on the quality of life.

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Key Words: Abandonment, Quality of life, Neighborhood satisfaction, Housing value, American Housing Survey

WHAT DO REPORTED EXPERIENCES OF HOUSING DISCRIMINATION TELL US ABOUT SEGREGATION AND DISPARITIES IN MENTAL HEALTH OUTCOMES? A SOCIO-SPATIAL ANALYSIS OF THE MILWAUKEE MSA, 2009-2013

Abstract ID: 214

Individual Paper Submission

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Do reported experiences of housing discrimination when accessing housing or remaining in the neighborhood influence segregation and disparities on mental health outcomes? Our study revisits this question and expands the discourse on housing discrimination and health.

This year we commemorate 50 years of the Fair Housing Act. However, cities across the US show gaps in racial integration suggesting a pervasive socio-economic mismatch that translates to health disparities (Osypuk & Acevedo-Garcia, 2010; Yang & Matthews, 2015). The Milwaukee metropolitan statistical area (MSA) ranks among the most segregated US metropolises and research suggest gaps among income and racial groups intensified Post-Recession (Levine, 2013).

Using 2009-2013 data from the Survey of the Health of Wisconsin in the Milwaukee MSA (N=559) and spatial data on housing and demographics, we employ a multi-leveled approach incorporating generalized regression analysis and spatial modeling developed by Lehmann et al. (2003). We explore potential associations between reported experiences of housing discrimination and self-reported mental health outcomes including stress, anxiety and depression (SAD). We also explore moderating effects of residential disadvantages based on housing and neighborhood quality indicators, and dimensions of racial segregation as defined by Yang and Matthews (2015).

Initial findings suggest that experiences of housing discrimination are associated with residential disadvantages and each SAD outcome after controlling for general health status and socio-economic characteristics. Variabilities are observed among different racial/ethnic groups and income levels suggesting that dimensions of racial segregation may play an influential role on the relationship between experiences of housing discrimination and mental health outcomes. Further analysis examines whether spatial dependence influences our understanding of the associations between each dimension of residential segregation and SAD.

This research expands our understanding on the prevalence of housing discrimination while also suggesting its potential ripple effects on residential disadvantages, segregation, and disparities in mental health outcomes. Findings from this study provide valuable information to inform future policy and advance fair housing by

underscoring the influential role of experienced housing discrimination on the quality of life and mental health of residents. Lastly, this research provides grounds to build new approaches and advance knowledge interconnecting the fields of urban planning and public health.

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Key Words: housing discrimination, segregation, neighborhood quality, mental health

DECLINING ACCESS TO AFFORDABLE LOW-INCOME HOUSING DUE TO MIDDLE-CLASS COMPETITION: EVIDENCE FROM US METROPOLITAN AREAS, 2006 TO 2016

Abstract ID: 228

Individual Paper Submission

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Rental affordability is worsening in many metropolitan areas during and after the Recession. The prevalence of cost burdens among lower-income renters is due in part to the fact that households with moderate or even high incomes take the units that lower-income renters could afford. In 2016, 44.2 percent of the low-cost rentals that Extremely Low-Income (ELI) households (earning less than 30 percent of area median income) could afford were occupied by higher income households and consequently unavailable. Thus, the underlying challenge in rental affordability is not only the shortage of affordable supply at the 30-percent-of-income standard but also the actual occupancy by the poorest renters, particularly in the largest metros.

JCHS (2017) reports that many metros experienced declines in their stocks of low-cost rentals in both absolute count and relative shares during and after the Recession. In the face of declining supply of low-cost rentals, examining rental availability is important for helping planners and policy makers determine ways to expand housing opportunities for the poorest renters.

The objective of this study is to examine how many of low-cost rentals that ELI renters could afford were occupied by higher income households and what metropolitan factors have limited or expanded this rental availability in some metros more than in others. In the private market, higher income households are free to occupy rentals that are affordable to ELI households, but it largely depends on an adequate supply of middle- and high-cost rentals which widely varies across metros. Subsidized rentals, in contrast, are occupied by the poorest households – available to them through income restrictions. With focus on housing subsidies and higher income households' demand, this study runs regression models to determine the factors most strongly associated with rental availability.

Using 2006 through 2016 American Community Survey microdata, this study measures the scale of rental units that are affordable but unavailable to ELI households in each metro – where available is defined as actually occupied by a household at or below the ELI income threshold. A sample of the 200 largest metros was used to study rental availability trends across housing markets in bust (2006-2011) and recovery (2011-2016) periods, as well as the entire decade.

This study estimates housing availability in regards to ELI renters in particular because the poorest group is the last in line to find housing and the primary target population for rental subsidy programs. Higher income

households were categorized into income groups, very low (30-50% of AMI), low (50-80%), moderate (80-120%), and above moderate (more than 120%), to capture which group takes the most rentals that could be affordable to ELI households.

Nationwide, 52 units are affordable for every 100 ELI renters in 2016. Applying the availability dimension, only 29 are occupied by ELI renters while 23 are occupied by higher income renters. Findings show that the scale of unavailable rentals is markedly greater in some metros. Acute rental availability problems are concentrated in areas where income levels are high – San Francisco, San Jose, and Boston.

Regression results highlight the importance of increases in housing supply in all rental brackets, easing rental competition in the higher-end brackets and opening availability of low-cost housing to ELI renters. Evidence shows worse availability of low-cost rentals in metros with more serious shortfall of middle- and high-cost rental supply relative to higher income households' demand. This implies fierce competition for limited higher-end units is accompanied by a consequent increase in higher-income occupancy of low-cost units. In addition, affordable rentals also were more available to ELI households in metros with more subsidized units, specifically Public Housing that serves less affluent renters than other programs.

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Key Words: Extremely Low-Income Households, Housing Affordability, Housing Availability, Housing Subsidies, Rental Competition

PARTICIPATION AS A TWO-WAY STREET: SMALL ORGANIZATIONS LEARNING FROM COMMUNITIES IN INTERNATIONAL DEVELOPMENT

Abstract ID: 248

Individual Paper Submission

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Discussions surrounding participation have been frequent and have dominated much of planning research and practice. These discussions often frame participation in a unilateral manner focusing on the ways in which communities are impacted by participatory exchanges with organizations, governments, and larger institutions. However, in the implementation of participatory activities, there appears to be frequent instances of two-way exchanges, where community members are not mere beneficiaries of participation but have important impacts on the external individuals and organizations guiding these participatory engagements. In alignment with critiques presented by scholars dating back to Arnstein, the question these interactions present is whether these two-way exchanges are examples of cooptation or does the communities' ability to initiate larger organizational change provide evidence of a movement towards transformative participation? In an effort to assess these questions, this study explores two-way flows of expertise and knowledge transfer between organizations and communities. We examine this through a qualitative assessment of small Colorado-based non-profit organizations working on built environment projects with local communities in the global south. Through in-depth interviews with organizational representatives and observations of organizational events in the Colorado metro area, we find that small organizations exhibit forms of two-way exchanges due to their unique and nuanced relationships with community partners. We present emerging themes related to these engagements that suggest the need for rethinking the

unilateral framing of participation frequently presented in planning discourses. The results of this research aim to enrich planning scholarship by expanding our understanding of participatory engagements in an effort to improve how engagement activities with local communities in developing communities are framed and implemented in practice.

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Key Words: participation, organizations, international development, community engagement

HOUSEHOLDS, HOUSING, AND NEIGHBORHOOD DETERMINANTS OF COMMUNITY PARTICIPATORY SOCIAL CAPITAL

Abstract ID: 262

Individual Paper Submission

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Community social capital is defined as a “multidimensional construct” where individuals collectively utilize social networks and trust to achieve common community goals and collective efficacy (Putnam, Leonardi, & Nanetti, 1993; Xu, Perkins, & Chow, 2010). Perkins and Long (2002) classified social capital into four dimensions: Sense of community, neighboring, citizen participation, and collective efficacy. Each of these may lead to the next dimension; for example, strong sense of community often results in formal or informal neighboring behavior and increased citizen participation and organizing. The 2013 American Housing Survey (AHS) measured 21 social capital variables spanning five dimensions of social capital: Social cohesion and trust (sense of community), neighborhood social ties (sense of community), shared expectations for social control (neighboring), organizational involvement (formal citizen participation), and volunteerism (informal citizen participation). The majority of the survey respondents indicated strong social cohesion and trust and strong neighborhood social ties. However, formal or informal citizen participation in collective decision making at the neighborhood level is much less prevalent. Few actively intervened with neighborhood problems. This indicates that strong sense of community is not necessarily leading to increased citizen participation and neighboring behavior. Other factors may have prevented higher levels of participation among residents who otherwise are satisfied with their neighborhoods.

Putnam (2000) expressed concerns about declining social capital and deteriorating social disengagement in the contemporary American Society. The preliminary results from the 2013 AHS national survey data indicates that social disengagement is prevalent among the survey respondents. Therefore, it is imperative to explore the determinants of community participatory social capital, which is reflected through social engagement/disengagement.

This paper uses the 2013 American Housing Survey data, which is the only national level data including social capital variables to date, to explore how household characteristics (such as gender, race, income, education, marital status, age, and length in the neighborhood), housing attributes (for example, tenure, housing value, size of the house), and neighborhood characteristics (such as land use mix, physical features, and satisfaction with neighborhoods) relate to community participatory social capital. The community participatory capital measures

whether the survey respondents belong to a civic organization, attended neighborhood meetings, and/or volunteered in the past twelve months. Participation in religious organizations and activities is not accounted for in this research since religious participation is high among the survey respondents.

Following basic descriptive statistics, selected households, housing, and neighborhood characteristic variables will be used in a series of regression models to measure how they relate to the level of community participatory social capital. Locational variables such as census region and central city/suburban status will be controlled as well. The results from this research will help us understand the determinants of community participatory capital and therefore find solutions to promote public participation and citizen engagement in the collective decision making process and urban governance of local communities and neighborhoods.

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Key Words: Community Participatory Social Capital, American Housing Survey, Social Networks, Collective Efficacy

THE AFFORDABLE HOUSING CRISIS: CITY RESPONSES

Abstract ID: 265

Individual Paper Submission

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The United States has a serious shortage of affordable housing, especially for low-income tenants. Yet, the Trump administration's U.S. Department of Housing and Urban Development (HUD) has proposed a significant budget cut in programs providing affordable housing (e.g., Housing Choice Vouchers and Public Housing). Also, the recently passed federal tax cut seems likely to reduce the number of affordable housing units produced through the Low Income Housing Tax Credit program. All of these programs already fail to provide enough units for the demand. On March 13, 2018, the National Low Income Housing Coalition (NLIHC) announced a national shortage of 7.2 million affordable rental units.

The theme of this paper is the efforts of cities, in the face of reduced federal support, to attempt on their own to address the lack of sufficient affordable housing for their residents. To answer this research question, relevant reports and newspaper articles have been reviewed. This shortage of affordable housing and municipal responses are important to practicing planners who deal with housing issues. In early 2018, the Boston University Initiative on Cities released its annual Menino Survey of Mayors with responses from the mayors of 115 cities with populations of at least 75,000. More than half of these mayors said that high housing costs and an inadequate supply of affordable housing was their leading concern. Only 13 percent said that they believed that their city's housing stock meets the needs of local residents.

My preliminary research has focused on some selected major cities with very serious affordable housing crises and their responses. This paper will review and analyze the magnitude of the affordable housing crisis in these cities, responsive municipal policies and programs, and their impact in relation to identified affordable housing needs. These selective cities are:

Detroit: Facing widespread housing abandonment due to its massive population loss and the highest poverty rate of major cities, Detroit in March, 2018 announced the creation of an Affordable Housing Leverage Fund of \$250 million to preserve 10,000 existing units and to develop 2,000 new units within the next 5 years.

Los Angeles: Faced with a growing homeless population, in 2016 voters approved a \$1.2 billion homeless bond issue to address aspects of this crisis. In December, 2017, Los Angeles passed an Affordable Housing Linkage Fee policy expected to raise \$100 million annually.

New York: In 2014, Mayor De Blasio announced a plan with a goal of preserving and developing 200,000 units of affordable housing by 2024. He has revised this goal to 300,000 units by 2026. The city is using mandatory inclusionary housing and upzoning some neighborhoods, as well as providing financing and city-owned land.

Portland (Oregon): Beginning in 2015, Portland has declared a housing emergency due both to an inadequate supply of affordable housing and also to a serious homelessness situation. In 2016, voters approved a \$258 million affordable housing bond. The city has also recently adopted inclusionary housing.

San Francisco: The city with the most expensive housing in the mainland U.S. has attempted to address the affordable housing and homeless crisis through rent stabilization, upzoning some neighborhoods to promote building of up to 10,000 new units, and funding affordable housing through its linkage policy.

Seattle: Its new Mayor Durkin says that affordable housing is her primary policy issue. In December, 2017, she announced a \$100 million investment in construction of projects. An upzoning of several neighborhoods is proposed.

Some of these municipal responses are very recent and their impact will be more difficult to assess than those that have been in place for awhile.

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Key Words: affordable housing, cities

CONSPICUOUSLY CONSUMED McMANSIONS: AN EXAMINATION OF THE EFFECTS OF RELATIVE HOUSE SIZE ON HOUSE PRICES

Abstract ID: 267

Individual Paper Submission

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Veblen (1899) identifies the need in a consumer-oriented society to outwardly express success through what he terms “conspicuous consumption”—expenditures on goods and services that are motivated by the public display of wealth and status. Hirsch (1976, p. 2) identifies these conspicuously consumed goods as “positional goods,” which he defines as those for which “the satisfaction that individuals derive from goods and services depends in increasing measure not only on their own consumption but on consumption by others as well.” The evaluation of a positional good is based largely on its context and how it compares to the goods consumed by others (Frank, 1985). The increase in status that comes with possession of a positional good is made at the expense of others, whose status declines in relative terms (Easterlin, 1995; Frank, 1985).

“McMansions” are a conspicuously consumed good. Defined by Merriam-Webster (2018) as “a very large house built in usually a suburban neighborhood or development; one regarded critically as oversized and ostentatious,”

McMansions often draw the ire of their neighbors, who argue that they destroy the collective neighborhood character, diminish light and privacy, and decrease neighboring property values. Consequently, many suburban municipalities have taken steps to regulate their form. But despite the often critical reception from neighbors, there continues to be demand for McMansions in many suburban areas. Building on Frank's (1985, 2007) work, Solnick and Hemenway (2005) and Charles (in-press) empirically substantiate McMansions as a moderately positional good. In this study, I examine the price that individuals place on the positional aspect of McMansions.

This study examines whether housing consumers are willing to pay a premium for positional McMansions and whether the relatively older and smaller houses adjacent to McMansions sell at a discount. Using observed single-family house sales in the suburbs of Chicago from 2010 through 2015, I employ a spatial hedonic price model to determine willingness-to-pay estimates for positional McMansions as well as their nonpositional neighbors. The local policy and regulatory implications of the findings are discussed.

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Key Words: McMansions, positional goods, conspicuous consumption, suburbs, single-family housing

UPWARD MOBILITY OR DISPLACEMENT? TRACKING HOUSEHOLD MOVES AND ASSESSING DESTINATION OUTCOMES

Abstract ID: 292

Individual Paper Submission

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Intra-city phenomena such as gentrification and displacement are often observed, understood and studied quantitatively at the neighborhood spatial scale. Yet, neighborhoods are made up of households and individuals who through their actions guide the trajectory of a neighborhood. This paper analyzes the extent, timing, and quality of household moves in neighborhoods where an amenity – in this case, a new rail transit station – is introduced. Is there inequality in mobility: which moves represent upward mobility and which represent displacement? What household characteristics are associated with an upward move, which with displacement?

Previous mobility choice literature has uncovered numerous covariates correlated with mobility, including life course and employment events, socioeconomic, educational, and ethnoracial characteristics (e.g., Clark & Davies Withers, 1999; South & Crowder, 1997; van der Vlist et al., 2002). In this paper, I examine whether households are more likely to move in a transit-oriented neighborhood (TOD) after a new rail station is introduced, controlling for the covariates previously found in the literature. This analysis will also confirm the previous findings on mobility covariates in the Los Angeles County context. Additionally, I examine the timing of the move relative to the introduction of the rail station amenity. I measure mobility using a unique dataset of tax filers in Los Angeles County over 21 years at the block level.

To assess move quality, I look at the outcomes of these residential moves across the income distribution: Do these moves constitute a relative improvement in welfare (i.e., upward mobility) for lower-income households or a displacement to a worse neighborhood? I operationalize this measure by comparing public school quality, transit access, and retail banking density in origin neighborhoods versus destination neighborhoods for households who move. Multiple studies have found that school quality and transit access capitalizes into neighborhood housing

prices (e.g., Kane et al., 2006; Bartholomew and Ewing, 2011). These three measures capture relative amenity quality changes in which can be measured annually, to correspond with the mobility data.

This research uses combines unique datasets to illuminate germane research questions on the inequality of mobility. Analyses using these datasets contribute to data-driven decision-making and plan development in improving outcomes for households and neighborhoods. Additionally, studying and analyzing mobility will help planners make better forecasts.

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Key Words: Residential mobility, Displacement, Transit, Upward Mobility, Destination Analysis

THE INFLUENCE OF THE COMMUNITY BENEFITS AGREEMENT PHENOMENON ON URBAN POLITICAL THEORY

Abstract ID: 304

Individual Paper Submission

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Since 2001 in select cities, local and occasionally national organizations have argued that development projects should significantly improve the lives of affected residents. Community groups, labor unions, and other organizations in several US cities are entering into community benefits agreements (CBAs) with developers and/or governmental bodies, in order to address community needs, including parks, low-income housing, and job training, among other public benefits. In return, the groups support the projects' requests for governmental approvals or subsidies.

Adopting a multiple case study methodology, this study analyzes and compares twenty-four (24) major attempts by community groups to secure public benefits as part of development approval processes in California, New York, Wisconsin, and Florida, and asks the question, How does the CBA phenomenon shape our knowledge of urban political theory? It finds that the influence of any entity depends on whether that individual or organization sets out to block a particular development project from coming to fruition, initiate a development project or shape development that is being proposed. It reveals that different schools of urban political theory are most relevant depending upon the primary goal of those involved in the development process, as reflected by markedly different pyramids of power.

When it comes to blocking development, the study finds that influence is widely dispersed, thereby supporting the pluralist school of thought: developers can choose to terminate a project, while elected officials can block projects from moving forward to construction. Yet individual neighbors and organized groups can hold great sway as well, if they choose to argue that a project is not compatible with a neighborhood. Normally inactive citizens can quickly mobilize if aroused and thereby block a project.

With regard to initiating development, however, developers and elected officials – both of whom can fairly easily secure land and funding – overpower neighbors and other stakeholder organizations. As a result, in this scenario

the elite-reputational school of urban political theory, which argues that in most cities a small group of leading businessmen control the actions of local government - best captures the power dynamics at play.

In the third development scenario - in which various entities attempt to shape development, by altering its physical form and/or overall character - developers and elected officials still hold the most sway. The former can choose to change the character of their projects, while the latter can hold their support hostage unless a project is modified to address their concerns. Yet other entities can exert sufficient pressure to result in considerable modifications to a project. Individual neighbors acting alone can occasionally influence a development scheme. More effective than that is the volunteer-based neighborhood association, which is better able to mobilize efforts through pre-existing channels of communication. Interest groups - developed around shared concerns and with paid staff that can devote time to lobbying policymakers and cultivating supporters – are more efficacious still. In the civic sphere, the most influential shaper of development projects is a coalition of each of the aforementioned entities.

In the context of shaping development, through the pursuit of community benefits agreements, public choice theory proves most accurate and enlightening. This theory probes how individuals join together effectively in pursuing common goals, as well as why people organize better for some causes than for others. It has been proven that government decisions greatly favor small, well-mobilized groups that work together for “collective action.” Indeed, the emergence of CBAs in select locales by relatively small but savvy groups supports this notion.

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Key Words: community, neighborhood, community development, inequality, engagement

THE CHANGING VALUE OF “VACANCY”: HOW THE EMERGENT SHARING ECONOMY DISPLACES IMMIGRANT SHARING IN LOW-INCOME LOS ANGELES.

Abstract ID: 317

Individual Paper Submission

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Airbnb is the largest of the short-term rental (STR) platforms and accounts for approximately 65 percent of the Los Angeles short-term rental market (Samaan, 2015). This article examines how this growing presence of Airbnb in low income immigrant communities connects to the processes of gentrification and displacement and represents a differentiated strategy of particular actors to restructure the housing market. In particular, we are interested in how the simultaneous creation and re-commodification of “vacancy” in the housing market, via home-sharing websites like Airbnb, both excludes and threatens immigrant-dense neighborhoods in Southern California through gentrification without development. Many immigrant working-class neighborhoods undergoing gentrification are indeed “vital” economies and possess viable social networks that function to meet the needs of their populations.”^[1] “Sharing” becomes a necessary strategy to meet their housing, employment and

mobility needs when facing increased uncertainty due to poverty, discrimination, racism, and lack of legal status. Overcrowding becomes a function of this type of “sharing” necessary to survive in a tight housing market.

^[1] Smith, Neil and Peter Williams, *Gentrification of the City*, Allen and Unwin, 1986 Introduction p.11

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Key Words: sharing economy, displacement, gentrification, immigrant neighborhoods, informal economies

MIGRANT HOUSING CONSUMPTION AND LIVING CONDITIONS IN URBAN CHINA

Abstract ID: 327

Individual Paper Submission

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This article investigates the determinants and geographical variations of migrant housing consumption in urban China using the 2015 China Household Finance Survey (CHFS) – the most comprehensive dataset of its kind to date. The central question is what kinds of migrants, and where, are more likely to spend more on rental housing, purchase housing, and live in better conditions. Higher housing consumption for migrants can indicate an inclination to establish themselves in the city as permanent residents. It is well-known that migrants in China still face limited housing options in the city due to institutional discrimination, but we do not yet know all the fine grains. Existing studies on migrant housing are limited to a few cities or the use of census and other aggregate data only. This article avails of the extensive details and areal scope of the CHFS survey data to explain the variations in housing consumption among migrants.

Three OLS models are run for rental cost (relative to the city's median), housing ownership, and a composite index of housing quality constructed by the author (dependent variables). The unit of analysis is the individual migrant between the ages of 18 and 65. The primary independent variables are at the individual, household, and regional levels. Individual-level explanatory variables include hukou status (a residency status which determines access to public services and other benefits – for example, interprovincial vs. intraprovincial, urban vs. rural, etc.), employment circumstances (not including wage), length of residence in the current city, access to social security benefits (in either place of origin or residence), and access to bank loans. Household-level variables include the number of working household members and dependents. Regional-level variables include the concentration of migrants in major cities of the province (using data author from the 2010 census and annual statistical yearbooks), an original migrant-local disparity index, and the level of urbanization. The individual's education, income, and other financial assets, including ownership of additional properties, are controlled.

The housing quality index is constructed based on dimensions which were considered important in existing studies: affordability (housing cost relative to income), space, basic amenities (gas, plumbing, heat, electricity, water), locational desirability (distance to work), and type of tenure (formal vs. informal). The want of any one of these five attributes creates distress on a migrant's living condition and well-being. By contrast, better housing conditions are conducive for successful integration into city life.

Preliminary findings indicate that being an intraprovincial migrant in the eastern provinces is positively associated with both ownership and housing quality but shows no relationship with rental cost. Urban migrants are more likely to purchase housing and spend more on rental than rural migrants. Migrants with spouses working in the same city are likely to live in better conditions. Length of residence in the current city is positively associated with housing quality but has no relationship with housing ownership. Other (expected, as this research is still underway) findings include: stable employment encourages higher spending on housing but not necessarily housing purchase; lower levels of urbanization may be associated with higher rates of housing ownership among urban migrants but lower among rural migrants; urban migrant households with school-age children are more likely to own housing, while rural migrant households with school-age children are more likely to live in poorer conditions.

This article contributes to planning practice by identifying differences within the migrant population so as to suggest more tailored housing policies. It may also contribute to urbanization studies as well as housing studies in general through a more fine-tuned understanding of the causes of housing disadvantage for a city's newcomers.

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Key Words: Housing Consumption, Migrants, China, Urbanization

MILLENNIALS' UNBALANCED RECOVERY FROM THE RECESSION: JOB GROWTH BUT HOUSING SHORTAGE

Abstract ID: 347

Individual Paper Submission

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This study reports new evidence on Millennials' progress of recovery following the Great Recession, finding a great imbalance between improvements in local job and housing markets in the nation. With Millennials born between 1981 and 1999, the older segment were ages 22 to 27 in 2008 when the recession shock began and their early housing and employment careers were sharply impeded. In contrast, the middle Millennials, ages 16 to 21 in 2008, and 24 to 29 by 2016, were not immediately affected but may have been slowed in their career development, depending on the speed of local job and housing recovery. Finally, the youngest Millennials, ages 10 to 15 in 2008, and 18 to 23 by 2016, were little affected in employment but may suffer from the continuing housing shortages. Thus it is important to identify relevant age segments among Millennials, as well as the differential effects of employment and housing. In general, employment growth rebounded first and is continuing rapidly, while new construction and homeownership are sluggish in recovery, a little less so for household formation. These contradictory trends are clearly presented by the annual ratio of job growth to building permits, from 1980 to 2017, in the nation and across the 100 largest metros.

Against the background of metropolitan BLS employment and Census Bureau building permits data, this study uses ACS annual data to trace the recovery of Millennials of different ages. Analysis consists of descriptive displays of rates of behavior in housing and employment by each age group observed every two years. These show the downturn after 2006, the bottoming out in 2010 for employment (later for housing), and the gradual upturn toward 2016. We also will observe the trends in marriage and BA attainment which have prominent

influence in shaping behavior in housing and employment.

The second stage of analysis aggregates larger age ranges covering the older, middle, and younger Millennials, calculates the descriptive downturns and recoveries, and displays this to show their distribution across the set of metro areas. (Aggregation is needed to reduce sampling noise in smaller metro areas.) The third stage then proceeds to statistical modeling of variations across the 100 largest metro areas. Model 1 treats post-2010 increases in household formation as the dependent variable, with right side variables of post-2010 changes in employment and housing construction, plus controls for changes in % married and % with a BA. (Models are repeated for each specific age group.) Model 2 substitutes, on the right side, the post-2010 ratio of total jobs added to total housing permits in place of the two separate variables of employment and housing.

Preliminary results show that Millennials have made substantial progress in both employment and household formation since 2010. Employed Millennials made greater progress than the nonemployed. However, the employment effect was more weakly observed in metros with a serious shortfall of new construction relative to rapid job growth. Findings emphasize the importance of balance between job growth and housing growth in shaping recovery from the recession. Actual housing permits are compared to what would be expected if the local long-run ratio of permits to jobs added prevailed. Planners have a much greater responsibility in managing housing growth than employment growth. This study suggests they need better goals for assisting housing production, and the relative shortage of housing should be calculated in relation to job growth in each metro area, as we demonstrate.

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Key Words: Millennials, Job Growth, Housing Shortage, Employment, Household Formation

AFFORDABLE HOUSING AND HISTORIC PRESERVATION: ANALYZING THE COMBINED USE OF LIHTC AND RTC IN KANSAS CITY, MISSOURI

Abstract ID: 368

Individual Paper Submission

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The Department of Housing and Urban Development and the National Park Service both tout the compatibility and popularity of combining the use of the Low-Income Housing Tax Credit (LIHTC) and the Rehabilitation Tax Credit (RTC) for certified historic structures. Despite this, there is little scholarship that examines the combined use of the credits. Missouri is one of the nation's leading states in the use of the RTC, thanks to a robust state RTC that can be layered with the federal credit. Until this year, Missouri also offered a state LIHTC. Changes to the tax incentive programs at the federal and state levels may threaten the continued combined use of the credits in Kansas City as a housing affordability crisis intensifies. Using publicly available information on projects and fieldwork, this paper analyzes the projects that combined the two credits to assess the success of these programs to solve two thorny problems in one application: the creation and preservation of affordable housing in an era of declining subsidies and increasing affordability crisis and the maintenance of our built heritage in an era of redevelopment of Kansas City's urban core.

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Key Words: affordable housing, historic preservation, tax credits, redevelopment

GENTRIFICATION WITH A WHITE PICKET FENCE: NEIGHBORHOOD UPGRADING IN US SUBURBS, 1980-2016

Abstract ID: 376

Individual Paper Submission

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Ellen and Ding (2016) noted that “rigorous research on the extent, causes, and consequences of gentrification remains rare.” Gentrification is understood to be the process by which middle class families move into urban areas, causing an increase in property values, and displacement of other groups (Lees et al. 2008). We seek to expand understanding of gentrification, and argue that gentrification is a process of neighborhood change which can occur in any neighborhood regardless of its urban form, or location in a metropolitan area. The focus on urban areas in gentrification research has yielded a focus on dense neighborhoods within central cities, while ignoring less dense suburbs not within those jurisdictions. We ask a simple research question: are suburban places gentrifying? We identify suburban gentrification, and further its pathways over time, in the 25 largest US metropolitan areas from 1980-2016 at the census tract level.

Neighborhoods in metropolitan areas like Seattle, Los Angeles, Washington DC, and Chicago have experienced neighborhood change that meets most qualifications for gentrification: increasing home prices, changing demographics, upgrading education credentials, and increasing incomes. However, many of these neighborhoods are lower density suburbs, not the traditional, revitalizing urban core areas associated with the “back-to-the city movement” (Smith, 1979). These places generally tend toward having more single family homes, both attached and detached, and more open space than their urban counterparts. While their urban form may be different, these places are experiencing change that meets all the qualifiers for gentrification – except being located in dense urban areas.

We first limit our dataset to suburban census tracts (which proxy for neighborhoods) based on established methodologies (Forsyth, 2012). Neighborhoods are classed as suburban based on the type of housing stock dominant in the neighborhoods; this includes neighborhoods both within central cities and outside them that may be suburban in character. We also separate neighborhoods outside of central cities in bordering municipalities from those within the cities, in order to observe and discuss gentrification and policy implications in less familiar places. To observe gentrification as a process over time, neighborhoods are grouped using a clustering algorithm which sorts neighborhoods into groups based on race, income, home prices, and educational credentials of residents. We then utilize an unsupervised machine learning algorithm known as affinity propagation to identify trajectories of gentrification across decades. Gentrification is said to occur when a neighborhood switches from a clustering group of lower-income, lower-home value, more diverse and less educated place; into a clustering group one with higher home values, incomes, and educational credentials. This clustering method allows for

multiple “forms” of gentrification to occur and avoids strict threshold-passage definitions which can exclude some places arbitrarily.

We find that after a slow start in the late 20th century suburban gentrification has dramatically accelerated in certain metropolitan areas in the 21st - particularly in neighborhoods which are seeing education credential and home price increases simultaneously. We also find that suburban gentrification is much more prevalent in some metropolitan areas than in others. Our main finding is that gentrification spreads evenly across municipal boundaries into suburbs – Neil Smith’s flows of capital are not restricted by political boundaries. Our results should be of particular interest to planners in suburban municipalities and polities which are not traditionally considered battlegrounds for gentrification. Tools to prevent some of gentrification’s negative consequences, such as displacement, may need to take different forms in suburbs with higher homeownership rates, fewer rental units, and significantly less commercial real estate.

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Key Words: gentrification, suburbs, urban planning

TO WHOM DO HOUSING POLICIES PROVIDE STABLE HOUSING? EVIDENCE FROM THE PANEL STUDY OF INCOME DYNAMICS

Abstract ID: 378

Individual Paper Submission

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As the shortage of affordable housing for low-income households has become commonplace in the United States, housing instability (Joint Center for Housing Studies of Harvard University, 2017), represented by frequent residential moves caused by housing-related hardships, has become a prevalent problem in the United States (Desmond, 2015). Despite growing evidence supporting the prevalence of housing instability, little evidence exists about the associations between federal housing programs, intended to provide stable housing to program participants, and their housing instability experience.

This study addresses several important questions that remain largely unanswered. If federal housing programs are designed to provide stable housing to program participants, does the stabilizing effect of housing assistance remain after program participants make their transition off the assistance? Does the stabilizing effect of housing assistance vary across housing programs? Who is more likely to suffer from housing instability when receiving or leaving the assistance? A better understanding of the varied associations between housing assistance and housing instability is important in the contemporary context of limited budgets for housing assistance in the United States (Collinson, Ellen, & Ludwig, 2016).

By analyzing the Panel Study of Income Dynamics (PSID) data from 1999 to 2009 combined with the Assisted Housing Database (AHD) and other secondary data, I explore associations between associations between housing assistance experiences, including receiving or leaving housing assistance, and subsequent housing instability based on 1,516 low-income renter households. By incorporating logistic regression models predicting the likelihood that a household experienced housing instability during a two-year period, I compare six different statuses associated with events of receiving and leaving federal housing programs: (1) Housing Choice Voucher (HCV) holders, (2) HCV leavers, (3) public or subsidized housing residents, (4) public or subsidized housing leavers, (5) other housing assistance recipients, and (6) unsubsidized income-eligible households.

This paper identifies three distinctive relationships between housing assistance experiences and subsequent housing instability. First, although receiving housing assistance, including receiving the HCV program and living in public or subsidized housing, reduces the likelihood of experiencing housing instability on average, HCV holders are relatively more likely to experience housing instability than participants of place-based programs. HCV leavers and public or subsidized housing leavers are much more likely to experience housing instability than participants of place-based programs. Second, the stabilizing effect of housing assistance remains only among non-Hispanic white households with secure jobs. African American households without secure jobs are likely to suffer from housing instability after they make the transition off the assistance. Third, among housing assistance leavers, relatively low-income, less educated, and insecurely employed, African-American households in certain life stages are more likely to experience housing instability after leaving housing assistance.

This study is the first empirical paper to examine varied associations between housing assistance experiences and subsequent housing instability based on the nationwide panel data. The combinations of housing programs and household characteristics that weaken the stabilizing role of housing assistance identified in this study would allow public housing authorities (PHAs) to dedicate limited slots to those who would most benefit from the programs. Moreover, comprehensive housing programs with social supports could focus on those who are less likely to achieve housing stability after leaving the assistance.

Citations

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Key Words: housing instability, affordable housing policies, the Panel Study of Income Dynamics

NEIGHBORHOOD DISTRESS, RACIAL SEGREGATION, AND THE LOW-INCOME HOUSING TAX CREDIT PROGRAM

Abstract ID: 481

Individual Paper Submission

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The Low-Income Housing Tax Credit (LIHTC) program has become the largest production program for subsidized affordable housing. The program has also been subject to accusations and litigation that it exacerbates racial segregation by locating a disproportionate amount of housing in predominantly minority, and often low-income, neighborhoods.

Prior research compares the HCV and LIHTC programs for their entry into neighborhoods in terms of poverty concentrations and racial segregation. Among the major points of comparison is the level of distress in the neighborhoods where the assisted households in the two programs locate. The comparison is now expanding to assess the extent to which the program promotes racial integration or segregation. In 2016, the U.S. Supreme Court upheld a Texas court decision finding that the geographic placement of LIHTC developments was exacerbating racial segregation. In addition, HUD now mandates that communities prepare an Affirmatively

Furthering Fair Housing plan, determining whether their rental assistance programs promote or inhibit racial integration (although the Trump Administration postponed the deadlines for submission of the plans until 2020)

The research to be presented will address these fair housing issues as well as continue the authors' efforts to identify neighborhoods by level of distress. The level of racial separation or integration will be assessed by the racial and ethnic composition of the neighborhoods. The location of LIHTC developments and other assisted housing will be examined in terms of entry into neighborhoods by level of distress and racial segregation. Among several areas of comparison will be the degree to which LIHTC developments in central cities and in suburbs are located in census tracts with low levels of distress and racial segregation.

Citations

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Key Words: Housing Policy, Low-Income Housing Tax Credit, Neighborhood Distress, Racial Segregation, Fair Housing

RACE, SOCIOECONOMIC PRIVILEGE AND THE FIRST PUBLIC HOUSING RESIDENTS IN THE US

Abstract ID: 487

Individual Paper Submission

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Between 1934 and the time of the 1940 Census (April 1, 1940), the U.S. government built and leased over 30,000 units of public housing across 41 cities in 22 different states, Puerto Rico and the U.S. Virgin Islands (U.S. Department of the Interior, 2004). Built under the Public Works Administration (PWA) New Deal program and the fledgling U.S. Housing Authority (USHA) created by the Housing Act of 1937, this wide geographic distribution indicates an attempt by politicians and policymakers to spread this housing across much of the U.S. However, exactly who benefited from the first public housing projects and specifically how this benefit was distributed across racial groups is not very well understood.

In keeping with policy precedent and the de jure racial residential segregation of the era, with only a handful of exceptions these first public housing projects were racially segregated. As of 1940, housing authorities had designated 61 percent of the public housing projects for white households, comprising almost 70 percent of the public housing units in this era. In comparison, housing authorities offered only 33 percent of projects to black households, comprising about 27 percent of total public housing units. The balance of projects were officially racially integrated, but typically spatial segregation by race existed within the integrated project itself.

With a demand for public housing that far outstripped supply, housing authorities could carefully screen for tenants from the thousands of households that applied (Radford, 1996; Marcuse, 1986). Archival research (Bloom, 2008; Radford, 1996) and other preliminary evidence from New York City indicates that households selected to live in public housing more typically reflected a "nuclear family" household structure, earned more money, and had a firmer attachment to the labor market than the pool of households eligible to live in public housing (Allen and Van Riper, 2018). By several measures of socioeconomic status, black households selected to live in public housing in New York during this era eclipsed white households living in public housing. In particular, black householders living in public housing tended to have substantially higher educational attainment than their white counterparts did. While some scholars have noted this difference (Radford, 1996), to date no scholars have investigated how widespread and systematic the exceptional nature of black public housing residents was in early public housing developments.

To investigate this issue we use a unique methodology that compares addresses of public housing projects to enumeration district data from the 1940 Census to identify residents of public housing in the U.S. at the time of the Census. Because we use the de-identified, complete count 1940 Census, the public housing residents that we identify represent the universe of public housing residents in the U.S. as of 1940. We compare white and black public housing households to gain insight into how the socioeconomic characteristics of public housing residents varied by race across different regions of the U.S. We believe that our research results will indicate that the earliest black public housing residents had higher incomes and better educational attainment than white public housing residents, but that these differences are not related to differences between the pools of black and white households eligible to live in public housing. Rather, we expect to find that black households had to meet a higher socioeconomic threshold to live in public housing compared to white households.

Citations

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Key Words: public housing, race, 1940 Census, Great Depression

UNDERSTANDING PERCEIVED AND IDEALIZED NEIGHBORHOOD LIVABILITY IN THE CONTEXT OF TRADE-OFFS BETWEEN HOUSING CHOICES AND TRANSPORTATION OPTIONS

Abstract ID: 529

Individual Paper Submission

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In recent years, livability, a concept encompassing many domains of living environments across multiple spatial scales, has emerged as a frequently pursued regional vision and community goal that underpins various planning strategies aimed at expanding transportation options, promoting affordable housing, encouraging active land uses, and revitalizing urban centers (Herrman and Lewis, 2017; Harrell et al., 2014). Many scholars, practitioners, and policy-makers believe a place of greater livability supports a more active life style, a greater use of environmentally sustainable travel, and more social interactions, and thus see the convergence between urban livability and sustainability (Gough, 2015). Indeed, an interagency partnership among three Federal Agencies, US Environment Protection Agency, US Department of Transportation, and US Housing and Urban Development, labeled as "Partnership for Sustainable Communities" (PSC), actively engages with local communities to coordinate investments in and policies for equitable/affordable housing development and transportation-efficiency maximization, two major aspects defining a place's livability.

While the consensus among many planners and designers appears strong about what should be the attributes or conditions for an ideal livable community or neighborhood, the specific factors that affect a place's livability are shaped by the values/preference of its inhabitants, their perception of environmental qualities, and their unique, lived experiences in local environments. A growing body of empirical research has revealed that many livability-affecting factors are context-dependent and some of the factors are very much subjectively determined and culturally embedded (Okulicz-Kozaryn, 2013). Nevertheless, housing, transportation, and land use are the factors receiving the most and immediate attention in the planning field when it comes to create livable communities (US DOT).

This paper examines opinions about and perceptions of neighborhood livability from residents living in three communities in Oregon. Specifically, this paper aims to address how residents' perceived neighborhood livability is affected by availability of transportation options and housing choices. Data were collected via a targeted survey within three MPOs - Albany, Eugene-Springfield, and Medford – in Oregon. These MPOs represent a small, medium and large MPO within the state, exhibiting varying political and economic conditions. Information collected from the survey helps reveal respondents' assessment of various neighborhood conditions, their attention paid to livability factors during their residential location decision-making process, and their visions for ideal neighborhood environments. GIS data are used to measure the physical characteristics of a neighborhood (e.g., land use mix, housing densities, transportation services, etc). Using logistic regression analysis, this paper reveals that limitation in housing choices due to the lack of housing-type diversity and unaffordability constrains residents' neighborhood livability outcome and affects their visions of livable environments.

This paper makes contribution to the livability literature by understanding the perceived and envisioned neighborhood livability in the context of trade-offs between housing choices, transportation options, and service accessibility that housing consumers have to make in their location decision-making process. As America's (sub)urban development since the WWII has been characterized with a lack of (conscious) coordination between housing and transportation planning, it is not unreasonable to speculate that residents, especially those residing in suburbs, have to face those trade-offs frequently. Such experiences could lead people to internalize certain residential environments, such as low-density, exclusive single-dwelling neighborhoods poorly connected with other land uses, as the only feasible livable options. Such internalization may have significant implications for implementing planning strategies aimed at retrofitting existing residential landscape via densification and public transportation investment.

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Key Words: Livability, Neighborhood accessibility, Expanding transportation option, Housing location choice, Housing affordability

DISPLACEMENT AND POLITICAL VULNERABILITY

Abstract ID: 552

Individual Paper Submission

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As American cities gentrify (Ellen and Ding 2016) the phenomenon of direct displacement, the uprooting of lower-income households as a result of public sector redevelopment or private sector investment and upgrading, is becoming widespread. Exclusionary displacement (Marcuse 1985) is also becoming more common as whole neighborhoods see housing cost increases that push them out of reach of lower-income households who might have previously moved in. In this paper we examine the displacement of 100 households forced from their homes when their landlord sold the property to new buyers looking to redevelop for a higher income market. The households resided in the Lowry Grove mobile home park located in an inner ring suburb of Minneapolis. As Sullivan (2017) notes, the loss of mobile home parks is a major means by which affordable housing is disappearing in American metropolitan areas. A majority of the residents were undocumented workers from

Central America. As such, the case consists of a convergence of several dynamics that threaten the affordable city: suburban government reluctance to provide affordable housing, the housing precarity of low-income households, the heightened vulnerability of undocumented workers in the contemporary U.S. political climate, and the pressures that current land markets place on existing unsubsidized affordable housing.

We conducted in-depth interviews with 50 residents displaced by the sale of the Lowry Grove mobile home park. More than 50% of the respondents were Spanish speaking immigrants. Our interviews covered the reactions of families to the notice of the park closure, the experience of moving, and post-relocation adjustments. Specifically, we focused on the impact of the move on their income and working life, on family structure, and on community support. As many of the respondents feel themselves in danger of deportation they reported great reluctance to engage social and government systems to obtain assistance during their relocation. Their experiences highlighted the weakness of legislation in place to ostensibly prevent displacement of mobile home residents and to assist them should displacement occur. The paper ends with planning and public policy recommendations for more supportive systems for politically vulnerable low-income populations at risk for displacement.

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Key Words: Displacement, Redevelopment

NOT YOUR PARENTS' SUBURB ANYMORE: THE SUBURBAN LIFESTYLES OF YOUNG ADULTS ZOE SOTIRAKOS AND MARKUS MOOS SCHOOL OF PLANNING UNIVERSITY OF WATERLOO

Abstract ID: 554

Individual Paper Submission

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This paper engages with two critical contemporary issues in planning: The topic of changing young adult location and housing, and the changing character and form of suburbs. Given the large size of the Millennial generation (the most recent cohort of young adults), their level of impact on the housing market has the potential to be substantial. While research on Millennial housing and location is prevalent, few if any have asked specifically about young adult suburban preferences. Our research thus asks two interrelated questions: What share of young adults is living suburban lifestyles? And among suburbanites, what are the housing and transport characteristics of suburban young adults?

Traditionally, suburban lifestyles in both the United States and Canada have been associated with particular features: Owning a detached home and automobile-based lifestyles. We use the 'suburbanisms' as a way life approach to study lifestyles on a spectrum from most suburban to most urban (see Moos & Mendez, 2015). Following methods from our prior research, we operationalize suburban lifestyles based on tenure, dwelling type, and car use, creating eight categories ranging from the most urban (ownership, single-detached dwelling, automobile-based commute) to the most suburban (renting, multiple dwelling, non-automobile based commute). We conduct this analysis using nation-wide census data from Statistics Canada in 1996, 2006 and 2011 (also see Moos and Walter-Joseph, 2017).

Contrary to previous development patterns suburbs are beginning to look similar to the patterns evident in urban centers (Grant and Scott, 2011). Post-war single-detached housing areas are becoming mixed with townhouses,

apartments and detached houses on compact lots. Our analysis will allow us to identify if young adults are in fact leading the changes in development patterns in the suburbs due to their changing preferences.

Preliminary findings indicate that young adults are most highly represented in the most urban categories. A decreasing share of young adults, compared to the total population, owns a detached dwelling with an automobile-based commute. For instance, in 2011 young adults made up 15 percent of the total population owning detached dwellings and driving to work—this is down from 22 percent in 1996. An increasing share owns an attached dwelling with a non-automobile-based commute; whereas a decreasing number of young adults are renting a detached dwelling with an automobile based commute. The findings illustrate the growing embrace of urban lifestyles by young adults, and that elements of the suburban lifestyle are changing compared to previous generations.

The findings from this research show that at least in the Canadian case, planning policy that has been pushing complete communities and densification are in fact being reflected in the housing and location decisions of young adults (Brewer & Grant, 2015). The research also serves to caution contemporary research on Millennials—even though this demographic is more likely to express demand for urban ways of living, this still leaves a large share of young adults living suburban ways of life. The kinds of lifestyles associated with young adult suburbanites are, however, also changing in that young adults are residing in suburbs that are characterized by higher densities, renting, and less auto-oriented lifestyles. The research urges planning practice and research to reconsider our conceptualization of suburbs as purely, homogeneous, low-density landscapes (Moos and Mendez, 2015).

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Key Words: Millennials, Suburbs, Suburbanisms, Housing, Residential location

SOCIAL VULNERABILITY IN DISASTER-RELATED BUYOUTS: A CASE STUDY OF HARRIS COUNTY, TEXAS

Abstract ID: 583

Individual Paper Submission

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Home buyout programs have been implemented for the past four decades to facilitate the post-disaster relocation of residents out of hazardous areas to minimize future disaster risk. Limited research has identified disparities in the buyout decision-making process and outcomes. Socially vulnerable populations—households who are elderly, female-headed, low-income, minority, and/or who have lower levels of education—tend to experience more negative effects from disasters and experience disproportional hardship in coping with their built environment and circumstances (Cong, Nejat et al. 2017). These factors appear to be especially important in determining relocation decisions (Bukvic, Smith et al. 2015). Existing research examines the driving factors of resident relocation decisions at the individual level (Binder, Baker et al. 2015, Cong, Nejat et al. 2017), but research examining the neighborhood-level factors on home buyouts is very limited.

The purpose of this paper is to explore the impact of social vulnerability factors at the neighborhood level on the probability of single-family home buyouts conducted between 1985 and 2016 in Harris County (Houston), Texas. We seek to improve understanding of (1) Harris County's current home buyout program for flood mitigation, (2) the socio-demographic factors of neighborhoods that affect home buyouts, and (3) the impact of social vulnerability to flood at the neighborhood level on home buyout occurrence.

The study area of this research is Harris County, Texas, where the devastating flooding events have been frequent since the city of Houston was founded in 1836. Harris County experienced 16 major flooding events crested at over 40 feet between 1836 and 1936, and it still occurs on average about every two years, including catastrophic flooding each of the past three years, in April 2015, August 2016, and August-September 2017 (Hurricane Harvey). Houston/Harris County is perhaps the largest, most diverse, and most exposed city in the United States, making it an excellent case for this research.

The authors take a comprehensive view of county-level buyout projects carried out by Harris County Flood Mitigation District (HCFCD) for homeowners living in flood-prone areas. Flood-related home buyout data was combined with ACS 5yr estimates of Census block group data, parcel data, Harris County floodplain maps, and secondary data from the municipality, to determine the relationship between flood home buyouts and socio-demographic characteristics at the block group level. Logistic regression was conducted with 3,047 geo-coded individual home buyout cases implemented in Harris County and different demographic characteristics in relation to physical characteristics of flood exposure. This paper will discuss an overview of post-disaster home buyout implementation in Harris County, findings from the statistical analysis, and policy implications and suggestions for home buyouts in practice.

This study expects to contribute to the design of buyout programs and improved outcomes by improving our understanding of what local buyout programs accomplish over the long-term, transcending the cost-effective approach. Although research on post-disaster home buyouts has dramatically increased since the early 2000s, the studies are relatively new and little research has examined the propensity for home buyouts based on neighborhood characteristics. In this respect, this study may give planners a comprehensive view of disaster-related home buyouts in the neighborhood context and an insight of hazard mitigation and community resilience.

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Key Words: Post-disaster Relocation, Home Buyouts, Floods, Vulnerability, Community Resilience

MEANING OF “NEIGHBOR” IN THE NEIGHBORHOOD

Abstract ID: 587

Individual Paper Submission

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Introduction

Interest-based communities have proliferated online, which has led scholars to identify the hybridization of digital and physical spaces. To compete and strengthen ties, neighborhoods have extended their presence to online spaces via web pages, social media, and neighborhood apps. Studies have claimed that opportunities and challenges exist

in this use of online spaces for neighborhoods (Johnson & Halegoua 2013; Afzalan, Sanchez, and Evans-Cowley 2017). However, the neighborhood remains a primary unit of measurement and mobilization among planners. Discussions among neighborhood residents on social media have been used as indicators to measure neighborhood “well being” (Farnham et al. 2015). Planners have long pushed for planning at the neighborhood level and, internationally, governments from the U.K. to the Netherlands are asking non-profits and neighborhood groups to take on more of the work of the “state” (Needleman & Needleman 1974; England 2008; Pollitt and Dan 2011; Painter 2012). What is missing from these discussions of neighborhood and the expectations of neighborhoods is what it means to be a “neighbor” today, particularly in the digital age. How “neighborly” are people willing to be? What can we as planners expect from neighbors? Does digital media help or hurt when it comes to being a neighbor? Planners and other policymakers need to be cognizant of how much to ask of those at the grassroots to avoid mismatches between obligations, expectations, and neighborly “ethics of care” (England 2008) and capacities.

Methods

We address the meaning of “neighbor” and “neighborhood” through 21 interviews with residents and surveys of 212 households out of 573 in the Indian Hills Neighborhood of Lawrence, Kansas. The surveys were administered in 2013 and follow-up interviews were conducted in 2014. Aside from being slightly older, the demographics of the survey respondents parallel the U.S. Census demographics for the neighborhood and Lawrence, Kansas.

We conducted approximately one hour-long interviews about communication within the neighborhood and with neighbors. We asked what makes a “good” neighborhood and neighbor; what they expect from their neighborhood and neighbors; what are the perceived benefits and drawbacks of living in close proximity to others.

Findings and Relevance

Based on the interviews, we suggest that residents regard or would like to regard the neighborhood as a service-oriented community built on informal, and mutual insurance rather than social or political models of neighborhood engagement and organization. Neighborliness does not extend to friendship or more social interactions. It does not mean political organizing unless there is a crisis. The conundrum here is how people can know when others need help or when there is a crisis when they are not friends, do not belong to a neighborhood organization, and they do not use digital media to communicate. It seems that proximity, chance encounters, and informal communication are key.

From the interviews and the surveys, we know that people in this particular neighborhood want to be able to help each other, if they know their neighbor needs help. They will give someone a ride to the store when they need it or provide a casserole if someone is sick, but they are not going to be “friends” on Facebook or see each other socially, they will only be “neighbors.”

The emphasis on observability has implications for neighborhood design, visibility, and privacy. The emphasis on helping, but not friendship, has implications for how to use digital media. The desire to organize only when there is a crisis has implications for long-term interactions between neighborhoods and policymakers. The desire for providing a little help, but not too much help, has implications for neighborhood planning and how much policymakers can expect from neighborhoods as service providers.

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Key Words: neighborhood organizations, neighborhood satisfaction, digital media, communication, community

LOCATION EFFICIENCY AND THE PROVISION OF AFFORDABLE HOUSING: EMPIRICAL EVIDENCE FROM A NATIONAL STUDY

Abstract ID: 601

Individual Paper Submission

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The U.S. Department of Housing and Urban Development's (HUD) simple percentage of income-to-housing cost measure to define housing affordability disregards other costs of living variables such as transportation (Jewkes & Delgadillo, 2010). As transportation is the second largest expenditure category for a typical American family, so consideration of housing costs only to measure affordability can be unfair to low-income families. A recent national study by Hamidi et al (2016), found that, 44% households supported by Multifamily Section 8 program spend more than 15% of their income on transportation and hence those properties are unaffordable. A follow up study in Dallas Fort Worth Metropolis also found that, 69% of major HUD assisted programs are unaffordable in terms of transportation costs (Hamidi et. al, 2018).

The Multifamily Section 8 program is only one of the HUD assisted programs that was studied at national level considering the transportation costs. But this program has been discontinued and it currently includes only the renewal of existing contracts. There is a systematic gap to nationally investigate the link between housing and transportation costs for other major housing programs such as Low-income Housing Tax Credits, Public Housing and HOME Investment Partnership among others. According to HUD (2013), about \$35 billion have been spent annually on these programs, yet there is little understanding on the effectiveness of these programs with regard to transportation costs. This research seeks to identify whether and to what extent the HUD assisted major rental housing programs are truly affordable in terms of transportation costs in all Metropolitan Areas (MSAs) in the US. We collect the disaggregated data of major rental assistance programs in 363 MSAs in the US. Then we geocode the data and measure the built environment around each property. We consider the built environmental variables that are related to travel, known as the D variables (Ewing & Cervero, 2010) such as, density, diversity, design, destination accessibility and distance to transit. Based on these variables, we calculate the transportation costs using the transportation cost models developed by Hamidi et al. (2016). Then, we divide the transportation costs by the income level of people qualified to live in these properties. The outcome determines whether the property is affordable for a typical low-income household in terms of transportation costs. We also make national comparisons of auto-oriented and transit-oriented MSAs.

This study is one of the first attempt at national scale to evaluate performance of different major housing programs by factoring in transportation costs for address level data. The recommendations of this study can help federal and state housing authorities to evaluate the affordability performance of these properties and to make more location efficient investments. Based on our findings, we propose a list of policy implications to promote transportation equity, location efficiency and combined effects of housing and transportation in planning for affordable programs.

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Key Words: Transportation Affordability, Major Rental Assistance Programs, Location Efficiency

PARTICIPATION IN NYCHA’S NEXTGENERATION PLAN: TENANT NEIGHBORHOOD OWNERSHIP IN A ‘PUBLIC’ REDEVELOPMENT PROCESS

Abstract ID: 608

Individual Paper Submission

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In 2015, Mayor Bill de Blasio introduced NextGeneration NYCHA, a 10-year proposal that intends to fill the New York City Housing Authority’s (NYCHA) \$17 billion capital budget shortfall and revitalize the city’s distressed public housing through a series of predominantly privately financed initiatives. The most controversial component of the plan includes leasing ‘underutilized’ land adjacent to existing public housing to private developers, who will be responsible for constructing and managing mixed-income, mixed-use developments on NYCHA playgrounds, parking lots, and green spaces. While NYCHA officials are assuring existing residents that the plan will not result in any direct residential displacement, current tenants have already expressed skepticism towards the inevitable changes that will come with the private construction of over 3,500 market-rate apartments (NYCHA 2016). Through a multi-site qualitative case study, this dissertation project will focus on the role of public housing residents and evaluate how they conceptualize ownership of their neighborhood in the midst of a redevelopment process.

In this project, I will first ask: How do NYCHA residents use the NextGen participation process to define their sense of ownership over their public housing project, both before and during redevelopment? How does this vision differ from how policymakers are conceiving the ‘future’ neighborhood of NextGen NYCHA? And how do residents reconcile feelings of ownership with the role of the housing authority in managing their ostensibly ‘public’ neighborhood, especially as NYCHA asserts their right to change it? This project is broadly motivated by analyses of mixed-income housing initiatives that fail to comprehensively assess tenant engagement and resident resistance to the planning process in mixed-income housing redevelopments (Goetz 2016), as well as assessments of participation that seldom inquire how residents may seek alternative goals beyond influencing outcomes (Day 1997).

To chronicle the experience of residents who remain in-place, I use a single case study with two embedded units of analysis to evaluate the community planning process at 2 of 4 designated NextGen NYCHA pilot locations. I review policy and media reports, attend stakeholder meetings and planning charrettes, and conduct semi-structured resident and stakeholder interviews at the Cooper Park Houses in Williamsburg, Brooklyn and the Wyckoff Houses in Boerum Hill, Brooklyn. Using discourse analysis, this chapter will present the initial results from this research, which shows how public housing tenants are using the participation processes as a forum to define their right to their neighborhood, as a space to advocate for other housing goals, and as a platform to spotlight a history of negligence by the housing authority.

Participation in planning has long been critiqued for reducing the role of residents to mere ‘tokenism’ (ibid). However, such critiques focus on how participatory processes influence outcomes, ignoring the other ways residents use engagement for their own value frames (Buunk and van der Weide 2015). Increasingly, as the state has retreated from robust housing interventions and planners have further bureaucratized participation, savvy public housing tenants are becoming aware of their inability to change the overall course of neoliberal policies in their projects. In the case of NextGen NYCHA, tenants do not see participation as a means to actually influence the planning process or have a say in the course of the plan, but instead as a way to assert their ownership over

their changing neighborhoods. While NYCHA policymakers are still heralding the legitimacy and transparency of the plan's participatory elements, tenants are using participation to caution against secondary forms of displacement while also affirming a coherent group identity (Young 1991) prior to new residents moving to their long-neglected neighborhoods.

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Key Words: participation, public housing, neighborhoods, mixed-income development , tenant engagement

WHO MOVES UP? WHO MOVES OUT?: THE DETERMINANTS OF PRE- AND POST-MOVE INCOMES FOR LOW-INCOME HOUSEHOLDS IN CHICAGO

Abstract ID: 617

Individual Paper Submission

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Following the 2007 housing crisis, residential mobility rates within the United States have declined to an all-time low. When disaggregated by income, very low income and extremely low income households have also experienced declines in mobility rates; however, these rates are still disproportionately higher than the rates for households in higher income categories. Residential location choice for low-income households has been analyzed, but given the paucity of available longitudinal data, much of this work has focused on populations for which administrative data is collected such as households receiving Federal housing subsidies. Findings from studies that look at the value of mobility suggest that low-income households stand to benefit substantially from moves to more favorable sociodemographic conditions—particularly to areas with a greater share of higher-income households (Chetty, Hendren, and Katz, 2016). Yet studies that examine the overall exposure of low-income households to higher-income neighborhoods suggest that there are substantial barriers to entering and staying in these types of neighborhoods even when assisted housing subsidies are present.

In this paper, we examine the residential mobility patterns of extremely low income and very low income households, paying close attention to the characteristics that predict the mobility of these households. We focus on parsing out the relationship between household income in origin and destination locations, to interpret which low-income households are able to use residential mobility to not just “get ahead” to more favorable neighborhood conditions but also to increase prosperity and resources to support staying ahead. As a point of comparison, we examine the income levels of households that move but do not increase access to more favorable neighborhood conditions. Finally, as a point of reference for policy discussions, we examine mobility to and from public housing sites to better understand the qualities and tradeoffs of transitions to and from these neighborhoods. To accomplish this, we use a novel source of household-level longitudinal mobility data from InfoUSA to construct longitudinal portraits of household mobility over the period 2006-2014 for the Chicago metropolitan area.

Findings from descriptive analysis and our models of income differences between origin and destination communities show evidence that the sociodemographics of origin neighborhoods play a strong role in predicting the sorting of low-income households into new residential locations as well as changes in household income at destination. Neighborhood racial composition, income, and residential vacancy rates all serve as important determinants of mobility. The presence or absence of public housing also plays an important role in the sorting of both very low income and low-income households. Taken together, our findings underscore the need for a more detailed understanding of the intersection between place-based interventions and residential mobility policy—particularly for low-income households.

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Key Words: Residential Mobility, Low Income, Neighborhood Effects, Big Data

IMPACTS OF SHORT-TERM RENTALS ON HOUSING AFFORDABILITY IN THE SAN FRANCISCO MSA: THE DARK SIDE OF THE SHARING ECONOMY

Abstract ID: 636

Individual Paper Submission

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Whereas Airbnb and its users promote its positive effects on tourism and cultural exchange, Airbnb can also create various problems to the community such as nuisance spill over to residential neighborhoods and housing market distortion (Gurran and Phibbs, 2017). The short-term rental housing options supported by the sharing economy have now become a major disruption in the housing and tourism sectors. Many rental property owners switch from a long-term rental housing market to a more profitable short-term lease/home sharing market using online platforms such as Airbnb, creating or adding to an affordable-housing crisis in many large metropolitan areas.

The proposed research will study the impacts of short-term rentals in the form of Airbnb listings on the rental affordability and the long-term rental housing stock in the San Francisco Metropolitan Statistical Area (MSA). The study aims to undertake a longitudinal as well as a cross sectional analysis. We carry out a longitudinal analysis for the City of San Francisco where Airbnb listing data is available for five years from 2013 to 2017 whereas, the cross-sectional study expands to the whole San Francisco Metropolitan Region where we were able to scrape the data only for 2017. We convert all Airbnb listings into a census tract level composite index that takes into account availability through the year, number of available bedrooms, and type of listings.

Our basic modeling strategy will be a spatial lag model in which rental housing affordability is regressed on Airbnb listings' share of the total rental housing stock and other neighborhood attributes. We will employ multiple indices to measure rental affordability, including percent burdened households, percent overburdened households, and gap between minimum wage and the wage needed to afford the fair market rent for a two-bedroom unit. Other neighborhood characteristics affecting rental affordability include location variables (e.g. distance from BART stations, costal location, and distance to the CBD), socio-economic variables (e.g. education, unemployment rates, job accessibility, etc.), and school quality.

Overall, this study will contribute to the body of literature revolving around the debate through a quantitative analysis that can guide discussion about the possible need for policies in response to the Airbnb-like businesses and the sharing economy in general.

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Key Words: Rental Affordability, Airbnb, Sharing Economy, Short Term Rentals

STAYING ON BOARD: NON-PROFIT HOUSING PROVIDER BOARD CAPACITY IN A CHANGING CONTEXT

Abstract ID: 643

Individual Paper Submission

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For decades, non-profit social housing in Canada has been supported by volunteer boards of directors. These boards have managed many different aspects of social housing development and provision, from establishing nonprofit organizations in the 1970s, '80s and '90s, to today providing governance and planning advice to staff. Often, particularly in smaller organizations, boards have a hands-on role in building maintenance and tenant relations. As such, members of boards, who may not have any particular expertise in housing provision, have played a key role in meeting demand for low-cost housing in Canada (Skelton, 1996).

Today, the policies shaping and supporting non-profit social housing are changing. The funding agreements between the state and the provider, which have governed the operation of social housing providers for the past forty to fifty years, are expiring. Boards of directors must now navigate a new context with fewer subsidies, particularly the deep, long-term subsidies that enable providers to offer low rents and rents geared to tenants' incomes. Moreover, many housing providers find that their buildings are aging and beginning to need significant upgrades and repairs; they also may find that their reserve funds, which were capped by the agreements, are too low to sustain the housing moving forward (CHRA2014). The relationship between the state and the housing provider is now increasingly shaped by commodification and privatization of housing (Rolnik, 2013).

These challenges would be difficult for any board to navigate. While many housing providers have strong boards that are eager to take on these challenges, others do not. In Manitoba, many boards are growing older, relying on a small number of directors, and, after having supported the housing for many decades, risking burnout. The capacity and effectiveness of the board and organization are thus threatened (Renz and Herman, 2016), and complicated by a changing fiscal and regulatory context.

We explore this issue through qualitative, semi-structured interviews with actors in the social housing sector, including non-profit housing providers, in Manitoba, Canada. We ask how ready they are to deal with a post-agreement context: what are the internal and external challenges facing boards as their agreements expire? And how are boards responding to the changing context in order to continue to support the organization? This paper

analyzes the role and capacity of boards of directors in navigating the expiring operating agreements in an increasingly complex context, with fewer state supports.

As the social housing operating agreements continue to expire over the next two decades, the social housing system in Canada will undergo a significant transformation. The capacity of housing providers to continue to offer low-cost housing is crucial in meeting the still-high demand. Boards of directors play a key role in supporting the work of non-profit housing providers; without a strong board, it could be difficult for a provider to maintain its sustainability over the long term. As long as non-profit housing is an important part of the housing system, ensuring that boards have the capacity to address new challenges will be integral to the long-term healthy functioning of the housing system.

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Key Words: Social housing, non-profit housing, governance, capacity, board of directors

HISTORIC (DISTRICT) TRENDS IN URBAN AMERICA: A CLUSTER ANALYSIS OF NEIGHBORHOOD CHANGE IN LARGE AMERICAN CITIES, 1970-2010.

Abstract ID: 652

Individual Paper Submission

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The historic district is a ubiquitous component of the American urban landscape. More than 2,000 cities and towns have created historic districts in neighborhoods of every demographic type within the full-range of market value. While they serve the same service-providing function and involve the same social, economic, and political complexity of any non-designated neighborhood, they do have one commonality among them: their publicly acknowledge and protected historical significance. The designation and regulation of a historic district to preserve it for future generations implicitly acknowledges that the cultural values associated with the present physical integrity of the district are inherently more beneficial to the public than any future economic value associated with modifications to its built fabric that deviates from its current character. Although every neighborhood has associated cultural values, this act of districting, and the associated regulations that follow, alters the decision-making of property owners and potential investors within the district and, as a result, affects neighborhood change in ways that differ from non-designated neighborhoods. The problem that both planners and preservationists face is the lack of research on the nature of neighborhood change in historic districts. With decennial census data from 1970 through 2010 derived from the Longitudinal Tract Database (LTDB), this study will classify and analyze neighborhood change in an estimated 400 residential historic districts in 57 cities throughout the United States. It will use a K-means hierarchical cluster analysis to classify neighborhoods by their socio-economic profile to analyze their longitudinal change. It is important to understand the differences in neighborhood change because preservation practice cannot evolve beyond its current curatorial, site-centered focus to a more urbanistic, outward looking approach that seeks “to connect historic preservation to the work of other fields and disciplines, such as planning, design, and education, in pursuit of solutions that address broader social goals” (Mason, 2006, p. 25) if it does not fully understand how preservation interventions interact with the dynamics of neighborhood. In evolving to a more urbanistic approach, preservationists can expand their practice beyond the simple binary to preserve or not preserve and more fully integrate a preservation ethic into the planning, management, and production of cities in the future.

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Key Words: historic preservation, neighborhood change, gentrification, land use

REBUILDING COMMUNITY DEVELOPMENT PRACTICE IN TROUBLED TIMES.

Abstract ID: 653

Individual Paper Submission

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Community development practice in the United States is in crisis. Neoliberal de-regulation, federal and state cutbacks, and a lack of sustained investment in community development systems at the municipal and metropolitan levels has deeply undermined the old model of community development practice. Decades of incomplete policy initiatives have left many planners with a legacy of distrust and neighborhoods have been left to fend for themselves.

In this context of turbulent technological, political and social change, planners working with communities of concern need new models for renewing community practice. Community-oriented planners need new methods to build trust and sustain mutual learning and respect. In an era of disorganization and dehumanization, local planners need innovative strategies to celebrate local and regional diversity, and to build community awareness through critical social learning and collaborative problem-solving.

How does one create a sense of belonging at a time when people feel alienated – from each other and from the work of community building?

At a time when optimism about the future is low, re-invigorating local awareness of neighborhood histories and community organizing provides a critical praxis for sustaining and renewing the underlying values and vision for transformative community building. This research addresses the challenge of rebuilding community development knowledge and neighborhood planning practice with a new method: collaborative production of local historical knowledge to visualize and celebrate shared collective memory.

Scanning the field of urban community planning and development initiatives, it is clear that cities across North America are struggling to reframe urban historical narratives and to rebuild community development practice through new strategies. This paper documents and reports an emerging method for co-creating shared histories in troubled times. This approach provides planners with a community building opportunity: making meaningful and shared histories of place as a basis for critical planning praxis.

This collaborative planning methodology recognizes the importance of co-creating local histories of resistance and community organization during a time of uncertainty and confusion. The paper describes a contemporary approach to building consensus through shared histories and collective memory. Co-creation is a methodology in which planning scholars, community organization staff, youth and students, and community stakeholders generate a new sense of shared, local knowledge. The purpose of the method is to rebuild local knowledge and trust as an underlying necessity for local efforts to strengthen community and renew community planning practice.

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Key Words: community planning, local history, community development , place

HOUSEHOLDS WITH RENTAL ASSISTANCE PROGRAMS AND THEIR ACCESSIBILITY TO TRANSPORTATION AND EMPLOYMENT

Abstract ID: 675

Individual Paper Submission

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Low-income families spend a big portion of their income on housing-related expenses. The primary locations of low-income families are in neighborhoods where many low-cost rental units are available generally in a central city due to the availability of low-cost rental properties in dilapidated areas and the expectation of using public transportation given their mobility limitations. Little research has done to evaluate if such households with rental assistance programs benefit transportation infrastructure in a central city. Low-income families living in a neighborhood with affluent transportation services can decrease transportation expenses by alleviating mobility challenges and result in increasing the accessibility to potential economic opportunity, including jobs.

This research examines the level of accessibility to transportation and job resources specific to tenants residing in rental assistance program units in the city of Houston, Texas. It evaluates whether the local transit authority reduces mobility barriers to enable these renters to access employment hubs where low-income jobs are clustered. Specifically, this research compares the residential outcomes of the two major rental assistance programs - Housing Choice Voucher (HCV) as a tenant-based program and Low-Income Housing Tax Credits (LIHTC) as a project-based program - and their transportation and employment accessibility. Firstly, this research evaluates how these tenants are served by the local transit authority and the state transportation department with the following transportation services such as Light Rail Transit (LRT), bus, park-ride stops, and transit centers, and with built-environment quantified scores, including walkscores and bikescores as the proxy for pedestrian- and biker-friendly environment. Furthermore, this research assesses spatial distributions of the assistance housing program tenants and the job hubs where most low-income employees are hired. The primary datasets are acquired from the Houston Housing Authority, the U.S. Department of Housing and Urban Development (HUD), the City of Houston, the Metropolitan Transit Authority of Harris County, and the U.S. Census Bureau.

Affordable housing programs significantly help low-income households without enough income sources to reside in urban cores that typically have higher accessibility to transit services. However, the evaluation of the accessibility to desired destinations, particularly employment centers, for this population is necessary. The findings will provide policy makers, housing analysts, and urban planners with a better understanding of transportation-related challenges that low-income families face and issues on the tenants' work-trips.

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Key Words: Affordable Housing Tenants, Accessibility to Transportation, Housing-Job Balance, Housing Choice Voucher (HCV), Low-Income Housing Tax Credits (LIHTC)

A SHARED HOUSE AS A POTENTIAL RESOURCE FOR COMMUNITY BUILDING

Abstract ID: 678

Individual Paper Submission

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One of the notable features in the demographic changes of developed countries is the rapid growth of aging population and one-person households (Yeung and Cheung, 2015). In Korea, the proportions of one-person households has risen from 15.5% in 2000 and 27.2% in 2015. The growth of one-person household is not just a global demographic change trend, but has a significant influence on the housing market. As an alternative to the increasing residential demand of one-person households, recently, a shared house is getting more attention. Distinguishable features of a shared house from other types of residence is not only to share space among residents, but also to social and emotional sharing among residents through interactions among people with similar hobbies and lifestyles (Oh and Choi, 2014). In this study, we hypothesized that the living experience in the share house may affect the sense of community where the shared house is located, as well as the community among the members in the household. To examine associations between the shared house living and formation of sense of community, our study focused on two research questions.

(1) What are the significant determinants of a shared house choice?

(2) How does the living experience of the shared house affect the sense of community?

For this purpose, we conducted stratified random sampling and selected 750 one-person households residing in Seoul. Of these, 250 residents lived in the shared houses. The survey questionnaire included socioeconomic characteristics of residents, residential satisfactions, sense of community, attitude toward sharing residential space and duration of residence. The “attitude toward sharing residential space” was composed of 4 items, and component score was calculated using principal component analysis. For identifying characteristics of sense of community, we conducted factor analysis and defined community attachment, interaction with residents and sense of belonging. To analyze the influence of the shared house residency on the sense of community, we classified residents into four residential groups based on residential preference and actual residential type (Schwanen and Mokhtarian, 2005) and examined the effect of dissonance between residential preference and actual residential type on three sense of community factors using OLS.

The analysis results showed that female with lower education level and younger age were more likely to choose the shared house. The residents of the shared house tended to have shorter period of residency, shorter commuting time, and positive attitude toward sharing residential spaces. With regard to the sense of community, the shared house consonant group (those who prefer the shared house and live in the shared house) had higher community attachment and sense of belonging than the elsewhere dissonant group (those who prefer the shared house but live elsewhere). Regardless of their actual residential type choice, the groups with lower preference for the shared house showed lower attachment, sense of belonging, and interaction with residents than the groups with higher preference for the shared house.

The results implies that the groups with positive attitude toward sharing residential space were likely to have a higher sense of community to which they belong. In particular, the living experience in the shared house reinforced the sense of community. Ironically the mean period of residency of a shared house is much shorter than

that of other types of housing because of unique characteristics of residence contract. Considering that the living experience in the shared house is significantly associated with the sense of community, it is necessary to supply a share house that can stay stable for a long time.

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Key Words: Shared house, sense of community, one-person household

SPATIAL PATTERNS IN COSTS OF MORTGAGE CAPITAL DURING THE CRISIS IN OHIO

Abstract ID: 691

Individual Paper Submission

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Equal access to lower-risk mortgages plays an important role for resurgence from the neighborhood decline by foreclosures during and after the subprime crisis. Nevertheless, inequalities in mortgage lending by neighborhood racial composition have been persistent in the U.S. housing market, lasting nearly a century since 1930s. Predominantly minority neighborhoods have been disadvantaged in mortgage lending. Thus, this study investigates spatial patterns in costs of residential mortgage capital by neighborhood race during and after the mortgage crisis.

Beginning with redlining in the early 20th century, disparities in mortgage lending by race and neighborhood racial composition have been evident in the lack of inflows of residential mortgages for predominantly minority neighborhoods, compared to predominantly white neighborhoods (Immergluck, 2009). During the subprime boom since the late 1990s, lenders engaged in reverse redlining, thereby steering predominantly minority neighborhoods to high-cost subprime mortgages. Accordingly, neighborhoods with high concentration of subprime loans, particularly predominantly minority neighborhoods, suffered from high rates of foreclosures causing neighborhood decline (Immergluck, 2009). In the wake of the foreclosure crisis, major conventional mortgage lenders have tightened their underwriting practices (Immergluck, 2011). Limited studies indicate disparities in mortgage lending patterns by neighborhood racial composition during the mortgage crisis period (Richardson, Mitchell, & West, 2016). Additionally, the proportion of higher-cost residential mortgages has gradually increased since 2010 and has been about twice as high among minority borrowers as compared to white borrowers even during the crisis period (Board of Governors of the Federal Reserve System, 2015).

Given these trends, this study aims to examine spatial mortgage lending patterns during and after the foreclosure crisis by asking: Do the cost of residential mortgages differ by neighborhood racial composition during and after the crisis? To address the question, this study investigates annual percentage rate (APR) spreads, which are differences between original interest rates and market rates at the mortgage origination, in the five metropolitan statistical areas (MSAs) in Ohio, including the Cleveland, Cincinnati, Columbus, Dayton, and Toledo MSA, during the crisis period, from 2008 to 2011, and the recovery period, from 2012 to 2015.

The study utilizes cumulative data from the American Community Survey, Home Mortgage Disclosure Act, and data on mortgage lending from CoreLogic®. This study begins with a description of APR spreads by neighborhood racial composition, utilizing Geographic Information System (GIS). The analysis is followed by a multivariate analysis where ordinary least squares (OLS) regression is utilized to evaluate the association between the APR spread and neighborhood racial composition, controlling for loan-level information such as credit scores,

loan-to-values, and debt-to-income at mortgage origination as well as various neighborhood attributes such as neighborhood income.

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Key Words: Mortgage Lending, Racial Inequalities, Neighborhood

WHERE HAVE ALL THE UNITS GONE? A PANEL DATA ANALYSIS OF CROSS-CITY VARIANCE IN AFFORDABLE HOUSING CONSTRUCTION IN CHINA DURING 2011-2015

Abstract ID: 709

Individual Paper Submission

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Housing for the urban poor is a worldwide challenge for achieving social equity and inclusive urban development. The existing literature on affordable housing policy have primarily focused on documenting the evolution and politics of affordable housing policy design, or assessing the impacts of affordable housing programs on recipient families' well-beings, neighborhood transformation, or the housing market. Relatively few studies have systematically investigated – from a policy implementation perspective – why some cities perform better than others in addressing the housing needs of low-income families.

In China, the past decade has witnessed a revived government commitment to provide subsidized housing for low and middle-income urban households, in response to the deteriorating affordability of the booming urban housing markets. In the Twelfth Five-Year Plan, the central government set out an ambitious target of building 36 million units of various types of affordable housing during the period of 2011-2015. This national target was allocated to each province and further down to each prefectural municipality as a political mandate for local leaders. Yet despite the increased amount of fiscal transfer by the central government to support affordable housing construction, implementation at the local level remained contentious and sluggish in some localities.

In this paper, we investigate how local (city) governments have complied with the top-down mandate of affordable housing construction in the Twelfth FYP. We compiled a city-level panel dataset of the annual number of units of affordable housing construction in each city during 2011-2015 through comprehensive review of local government documents. We combined this database with city-level statistics of economic and social development, housing market status, and local public finance, as well as variables capturing local leaders' political incentives, which are derived through content analysis of local leaders' political resumes. Preliminary analysis using fixed-effect models reveals a spatial mismatch pattern that cities with more fiscal capacity and worse housing affordability do not necessarily construct more affordable housing. Preliminary analysis also finds a curvilinear relationship with per capita GDP, indicating that, while poorest cities tend to perform worse, wealthiest cities also tend to have less commitment in affordable housing construction.

We believe that this empirical research contributes to the scholarly understanding of the politics of affordable housing policy in the international literature, as well as enlightens future policy making toward better implementation and performance of affordable housing policy in China.

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Key Words: Affordable Housing, Policy Implementation, Compliance, Central-Local Relationship, China

HOW DOES NEIGHBORHOOD ACTIVITIES INFLUENCE RESIDENTIAL SATISFACTION? EVIDENCE FROM SHANGHAI

Abstract ID: 733

Individual Paper Submission

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Residential satisfaction has drawn much more attention in geography, planning, sociology, and psychology with consideration of quality of life. Existing literature have examined neighborhood environment, housing conditions and personal socioeconomic attributes on residential satisfaction. In recent years, prior studies have concerned about the relationship between activity-travel behavior and residential satisfaction. Residents may spend different time and conduct different types of activities in neighborhoods. Some scholars suggest that usage of residential environment may have significant impact on residents' satisfaction with neighborhoods by enhancing their community involvement and social network. However, the effect of conducting activities in neighborhoods on residential satisfaction is still unclear. This study tries to fill this gap by examining the contribution of activity pattern in neighborhoods to residential satisfaction.

We apply a subjective evaluation framework of satisfaction, including both overall residential satisfaction and subjective evaluation to residential environment. The activity pattern is defined in terms of number and types of daily neighborhood activities conducted. Activities include shopping, leisure, social behavior, walking around, physical activities, eating out, and other types of non-work activities.

The study is based on an activity-travel diary data collected in Shanghai in 2017. Data were collected from March to July 2017. Different types of neighborhoods were sampled in ten suburban districts, including traditional housing, public housing, and commercial housing. Recruited participants were invited to answer the questionnaire through a face-to-face interview.

The questionnaire includes an activity-travel diary, which requests that participants record all activities conducted within the past 48 hours. Neighborhood activities are defined as activities conducted within 1 km distance from home. These activities are classified into four categories, including shopping, leisure/social activities, eating out, and other. Residential satisfaction data are collected by asking participants to answer five statement about residential environment by rating them using a five-point scale from 1 (not satisfied) to 5 (totally satisfied). The survey also includes personal and household socioeconomic information and social network.

The hypothesis is that conducting more activities in neighborhoods has positive impact on residential satisfaction, but different types of activities have various effects. Descriptive analysis is used to analyze the relationship between activity pattern and residential satisfaction. Then multi-level regression model is used to study the influential factors of residential satisfaction. Besides neighborhood activities, socioeconomic attribute, housing conditions, built environment in neighborhoods and social environment in neighborhoods are controlled.

For policy implications, the findings of this study will contribute to housing policies and community planning, by suggesting that policies aimed at promoting residential satisfaction should emphasize more on community facilities to increase daily neighborhoods activities.

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Key Words: Residential satisfaction, Daily activity, Community planning

NEGOTIATING THE COMPACT CITY: HOW ARE VOLUNTARY PLANNING AGREEMENTS SHAPING INFRASTRUCTURE OUTCOMES FOR HIGH DENSITY INFILL DEVELOPMENTS IN SYDNEY, AUSTRALIA?

Abstract ID: 747

Individual Paper Submission

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The compact city planning model – which prioritises urban consolidation and densification within existing urban areas – has become planning orthodoxy around the world over the past two decades, including in major Australian cities (Bunker et al 2017). Key to the success of this model is ensuring newly developed and densified urban areas provide good access to services and jobs through effective infrastructure provision. In Australian cities, essential public infrastructure like schools and public transport is generally planned and funded at the metropolitan level by state government, while responsibility for other neighbourhood public space and services falls to local councils. In the state of New South Wales, where Sydney is located, councils have two main contribution mechanisms for funding public infrastructure associated with new development: developer contributions and levies, and Voluntary Planning Agreements (VPAs). While both mechanisms are complex and controversial, VPAs raise particularly significant questions about whether they produce infrastructure equitably and efficiently. The extent of this controversy is reflected in the NSW government's recent decision to review the VPA system, to better regulate how these increasingly popular agreements are developed and reported.

VPAs allow developers to negotiate with councils to provide public facilities or services, in connection with a decision to allow density increases in an associated development. VPAs have been used to provide a range of important infrastructure, including public transport links, parks and libraries, but the process raises multiple concerns. VPAs are negotiated on an ad hoc basis, often relatively late in the planning process, creating uncertainty for communities already living in redevelopment areas. The contracts can be highly complex, and the negotiation process often lacks transparency. Outcomes are also dependent on the negotiating capacity and resources of the local council. As a result, this process can produce public infrastructure that doesn't reflect the local community's preferences or best interests. Developers also use infrastructure provided under VPAs as a marketing tool, and are thus incentivised to fund projects that are a selling point for market-rate housing, rather than infrastructure that serves lower-income and vulnerable residents. How likely is a developer to build a community centre or a public health clinic under a VPA, for example, rather than a park or a sports facility?

Planning scholars have long been interested in the impact of related planning agreements and planning obligations around the world, highlighting issues with equity and efficiency, as well as procedural challenges (Healey et al. 1995; Crook et al 2015). Yet despite this ongoing academic debate, mechanisms like VPAs remain popular for funding infrastructure provision. To date, however, there has been limited research documenting and critically examining the role of VPAs in providing infrastructure in connection with high-density infill housing development in Sydney (Gurran et al 2009; Ruming 2012). This paper addresses this gap, drawing on the results of a multi-year mixed methods research project assessing the outcomes of compact city planning in Sydney, including a policy review, census data analysis, and 32 key stakeholder interviews. The paper also provides a detailed case study of VPA-funded infrastructure in Wentworth Point, a major high-density infill redevelopment area in Sydney's inner west, now home to over 7000 residents. Through this case study, the paper illustrates some key concerns raised by this controversial approach to infrastructure provision, and examines whether the government's proposed amendments to the VPA system will adequately address these concerns. In doing so, the paper contributes to the ongoing academic debate over planning obligations, and assesses the implications of planning agreements for the equity and inclusiveness of the success of the compact city planning model.

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Key Words: planning gain, compact city , infrastructure , equity, densification

THE IMPACT OF WELFARE FACILITIES ON HAPPINESS OF THE ELDERLY: EVIDENCE FROM SEOUL, KOREA

Abstract ID: 750

Individual Paper Submission

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Our world is moving toward a more aged society. One concern about this situation is that a smaller workforce will struggle to support a growing proportion of the old. Another one is that older people are expected to be isolated from our society because a large proportion of them live alone. With a perspective of social welfare, the latter issue is huge for policy-makers. Scholars have pointed out that people who live alone are more likely to be poor (Golant, 2008). And if their aloneness time is longer, poverty rates are likely to increase. As a result, many poor elderly people may experience a poor quality of life. And they also face the risk of having a lower standard of life as compared to other higher income groups.

Planners and urban scholars have recently argued that provision of public space is an effective way to improve a quality of life of poor elderly people (Cloutier and Pfeiffer, 2015). For example, public parks, recreational places, shopping opportunities, and local public infrastructure can contribute to greater personal happiness, especially for poor elderly people. Particularly, welfare facilities are important places for seniors who live in an inner-city neighborhood. In general, these facilities provide a room, meals, recreational activities, protective supervision, and some assistance with daily living. Therefore, these facilities can directly contribute to increasing a quality of life of seniors in an urban area (McCoy and Conley, 1990). Moreover, elderly welfare facilities enhance social interaction for older adults who might be otherwise isolated from society. Especially for low-income seniors who

live alone, welfare facilities can offer opportunities for socializing with others. Thus, spending time at these facilities can have a positive influence on their mental health and overall subjective well-being.

With this perspective, we explore how elderly welfare facilities influence seniors' subjective well-being, focusing on the city of Seoul, Korea through the 2005~2015 Seoul Survey data. Using fixed-effects panel models with instrumental variables, we estimate the effects of the number of local welfare facilities on elderly subjective well-being. Our results show that elderly welfare facilities have a positive effect on elderly subjective well-being after controlling for endogeneity, but these facilities are much more important for more aged elderly and lower income elderly.

Our results suggest important policy implications for improving elderly subjective well-being. Specifically, findings suggest that providing more elderly welfare facilities would improve individual elderly subjective well-being at the local level. Although the effects of neighborhood-level factors such as welfare facilities are small, they are a significant part of elderly subjective well-being. Therefore, public policy for improving local welfare facilities is one of the important elements in making the elderly happier for the rest of their lives. This can be achieved through community planning for local elderly residents.

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Key Words: Happiness, Elderly, Welfare Facilities, Seoul

MUCH “ADU” ABOUT A LOT: HOW SOCIAL RELATIONS INFLUENCE THE AFFORDABILITY OF ACCESSORY DWELLING UNITS IN EDMONTON, ALBERTA, CANADA

Abstract ID: 754

Individual Paper Submission

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Over the past ten years, municipalities across North America have begun to promote Detached Accessory Dwelling Units (DADUs) as a form of affordable housing, a way to reduce sprawl and intensify existing neighborhoods, and as a form of housing that suits diverse needs across the lifespan (Chapple et al., 2011; Nichols & Adams, 2013; Pfeiffer, 2014; Wegmann & Chapple, 2014). As such, a number of cities have begun to relax zoning restrictions to allow DADUs on residential lots. In simplified terms, DADUs are stand-alone rental homes in residential backyards, subordinate to the principle dwelling. They are an alternative to large-scale developments, and represent an incrementalist approach to infill development (Wegmann & Chapple, 2014; Pfeiffer, 2014). They go by a variety of names including: Laneway Homes, Granny Flats, Carriage Homes, Secondary Suites, Garden Suites, or Backyard Cottages. This research examines DADUs in Edmonton, Alberta, Canada, where they are referred to as Garden Suites. Edmonton was chosen for this study because of its recently relaxed zoning restrictions which allow Garden Suites on almost all residential lots, and its dispersed urban form. It is also a city of interest because of the exponential growth Garden Suites have experienced over the past ten years. This research looks at Garden Suites from an affordable housing perspective, and establishes the first comprehensive dataset on DADUs in Canada.

The main question attached to this research asks whether or not DADUs are functioning as a form of affordable housing. Focus is placed on a concept called 'voluntary affordability,' whereby owners of the Garden Suites willingly charge low to ultra-low rent (Brown & Palmeri, 2014). Data has also been gathered on suite use, occupancy, construction, and demographics. For this research, all Garden Suite owners in Edmonton were contacted and asked to participate in a survey about their suite. A 64% response rate was achieved. In total, 36%

of suites were rented to family members at an average rent of \$504, 52% were rented to people the owners did not know at an average rent of \$1,154, and 12% were rented to friends at an average rent of \$1,225. Looking at suites that were rented at zero- and very-low-rent it was found that 25% of Edmonton's Garden Suites are <\$700/month, which are considered affordable rents by many definitions. 89% of the occupants of these free-or-clearly-below-market rentals are family members of the owner, thus demonstrating the role social relationships play in facilitating voluntary affordability. When looking at who is building Garden Suites, 72% of respondents have a household income greater than \$100,000, suggesting that the people most likely to benefit from the voluntary affordability associated with Garden Suites are family members of higher income individuals. If rented to people who the owners did not know, on average, occupants were charged slightly below market rate. With this in mind, Garden Suites should not be viewed as the universal remedy to North America's affordable housing crisis, but as one important piece of the affordable housing puzzle. The homeowner-developers behind DADUs are distinct from typical landlords, and in many cases are choosing to provide affordable housing for family members, be it their adult children or aging parents, at the expense of generating a greater profit. These findings are consistent with those of a similar study conducted on Portland's accessory dwelling unit stock (Brown & Palmeri, 2014). Policy changes that make DADUs more accessible and affordable for middle-income citizens to build may enable greater numbers of people to reap the benefits associated with DADUs. Similarly, revising regulations around height, size, parking requirements, occupant status, and use-class may aid in increasing the uptake of DADUs.

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Key Words: Accessory Dwelling Unit, Affordable Housing, Second Unit, Infill, Sustainability

GENTRIFICATION IN DETROIT: CLASS TRANSFORMATION IN A RACIALLY UNJUST CITY

Abstract ID: 764

Individual Paper Submission

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For decades, Detroit represented a metonym for urban failure. The statistics largely backed this up; more than a million people left Detroit between 1950 and 2010 and today there are around 80,000 abandoned buildings and one third of the land is empty. For Detroiters who remained – the majority of whom are African Americans – 40% live below the poverty line and around a quarter have no car (Galster, 2012). These statistics, and the images of ruined and abandoned buildings largely shaped this depiction of Detroit as a failed city (Doucet, 2017, p. 14-21).

More recently, however, the image of Detroit has shifted to one of renewal, and renaissance. Media reports celebrating a renewed energy and vibrancy have come to eclipse media stories of urban failure (Doucet, 2017, p. 341-346). Richard Florida (2012) even celebrated this renaissance in an online series entitled 'Detroit Rising.'

Gentrification is driving Detroit's renaissance itself, and the changing its image. But gentrification is confined to a small area called 'The 7.2' – which encompasses 7.2 square miles of the Greater Downtown. It represents around 5% of the city's area and inhabitants. Within it, new restaurants, and amenities are opening up, long-abandoned

buildings are being turned into lofts and there is even a new streetcar line. While celebrated in the media and many planning and policy circles, many academic studies have examined the ways in which this revival contributes to growing sociospatial and racial inequality (see Doucet and Smit, 2016; Kreichauf, 2017). This paper builds on these critical studies to examine how gentrification – both as a concept and as a lived experience – is interpreted by Detroiters?

This paper examines the multiple and conflicting interpretations of gentrification, how they are tied up with race and reflects on what these conflicts mean for planners and researchers who are concerned with issues of social justice. For planners, it is important to understand both the conflicts inherent to gentrification, as well as a detailed account of grassroots struggles which seek to provide a more socially-just alternative. The paper uses both secondary sources to analyze how the image of Detroit has shifted towards that of an emerging gentrified city, as well as interviews with twenty key visionaries and practitioners from Detroit, who offer differing insights into the impact and meaning of gentrification.

In Detroit, conflicts surrounding gentrification coalesce around race as well as class. The 7.2 is becoming not only gentrified, but whiter as well. For many whites, gentrification in Detroit is seen as necessity for the future of the city. The landscapes of gentrification play a role in this interpretation: even in The 7.2, abandoned buildings still exist, and can be found beside renovated houses and new-build developments. This leads to an interpretation that there is enough space for everyone. For city boosters, gentrification represents the salvation for Detroit.

For the city's African American population, particularly its well-established and visionary activist communities, gentrification is a threat, even if it does not take on the same physical forms of other cities. Gentrification is seen as a takeover of their city and even abandoned lots are contentious sites of importance to the community, particularly as spaces of urban agriculture.

This paper concludes by examining how David Harvey's concept of the 'right to the city' is evident amongst the city's poor, African American population who counter gentrification by engaging in visionary and revolutionary practices which rethink concepts of food security, land tenure, access to water, the meaning of community and education. However, these practices are under threat by the very gentrification that is driving the new, comeback city image of Detroit.

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Key Words: Detroit, gentrification, race, grassroots urbanism, inequality

AFFIRMATIVELY FURTHERING FAIR HOUSING AT THE LOCAL LEVEL: A CRITICAL DISCOURSE ANALYSIS OF PRACTICES IN LOUISVILLE, KENTUCKY.

Abstract ID: 779

Individual Paper Submission

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This qualitative research project is an immersion into the beliefs, ideas, meanings, values, and feelings of actors engaged in shaping local housing policies. The paper examines how discourse constitutes and shapes the knowledge of policy actors engaged in fair housing policies and practices in Louisville, Kentucky. I argue that policy discourse is the site where social problems become framed, bounded, and transformed into action. Therefore, if the objective of the Fair Housing Act's mandate for HUD and its recipients is to operate programs in a manner which is 'affirmatively furthering fair housing' (AFFH), it is essential to understand "how policy happens." The analytical framework for this research applies a 'critical lens' by bringing Critical Discourse Analysis (CDA) and Interpretive Policy Analysis (IPA) together to study how meaning within housing policy practices is produced, reproduced, and transformed through language and discourse between policy actors. The mixed-methods research design includes semi-structured interviews with key policy actors to verify and establish context and textual analysis of key housing policy documents and related local news stories with a fair housing element since 2003 in Louisville. Preliminary findings of the research demonstrate the roles that power, ideology, and veiled assumptions play in directing local implementation of the Fair Housing Act's objectives, especially the AFFH mandate. Through a discourse analysis, the paper aims to fill a gap in the literature regarding the ways that assumed meanings and the actions of planners and housing policy actors have contributed to and perpetuated power struggles and a lack of progress on matters of housing justice.

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Key Words: fair housing, discourse, discourse analysis, housing policy , policy analysis

CATCH-ALL GENTRIFICATION: OVERSIMPLIFIED MEDIA INTERPRETATIONS THAT MYSTIFY AND FAIL TO CAPTURE THE PROCESS

Abstract ID: 785

Individual Paper Submission

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It is one of the most significant forces shaping our cities. It is also the most politically loaded word in urban studies. Ever since Ruth Glass first coined 'gentrification' over 50 years ago, it has become not only a major research area across academic disciplines, but a point of conflict in urban policy, civic debates, and the media. To many, it represents the inner-city savior: emancipation, renewal, and authenticity; to others, it represents unaffordability, displacement, and contributes to a loss of community character and continuity (McLean & Rahder, 2014).

Many academic articles provide thorough overviews of contemporary debates and research frontiers (see Doucet, 2014). What is missing, however, is an understanding of the term's use in mainstream media discourse. Though 'gentrification' appears regularly in headlines and articles of world-city newspapers, little empirical research has examined how it is discussed by the media (see Hochstenbach, 2017). This research will address this gap.

This paper surveys interpretations of 'gentrification' in Canadian print media, tracking the frequency of the term's use, and its various definitions. It will explore the ways in which media portrayals of gentrification temporally reflect academic scholarship, as well as wider neighborhood transformations in Canadian cities. Its purpose is to analyze the media's portrayal of the process and how mainstream understandings have evolved and shifted over

time. While conducting the survey, articles were coded based on subject matter: renewal, displacement, affordability, etc. The Globe and Mail – the Canadian newspaper that first mentioned ‘gentrification,’ that references it most frequently, and maintains the widest circulation – was used as survey sample. This information was then analyzed for trends and compared with contemporary scholarship.

‘Gentrification’s’ first Canadian media appearance was in 1980. Broadly speaking, its visibility has since followed the ebbs and flows of neighborhood change. The term’s use prospered during the 1980s, reflecting a particularly active phase of gentrification across North American cities (see Hackworth and Smith, 2001). Depictions at this point-in-time focused on negative consequences, such as displacement and homelessness. The early 1990s saw both a lull in the spread of gentrification and a decrease in its media attention. Since 2000, its notoriety in the media has steadily increased: it maintains negative connotations but is also used extensively as a synonym for middle-class sensibilities, aligning with wider trends in academia (Smith, 1996). Recently, in the context of growing central-city housing unaffordability, gentrification has taken on a darker tone: it paints the precarious middle-class as victims of a new process, citing foreign homeownership and income polarization as causes.

The media is the conduit of information for most Canadian citizens who interpret that which is made available, exert political pressures, and guide potential policy solutions. Over the course of its mainstream use, the term’s definition has appropriated new definitional elements, often aligning with middle-class interests and sensibilities. These oversimplified and contextual definitions may have a profound effect on policy directions and fail to attack the structural causes of gentrification. This case is made clear by contemporary taxes on foreign ownership, used unsuccessfully to promote increased affordability

Understanding how gentrification is portrayed in the media is important for several reasons. Planners should be aware of how the public understands this complex urban phenomenon: how issues may be simplified, and meanings lost. As a proxy for public understanding, this research highlights the relationship between contemporary understandings of ‘gentrification,’ academic debates, and the policy environment. It also builds a stronger link between academic research and media representations – helping to identify how they interact, influence each other, and influence the wider policy framework.

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Key Words: Gentrification, Mainstream Media, Housing Affordability

NEIGHBORHOOD DECLINE AND REVITALIZATION IN THE HIGH-DENSITY PUBLIC RESIDENTIAL ENVIRONMENT IN SINGAPORE

Abstract ID: 787

Individual Paper Submission

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While the existing literature suggest that economically and racially mixed neighborhoods are unstable and prone to segregation, creating stable liveable high-density communities remains one of the most important challenges

facing many urbanizing cities in Asia. Theoretical work, including seminal work of Tiebout (1956), Alonso (1964) and Schelling (1971), attributes the decline to individual preferences over neighborhood racial and income composition. While the empirical evidence based on the cross-sectional census data suggests that American cities are well mixed economically (Massey and Eggers, 1990), the evidence on the neighborhoods supports the theory on instability of income mixing (Krupka, 2008). The contemporary planning theories and approaches has been increasingly emphasizing the quality of residential environment as a cause of anti-social behavior and neighborhood decline.

In Singapore's settings, where more than 80 per cent of population lives in high-rise high-density public residential environment, a traditional neighborhood decline would be hard to observe. The neighborhoods are socially and economically mixed: the flats are planned, built and allocated by the government, the access to housing depends on marital status, age, income and race creating little variation among neighborhoods in the same town, and the balance of ethnic groups is controlled by housing policy at both, neighborhood and block levels. Moreover, the living environment is standard across neighborhoods within the same town, managed by Town Councils and upgraded through renewal programs. However, understanding the complex and multidimensional underlying forces that contribute to neighborhood decline is critical for efficient public housing policies and management.

In this paper, we use a novel set urban data to define and measure the link between the quality of high-density socially-mixed neighborhoods and social behavior, and investigate what qualities make neighborhoods sustainable in the long run or unstable and tending to decline. Every Singapore's resident can alert the authorities about any issues related to the living conditions through various apps and media channels under Town Council feedback system, from fixing a malfunctioning lift to resolving private nuisances with neighbors. The data produced by these requests often provides more insightful, contemporaneous and instrumental information on residential preferences to neighborhood quality than official government statistics collected by surveys. This data reflects – albeit imperfectly – not only residential preferences to the physical quality of living environments, but also to the social values that each community defines and measures for itself. As the efficacy of housing policies and management depends critically on the complex and multidimensional underlying forces that contribute to neighborhood decline, the question here is not only what qualities cause neighborhood decline but also how can housing policy makers prevent a bad equilibrium?

While we cannot observe the traditional neighborhood change in the Singapore's context, the analysis of the five years block level panel data of the feedback records reveals spatial clustering in terms of man-made physical environment and social behavior. We categorize and map 57107 records across 144 residential blocks and analyze the trends and patterns of report rates across categories, locations and time. Our analysis builds on the literature on “tipping point”, a level of the physical quality that once exceeded sets off a rapid exodus of the lower social quality. The blocks with the physical quality above threshold experienced losses in their social quality. These blocks also tend to cluster within neighborhoods that experience slow value growth.

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Key Words: social behaviour, neighbourhood decline, liveability, high-density neighbourhoods, residential quality

UNEVEN QUALITY-OF-LIFE, WEAK MARKETS, AND OTHER BLIND SPOTS IN BUFFALO'S RESURGENCE NARRATIVE: A FOCUS ON EQUITY

Abstract ID: 788

Individual Paper Submission

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As local media outlets and elected officials continue to tout a “resurgence” in Buffalo, New York—evidenced by rising property values, the return of businesses, and new amenities attracting younger residents (e.g., Epstein, 2015; Kaminer, 2016; Sommer, 2016)—it is tempting to think that a rising tide is lifting all boats in the Queen City of the Great Lakes. Nevertheless, each year Buffalo continues to be ranked among the most segregated and impoverished cities in the United States. The citywide poverty rate is just over 30 percent, and one in two school-age children live beneath the poverty line. At the same time, high levels of neighborhood distress characterize wide swathes of the City. In neighborhoods on the City’s East Side, despite thousands of demolitions, vacancy rates from 30–40 percent are quite common. On those grounds, it seems likely that Buffalo’s “resurgence” is occurring unevenly and inequitably. This paper engages with this theme by asking three central questions. First, how and to what extent do quality-of-life (QoL) indicators—namely, (1) walkable access to amenities, (2) residential housing conditions, and (3) housing affordability—vary spatially across Buffalo’s neighborhoods? Second, what are the demographic and socioeconomic characteristics of residents living in Buffalo’s neighborhoods, and [how] do these characteristics relate to patterns of QoL indicators? And, third, who are the people currently moving into Buffalo’s neighborhoods, and what implications do in-migration patterns have for the prospects of “resurgence” within the City? To answer these questions, we draw on data from the U.S. Census Bureau, WalkScore®, the City of Buffalo, and a comprehensive, parcel-level field survey of residential housing quality in the City. Using a combination of spatial and statistical analyses, we find that, among other things: (1) at present, much of the “resurgence” and reinvestment happening in Buffalo is concentrated in relatively walkable neighborhoods downtown and on the City’s West Side; (2) areas with low access to walkable amenities and low vehicle ownership rates are disproportionately Black and impoverished, with very low housing values and high vacancy rates; (3) a rising number of households in neighborhoods that rank poorly on QoL indicators are cost-burdened, despite living in areas with below-average housing conditions; (4) the housing market in some of the most distressed neighborhoods of the City is extremely weak if not non-existent; and (4) in-migrants to some of the most distressed neighborhoods tend to have incomes below the poverty level. Taken together, these and related findings from the paper suggest that planning for and managing patterns of resurgence and reinvestment in Buffalo must be more explicitly tied to social and economic justice objectives. Simply allowing the market to lead reinvestment is resulting in polarized geographies of high quality, walkable neighborhoods with high quality housing and appreciating home values on one hand; and low quality, distressed neighborhoods that lack walkable amenities, have weak housing markets, and are becoming poorer over time on the other. As such, planners should be cautious about buying and selling “resurgence” narratives in cities where uneven patterns of (re)development are persistent. Instead, planners and policymakers should push for equitable and just policies that support residents across the typology of neighborhoods.

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Key Words: neighborhood revitalization, community development, walkability, segregation , concentrated poverty

HOW HOUSING COST BURDENS INFLUENCE THE RESIDENTIAL CHOICES OF HOUSING VOUCHER RECIPIENTS

Abstract ID: 789

Individual Paper Submission

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The Housing Choice Voucher (HCV) is a tenant-based housing subsidy program designed to reduce housing cost burdens for qualifying low-income households. The U.S. Department of Housing and Urban Development (HUD) covers the portion of the rent that exceeds 30 percent of a household's adjusted gross income up to a payment standard, which is HUD's estimate of the amount needed to cover rent and utility costs in a given metropolitan area. While HUD requires that voucher recipients spend no more than 40 percent of their income on rent when initially entering the program or moving to a new unit, Dawkins and Jeon (2017) find that many voucher recipients still spent more than 40 percent of their income on housing costs over the 2003 to 2015 period, particularly when renting a unit priced above the payment standard.

One explanation for the high housing cost burdens of some HCV recipients is that the program is designed in part to expand housing choice in a wider variety of neighborhoods that provide economic and social opportunities. Evidence suggests that living in these "high opportunity" neighborhoods improves the likelihood that children living in poverty will earn higher incomes upon reaching adulthood (Chetty, Hendren, and Katz, 2016). If high cost burdens are associated with improved access to high opportunity neighborhoods, then higher housing costs may be the offset by access to improved neighborhood amenities. On the other hand, high housing cost burdens may also result from increased rent in the neighborhoods originally chosen by HCV recipients. Few studies have examined these tradeoffs. Dawkins and Jeon (2017) find that those initially leasing a unit below the payment standard were more likely to incur higher housing costs upon mobility, but this study did not explore the impact of mobility on access to neighborhood amenities.

In addition, less is known about how HCV recipients make residential decisions in response to changes in rent and changes in income over time. If high cost burdens persist or rise over time, households may move to reduce housing costs or stay and increase work hours to afford the current rent. Colburn and Allen (2018) find that moving did not reduce residential housing cost burdens in the post-recession years unless incomes rose. While a few studies have decomposed changes in housing affordability into changes in rent and changes in income (Quigley and Raphael, 2004; DiPasquale and Murray, 2017), we know little about how changing economic and rental market conditions affect the housing and neighborhood choices of HCV recipients, especially for those who spend more than 40 percent of their income on rent.

Extending our previous work, this paper explores the longitudinal trajectories of HCV program participants who initially leased a unit in 2003, and examines the impact of housing cost burdens on residential mobility. We employ data from HUD administrative files to characterize the housing and neighborhoods of cost-burdened HCV recipients over the 2003 to 2015 period. These analyses are designed to address the following research questions: What are the dynamics of housing cost burdens and neighborhood outcomes? How have voucher households responded to changes in rent and changes in income when making residential choices? We find that HCV recipients are willing to incur higher cost burdens to improve or maintain access to certain neighborhood amenities. We also find that changes in income play a larger role than changes in rent in altering a household's housing cost burden.

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Key Words: Housing Choice Voucher, housing cost burden, residential mobility, neighborhood outcomes

IMPACTS OF HAZARD MITIGATION GRANTS ON INDIVIDUAL AND COMMUNITY LEVEL POST-DISASTER RESILIENCE

Abstract ID: 810

Individual Paper Submission

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While cost-benefit analyses show that the federally funded Hazard Mitigation Grant Program (HMGP) is economically advantageous to the society at large [1], it is far from guaranteed that the individuals and local communities involved in the program will benefit from their participation [2]. The limited existing research that is focused on the resident as the unit of analysis reveals varying degrees of satisfaction with the process. At the individual level, these programs often prove to increase social vulnerability and inconsistently deliver greater physical resilience [3]. At the community level, smaller municipalities may risk obsolescence as their communities and tax bases are hollowed out.

Notably, there is scant research on what factors influence individuals' decisions to participate in these programs or how they perceive the benefits and limitations of the strategies available. To systematically study this phenomenon, we are using a uniquely available FEMA dataset of the 800 HMGP recipients in North Carolina who have been granted funds in the wake of Hurricane Matthew in 2016. We analyze the recipients' considerations for selecting among three mitigation strategies: accepting a buyout, elevating their property, or demolishing the existing structure and rebuilding in place. This allows for a quasi-experimental investigation into the perceived values of various HMGP options.

The survey was designed to gather characteristics of the residents and their pre-disaster residence; and to offer insight into the participant's priorities regarding resiliency, community character, and desired institutional amenities. We present an analysis of a multinomial regression model of applicants' choices (buyout, elevate, demo-rebuild) with regards to their personal recovery priorities and controlled for census-tract-level demographic data. Furthermore, results are contextualized with a second data set of the 81,502 applicants for FEMA's Individual Assistance Program (IA). The IA dataset represents a larger program that was intended to reach almost all residents negatively affected by Hurricane Matthew.

Finally, we investigate the relationship between individual- and community-level resilience. Certain decisions, such as the choice to accept a buyout and move to a different locality, increase individual resilience at the expense of community resilience. This can negatively impact those who chose to remain and rebuild in the face of a reduced community, leaving them more socially vulnerable even as their physical property is better prepared to withstand greater environmental disruptions. A spatial analysis on the clustering of different decisions allows us to investigate the relationship of neighboring choices considering the total number of HMGP recipients making the same decision. This will be placed in the context of both the total number of HMGP recipients and the total number of occupied residences in a given area. This work sets the stage for a future longitudinal study analyzing the realized benefits and losses at both the individual and community levels.

[1] Rose et al., "Benefit-Cost Analysis of FEMA Hazard Mitigation Grants," 108.

[2] Berke, Kartez, and Wenger, “Recovery after Disaster: Achieving Sustainable Development, Mitigation and Equity Recovery Urban Planning,” 94.

[3] Binder and Greer, “The Devil Is in the Details: Linking Home Buyout Policy, Practice, and Experience After Hurricane Sandy.”

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Key Words: Housing Buyouts, Disaster Recovery, Quasi-Experimental, Hazard Mitigation, Resilience

THE EFFECT OF CHANGES IN CENTRAL CITIES ON RESIDENTIAL LOCATION OF MILLENNIALS

Abstract ID: 828

Individual Paper Submission

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More millennials seem to prefer city living. However, our understanding of why they to prefer cities is still growing. Their preference for cities might depend on the history, geography, socio-demographic and economic character, and the built environment offered by the different city environments. One expects to see variation in the migration patterns towards different cities based on the amenities they offer and the current state of affairs in these cities. This claim is supported by a comparison of population change across all age groups and for young people (aged between 15 and 34) between 2000 and 2010 in the 50 most populous U.S. cities using census data.

The population change among 48 of these 50 cities shows substantial variation in growth rates. Many of the largest cities have seen growth in overall population as well as the population of young people. Approximately 30% of cities have seen a higher growth rate among 15-34 year olds than in total population (e.g., Washington, D.C., Miami, and Boston). In 10% of places, both total population and the population of young people has fallen (e.g., Chicago, Detroit, and Cleveland). In 13% of cities, the population of young people in cities has shown a decline while overall population may have grown (e.g., San Jose and San Francisco), while 8% of cities have shown the opposite trend (e.g., Baltimore and Milwaukee). Overall the change indicates substantial variation in the population growth of large U.S. cities. Given these observed differences in how attracted Millennials were to some cities than others, this paper investigates what factors explain these observed differences.

We start with the hypothesis that factors in central cities influence the residential choice of Millennials and explain the attractiveness of different cities to Millennials. In particular, we focus on new development in urban cores relating to four major factors that influence people’s residential location choice in the literature. These four factors are housing, transportation and accessibility, urban amenities as a neighborhood attribute, and occupational changes as an economic attribute. The results will inform the impact of the urban core development along these dimensions on Millennials’ choice and will help explain differences between the cities.

The data used for the analysis and a statistical model are the 2000 Census and 2010 ACS data. The analysis focuses on the largest U.S. (top 50 by population) and 45 MSAs in which these cities are situated. To examine the difference between the city groups and the effect of the change in the urban cores, we use the difference-in-difference (DID) technique. The treatments (city groups) are the new development of the four factors in the urban cores between 2000 and 2010. We investigate the population change in Millennials along with changes in new housing structures, the transportation infrastructure, the use of public transit or walk and bike modes, whether the high-wage occupation has changed, and whether urban amenities have changed.

DID is usually implemented as an interaction between time and treatment group dummy variables in a regression model (1). The estimated model will be used to investigate the effect of the development of central cities and its effect on the increase of younger population.

$$Y = \beta_0 + \beta_1[\text{Time}] + \beta_2[\text{Treatment}] + \beta_3[\text{Time} \times \text{Treatment}] + \beta_4[\text{Covariates}] + \varepsilon \quad (1)$$

The analysis here is expected to show the effect of development in central cities on the decision of Millennials to choose them as places of residence as well as the difference to older adults. This study will contribute to increase our understanding of Millennials' choices and provide insights to cities that may want to share in the growth of their young adult population.

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Key Words: residential location choice, Millennials, central city development, difference-in-difference technique

COPING WITH RENT BURDEN: SACRIFICE, SOCIAL SUPPORT, AND A BETTER FUTURE

Abstract ID: 837

Individual Paper Submission

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Households throughout the United States are simultaneously experiencing worsening inequality and an increasingly unaffordable housing market. As low-income residents are forced to spend a greater share of their limited incomes on rent, they must make tragic choices—between paying rent and basic necessities such as food, education, energy, parenting time, and healthcare—which ultimately produces dire consequences and enormous stress intergenerationally (Diaz McConnell, 2016; Newman & Holupka, 2015). Although connections between rent burden and trade-offs have been made, little is known about the impact these decisions have on life outcomes or the mechanisms through which these outcomes are produced. Moreover, existing research demonstrates that engagement with support networks serves as a key coping strategy within immigrant communities, yet it has not been captured in relation to housing costs (Dominguez & Watkins, 2003; Stanton-Salazar & Dornbusch, 1995).

In response, the Sol Price Center for Social Innovation has partnered with organizations in South Los Angeles and the Coachella Valley to conduct focus groups to better understand the complex and cumulative effects of rent burden. These focus groups have revealed the extreme stress and isolation that residents face as a

result of growing costs of living. Our study investigates the sacrifices residents are forced to make in order to cope with rent burden, and seeks to lift up how these decisions are made as well as the policy interventions residents would like to see implemented to address the affordability crisis. In addition, the project examines the ways households leverage social support networks—both formal and informal—to meet the pressures resulting from unaffordability and share risk across the broader community.

We employ a comparative case study design utilizing 30 focus group sessions and participant surveys across Los Angeles and the Coachella Valley to reveal how immigrant and nonimmigrant families differentially cope with rising housing costs across the region. Preliminary evidence from focus groups suggests that immigrant and historically marginalized communities appear particularly impacted, due to their additional vulnerability from reduced institutional support and a greater dependence on low-wage work. These focus groups have further revealed instances in which rent burden coping strategies and their impacts extend far beyond consumption trade-offs, with implications for broader social support networks. While many families lack access to social and institutional support, certain groups are able to draw from social networks to cope with challenges. Our findings indicate pivotal differences in the ways that some residents disperse risk across larger networks, which can unintentionally serve to heighten vulnerability across their entire community. The dispersed and shared effects of rent burden offer crucial information for understanding the ways residents cope, and the effects these decisions have on their lives and their families.

Our proposed design will expand understanding of rent-burden through a micro-level analysis that examines the ways families adapt and sacrifice to survive the current affordability crisis. As private and public capital continues to flow into previously under-invested communities, rising property values and rent will only accelerate rent burden pressures, which inevitably have far-reaching consequences. Furthermore, the community-based approach highlights the goals and aspirations of residents, exposes barriers to their ideal housing situation, and elevates policy interventions sourced directly from the community. The areas identified exist within collective impact initiatives that involve active engagement and organizing to improve neighborhood conditions for low-income residents. Their location within these collective impact initiatives provides strong institutional partners for the research and a pathway for policy remediation based on the results.

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Key Words: affordability, rental housing, networks, support, community

ESTIMATING THE RELATIONSHIP BETWEEN AFFORDABLE HOUSING AND INTERGENERATIONAL MOBILITY

Abstract ID: 838

Individual Paper Submission

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A core component of the American Dream is the possibility of intergenerational mobility: children raised in poor families can grow up to earn more money as adults than their parents. Recent work documents substantial variation in intergenerational mobility across the U.S. and identifies the causal effects of growing up in different counties (Chetty and Hendren, 2016). But the reasons for these differences between places are unclear.

Affordable housing is a potentially important channel for intergenerational mobility. Housing is the single largest expense for most families and its share of household budgets is growing (Albouy et al., 2016; BLS, 2015). Housing costs exceed 30% of income—the standard measure of unaffordability—for nearly one-third of all U.S. households, including one-in-six households that spend more than half of their income on rent (JCHS, 2016).

Economic theory suggests programs that reduce housing costs for families could enable them to invest more income in increasing their children's human capital (Leventhal and Newman, 2010). Indeed, much low-income housing policy is premised on the idea that reducing housing costs will encourage self-sufficiency and economic mobility (Shroder, 2002; Vale, 2000). However, affordable housing programs have eligibility, payment, and location restrictions that may discourage increased earnings and child development (Olsen, 2003).

Prior empirical research on the impact of housing costs yields mixed support for the presumed benefits of affordable housing for families and children. Low housing prices are associated with positive effects on grade advancement and risky behavior for poor children (Harkness and Newman 2005). But high housing costs are not associated with corresponding negative effects on children's academic achievement and engaging in criminal activity (Harkness et al. 2009).

In this paper, I examine the effects of affordable housing on geographic differences in intergenerational economic mobility for low-income households. The analysis draws upon mobility data from the Equality of Opportunity project (Chetty and Hendren, 2016), demographic data from the U.S. Census, and housing program administrative data from the U.S. Department of Housing and Urban Development (Vale and Shamsuddin, 2017). Using multivariate regression analysis, I estimate the relationship between public housing supply and the chances that children growing up in the bottom income quintile eventually exceed their parents' earnings. Initial results indicate that the availability of public housing is not significantly associated with differences in children's upward economic mobility across places. The findings suggest that although public housing may reduce housing expenditures for some poor households, it is not necessarily a platform for widespread intergenerational mobility.

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Key Words: Affordable Housing, Housing Policy, Intergenerational Mobility, Poverty, Public Housing

BEYOND THE OWNER-RENTER DIVIDE IN DISASTER PLANNING: A GEOGRAPHICAL ANALYSIS OF MOBILE HOME PARK DAMAGE AND RECOVERY AFTER HURRICANE HARVEY

Abstract ID: 846

Individual Paper Submission

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Mobile homes are a significant, but often unacknowledged, part of our nation's affordable housing supply. Today, mobile homes are the single largest source of unsubsidized affordable housing in the United States. An estimated 2.9 million mobile homes are located within mobile home parks (MHPs), which are unique land-lease communities where households own their housing unit but rent the land underneath. Considered together, MHPs represent a substantial portion of the country's affordable housing supply, providing more than twice as many

units as public housing. The population living in MHPs is predominantly low-income and includes many elderly, disabled, non-white, and non-English speaking individuals.

Mobile home parks are frequently exposed to hazards and disasters. In 2017 alone, floods, hurricanes, and wildfires triggered disasters in Texas, Florida, and California, the three states with the largest populations living in mobile homes. Past research has shown that affordable housing is a key component of the built environment that is at-risk from natural hazards and an important contributor to post-disaster recovery. The limited scholarship on affordable housing and disasters has focused almost entirely on site-built housing, however, and largely overlooked MHPs. Because of the unique characteristics of MHPs – their mixed tenure arrangements, park ownership structure, and treatment under local laws and regulations – we hypothesize that MHPs are exposed to, and recover from, disaster events differently than other affordable housing types.

Texas, Hurricane Harvey, and the Houston metropolitan area present a unique nexus to study the vulnerability of mobile home parks to disasters, across different geographic, demographic and governance contexts. Texas, the state with the largest mobile home population, also outranks all other states in deaths, injuries, and property loss resulting from floods. The largest share of Texas' roughly 1.9 million mobile home park residents (17.7%) lives in the Houston area. At least 100,000 housing units were damaged or destroyed in Texas after Harvey, many in Houston, including approximately 400 mobile home parks. Those parks, each of which may contain dozens or hundreds of homes, are located throughout 100 towns, cities, and municipal areas that make up the greater Houston Metropolitan Statistical Area, a 9-county region the size of Massachusetts.

In this paper we utilize a mixed-methods research design to study the geography of exposure and recovery of MHPs in the Houston MSA after Harvey. First, we locate all MHPs in the 9-county region using tax record data (N=1437). Next, we overlay Harvey flood models to estimate the extent, and magnitude, of flood exposure. Third, we use pre-Harvey remotely sensed imagery to count the number, and type, of mobile homes in each park (N=~400). We then use post-Harvey imagery to estimate the level of damage and unit loss for each park. Finally, we visit a sample of parks to ground-truth our findings. These findings represent the first-time, comprehensive and comparative analysis of the exposure and recovery of the mobile home park housing stock of a major metropolitan area following an extreme event. They allow us to understand which parks, in terms of their physical location, ownership structure, and treatment under local laws and regulations, are most likely to suffer damage and to recover after loss. These findings will help planners to more accurately account for vulnerability in the affordable housing stock and design more effective hazard mitigation or community resilience plans and strategies.

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Key Words: Mobile home park, Manufactured housing, Disaster, Risk, Harvey

SOCIODEMOGRAPHIC REPRESENTATION OF ONLINE RENTAL HOUSING LISTINGS: INFORMATION SURPLUSES AND DEFICITS

Abstract ID: 858

Individual Paper Submission

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Large portions of the rental housing market have moved online over the past 10 years. Traditionally, rental listings appeared in local newspapers. Now they are primarily posted on web sites like Craigslist, which holds a near monopoly in the online rental listings space and is the 15th most-visited web site overall in the US today. However, it is not well-understood how Craigslist represents the complete rental market. Are different kinds of communities, built environments, and demographic groups over- or under-represented in these online rental listings?

Few researchers have studied large-scale Craigslist rental listings directly, due to the technical complexity of acquiring the data. Some recent studies, however, have hand-tabulated Craigslist listings to study individual metropolitan markets (e.g., Wegmann and Chapple 2013). Most studies of demographic representation on Craigslist have focused on the Fair Housing Act and racial discrimination by landlords (e.g., Decker 2010). Another stream of literature has considered demand-side factors in Internet use and housing search. Rae (2015) demonstrates how user-generated search areas spatially represent housing submarkets. But such online housing searches depend on Internet usage: Mossberger et al (2012) explore how Internet use and digital inequalities vary as a function of demographic characteristics and neighborhood effects. However, these studies of market representation and participation focus on demand. The online representation of available rental housing supply remains underexplored.

To address this knowledge gap, this study presents an approach for evaluating over- and under-representation on Craigslist at the census tract scale. It uses the dataset developed by Boeing and Waddell (2017), who collected 11 million Craigslist rental listings across the US. First it spatially joins these rental listings to the 12,000 census tracts within the core cities of the 50 most populous US metropolitan statistical areas. Then it separately creates a counterfactual proportional reallocation of these listings, per-city, to compare how the observed distribution deviates from the proportional distribution. Next it explores the differences in demographic and built environment characteristics between these over- and under-represented tracts. Finally, it estimates a multiple regression model to examine *ceteris paribus* effects of these characteristics on Craigslist representation.

Based on Gini coefficients, rental listings are more concentrated into fewer tracts than a proportional distribution would be. Some rental markets – including Hartford, Miami, Philadelphia, and Boston – demonstrate an extreme spatial compression of listings. Tracts over-represented on Craigslist are significantly better educated, whiter, and richer, contain more college students and English-only speakers, and feature higher gross rents and smaller household sizes than under-represented tracts. Controlling for rental turnover, vacancy rates, and other demographic and neighborhood characteristics: higher incomes, higher rents, and larger shares of the population that are white, 20-34 years old, college/grad students, and speak English-only predict greater representation on Craigslist. Similarly: smaller household sizes, newer housing stock, shorter commutes, and closer proximity to the city center predict greater representation.

As the market moves online, data sources like Craigslist offer an opportunity to monitor and understand affordability and the supply of rental housing in real-time. However, they do not provide a holistic, unbiased window into the housing market. This study unpacks how this market functions as an information exchange that over- or under-represents different communities. It also provides a glimpse into the supply side of digital inequality: housing seekers in whiter, wealthier, better-educated, and more-expensive communities are offered a surplus of information online to aid their search, while seekers in other communities face an information deficit. This affects the reinforcing feedback loops of supply-and-demand in community usage as well as the conclusions that housing planners can draw from these data.

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Key Words: rental housing, digital inequalities, markets, demographics, big data

THE IMPACT OF HCV CONCENTRATION ON PERCEPTIONS OF NEIGHBORHOOD CONDITIONS

Abstract ID: 861

Individual Paper Submission

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The Housing Choice Voucher program (HCV) is often conceptualized as a tool for mitigating concentrated poverty and racial segregation in U.S. cities (Turner 1998). However, a large body of literature finds that many HCV holders live in segregated, high-poverty, low-opportunity neighborhoods with elevated crime rates (Galvez 2010; McClure 2010). HCV holders' concentration in these neighborhoods has led researchers to examine push and pull factors that influence voucher holders' location decisions, in addition to proposing numerous mobility programs to encourage voucher families to move to higher-opportunity areas (Eriksen et al., 2013, 2015; Varady & Walker, 2003).

Less known, however, is how voucher holders themselves perceive their own neighborhoods. In response, this study examines how subjective perceptions of safety, social cohesion, and neighborhood satisfaction differ among voucher holders vis-à-vis their objective neighborhood characteristics. It utilizes survey data to assess voucher holders' perceptions of their neighborhoods' safety and social cohesion, and overall neighborhood satisfaction differ across residential contexts. The study also uses secondary data to compare the relationship between objective and subjective neighborhood characteristics. The paper will address the following questions:

1. (1) How do voucher holders perceive their neighborhoods' safety and social cohesion, and how satisfied are they with their neighborhoods?
- 2.
3. (2) How do perceptions of safety, social cohesion, and neighborhood satisfaction differ among voucher holders in relation to their objective neighborhood characteristics?
- 4.
5. (3) How do individual characteristics—such as race, employment status, and gender—moderate voucher holder's perceptions of their neighborhoods?

Primary data will come from a mail survey questionnaire being sent to 1,000 HCV holders in Charlotte, NC. We will also use secondary data for descriptive information on voucher holders' household compositions, rent amounts, and addresses. This data is maintained by the Charlotte Housing Authority.

This project has important implications for housing policy research and practice. First, it will clarify how HCV holders perceive neighborhood conditions across different residential contexts, and relate these perceptions influence overall levels of neighborhood satisfaction. Second, it will examine how individual characteristics affect HCV holders perceptions of their neighborhoods. As the nation continues to transition to a voucher-based housing subsidy system, the analysis of these questions will become increasingly important to policymakers and elected officials.

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Key Words: Housing Choice Voucher, Neighborhoods, Mobility

THE PREVALENCE AND CONSEQUENCES OF HOUSING EVICTION IN MISSOURI

Abstract ID: 862

Individual Paper Submission

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Over the past several decades, housing in the United States has become increasingly unaffordable, especially for renters. One in four renters spends over half of their income on rent. Among low income renters, the severe cost burdens often result in evictions and chronic homelessness. Eviction is believed to be the leading cause of homelessness because many landlords and property managers are reluctant to rent to people with evictions on their record. Housing evictions are common. For example, in Jackson County, Missouri, 173,720 evictions were filed between 1999 and 2016. This translates to 42 evictions filed per business day. This tells only part of the story; there are a potentially significant number of renters who are displaced through what might be considered informal evictions. Evicted renters are more likely to lose their jobs, suffer from depression, and end up in substandard housing in distressed neighborhoods.

Despite the prevalence of evictions, this topic has been hardly studied. Examining the eviction filing records in Jackson County (Kansas City, MO), St. Louis County, and city of St. Louis in Missouri between 2009 and 2016 and a number of neighborhood characteristics, this research addresses the following research questions: 1. How often and why are families evicted? 2. Where are families evicted from? Is there any relationship between the prevalence of evictions and specific neighborhood characteristics such as measures of housing affordability and neighborhood quality? 3. What are the significant impacts of eviction on families and neighborhoods such as its impact on student mobility?

A preliminary analysis of data reveals that housing evictions are very common. By far the most-often cited reason for filing an eviction case was nonpayment of rent. Housing evictions are disproportionately concentrated in a few low-income minority neighborhoods. Racial disparity in housing eviction is observed. There is very limited financial assistance and social services available to families who are evicted or at imminent risk of eviction. This research hopes to attract more scholarly and public attention to housing eviction problems that have been neglected and, in turn, better inform public policies.

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Key Words: housing, eviction, neighborhoods

GENTRIFICATION AND DISPLACEMENT IN TWO BRIDGES: COLLECTIVE ACTION TO PRESERVE AN AFFORDABLE IMMIGRANT WATERFRONT NEIGHBORHOOD IN NEW YORK

Abstract ID: 904

Individual Paper Submission

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New York City's Two Bridges waterfront neighborhood, located in the area immediately surrounding the Brooklyn and Manhattan Bridges, has long been a working-class and immigrant enclave of diversity and affordability in Manhattan's Lower East Side. There are several New York City Housing Authority (NYCHA) complexes, and several rent protected units through the City of New York's Mitchell-Lama Housing Program. Adjacent to the Chinatown and Lower East Side neighborhoods, Two Bridges is largely a Chinese and Latin American immigrant neighborhood.

Currently, Two Bridges is the site of several proposed large-scale residential development projects that threaten its historic character and long-term affordability. In 2014, construction began on the 80-floor, 815-unit One Manhattan Square project. Following this are proposals for three additional buildings in what is known as the Two Bridges Large Scale Residential Development (LSRD) area, a former Urban Renewal Area, each of which will measure more than 700 feet tall, and will cumulatively contribute more than 2,000 market-rate housing units to a primarily low- and middle-income neighborhood. Local residents have expressed considerable resistance, citing concerns with impacts on transit infrastructure, automobile and pedestrian traffic congestion, school crowding, and housing affordability and displacement, amongst other fears.

Locals are also concerned about the insufficiency of the City's current environmental review protocol to accurately measure impacts and require meaningful mitigation, and the fairness and adequacy of the opportunities for public input in the review process. Perhaps more concerning is that some constituencies in Two Bridges are more likely to be displaced than others, i.e., those with lower incomes, those who live in buildings subject to rent decontrol, those for whom English is not their first language, those whose rent is more than 30 percent of their income, and those who are elderly. In the Two Bridges neighborhood, as in other parts of the city, most of those most at risk are also people of color.

The Two Bridges community and other parts of Chinatown had come together in a five-year community-based planning process to develop a pro-development, consensus-based plan for the preservation of culture and affordability, an initiative developed with participants as disparate as community activists and business groups; developers and housing organizers; and quasi-government agencies and workers organizations. NYC's current mayor decried the plan as "too ambitious" and the community has been left to scramble for ways to implement the plan on their own, including a first-ever community-driven, community-created rezoning application. Their continued activism and their struggle to maintain community raises questions: What is the potential impact of community-based planning and civic action in thwarting gentrification and displacement in strong real estate markets? Additionally, in potential luxury, waterfront markets, how does municipal response to sea level rise and climate change complicate waterfront communities' ability to gain traction in the development process?

To begin to answer these questions, our research team is engaged in participatory action research with a community partner, Tenants United Fighting For the Lower East Side (TUFF-LES). We have provided technical assistance in the preliminary environmental review, conducted interviews, documented the community planning process, and track all developments in the land use process in the area. This work is ongoing and dynamic as the community evolves its response.

Our work with the community groups illuminates the potential of cross-sector approaches to anti-gentrification strategies. It also provides insight into strategies available to multi-ethnic, multi-generational communities attempting to influence the development process in strong markets. While the research and action is ongoing, early analysis suggests that the more cohesive the community can remain, the more traction they will gain.

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Key Words: Gentrification, displacement, participatory action research, community development, environmental review

HOW LONG IS LONG-TERM?: HOMEOWNER AFFORDABILITY AND SECURITY IN CHICAGO COMMUNITY LAND TRUST PROPERTIES

Abstract ID: 906

Individual Paper Submission

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The benefits most often listed by advocates of the community land trust shared equity homeownership model include stable and longer-term housing tenures and the opportunity for wealth accumulation through home value appreciation (Davis & Stokes, 2009; Temkin, Theodos, & Price, 2010; Towey, 2009). These models preserve affordability across successive generations by splitting ownership of land from structural improvements, which decrease structural costs and share the responsibilities and risks of traditional homeownership (Davis, 2010). Critics of the CLT model argue that limiting wealth accumulation by capping financial returns at resale harms participating families in the long-term.

Previous research demonstrates persistent bias against minority and low-income homebuyers (Apgar & Calder, 2005; Herbert & Belsky, 2008; Immergluck, 2009; Quercia & Spader). Because home equity accounts for the majority of wealth amongst low-income and minority households, promoting access to financial tools necessary to achieve stability in home financing is a vital step in creating systemic support with interlocking positive stabilizing effects for these households (Rohe, Van Zandt, & McCarthy, 2002). Longitudinal studies have documented the longevity of homeownership tenure and found that 50% of first-time, low-income and minority homebuyers reverted back to renting five years after purchase, and other research has documented that to realize equity gains on low-cost homes, homeowners must maintain ownership for 5-10 years (Belsky & Duda, 2002; Belsky, Retsinas, & Duda, 2005; Boehm & Schlottman, 2004; Haurin, Dietz, & Weinberg, 2002; Haurin & Rosenthal, 2004; Katz Reid, 2018). Short durations of tenure, high-cost home purchase, trigger events, and high housing cost burdens are more likely to combine to produce debt than wealth for lower income and minority households today (Herbert & Belsky, 2008; Robertson, Egelhof, & Hoke, 2008).

Using Chicago as a case study, I evaluate the duration of real estate holding patterns for families participating in shared equity homeownership models and ask what the tenure threshold is for wealth accumulation. I also examine the overlap between the presence of CLT mortgage lenders and financial tools available for other shared equity social housing initiatives in the City of Chicago (for example, blanket mortgages for limited equity housing cooperatives) to examine the potential for broader neighborhood access to financial instruments that facilitate housing security for low- and moderate-income households. This research has important implications for communities across the country working to provide solutions to the current housing crisis.

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Key Words: Housing, Community Land Trust, Community Development, Shared Equity Homeownership, Neighborhood Planning

NATIONWIDE EXAMINATION OF THE SPATIAL MISMATCH CONDITIONS ACROSS 100 LARGEST METROPOLITAN AREAS IN THE UNITED STATES

Abstract ID: 922

Individual Paper Submission

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Problem and Method: The socioeconomic context of spatial mismatch may have changed in recent decades. Housing conditions and central city growth may have alleviated spatial mismatch conditions. In this article, the nationwide spatial mismatch of low-/middle-/high-wage workers in 2015 are quantified based on their 30 and 60 minutes transit and auto accessibility in the largest 100 metropolitan areas across the U.S. The LEHD data are combined with accessibility data available at the Accessibility Observatory at the University of Minnesota to understand workers' spatial mismatch with auto- and transit-accessible jobs within 30 and 60 minutes of travel during morning peak hours.

Results and Conclusions: The results indicate that high-wage workers tend to have higher spatial mismatch indexes (SMIs) based on transit accessible jobs than low- and middle-wage workers do. Regardless of wage levels, the larger metropolitan areas tend to have more severe spatial mismatch conditions. This indicates that job accessibility issues are most prevalent in the largest metropolitan areas. The results of SMIs based on auto-accessible jobs present a different pattern. The high-wage workers in general have lower SMIs than the low- and middle-wage workers do in most metropolitan areas for auto-accessible jobs. Moreover, the spatial distribution patterns between the SMIs based on auto-accessible jobs and the ones based on transit-accessible jobs in the metropolitan areas are different. Similar to the SMIs calculated based upon transit accessible jobs, auto accessibility-based SMIs tend to decrease when the population size get smaller, but there are some metropolitan areas whose population-size based ranks are after 55 have high SMIs based on the auto-accessible jobs within 60 minutes.

Take Away for practice: The results of this study have verified the disadvantaged conditions of the spatial mismatch based on the auto-accessible jobs experienced by low- and middle-wage workers. However, the spatial mismatch conditions based on transit-accessible jobs of low- and middle-wage workers are better than the spatial mismatch condition of the high-wage workers. The spatial distribution of SMIs indicates positive relationship with population distribution among the metropolitan areas. The larger the region, the worse the spatial mismatch condition could be. More investment on transit systems in large metropolitan areas is likely to alleviate the spatial mismatch problem across the nation.

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Key Words: Spatial Mismatch, Nationwide, Transit-Accessible Jobs, Auto-Accessible Jobs

THE LENGTHS OF WEAK TIES: SOCIAL NETWORKS AND GEOGRAPHIC MOBILITY

Abstract ID: 934

Individual Paper Submission

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The quality of the neighborhoods households live in matter for individual well-being. Broadly, planners have used two strategies to help poor households increase their exposure to enriching neighborhoods: improving the neighborhoods poor people live in and enabling poor people to move to higher resourced communities. Achieving improvements though mobility has proven an effective strategy (Chetty et. al, 2016, Quillian, 1999) and much of this is implemented through the use of housing choice vouchers. Surveys and interviews with voucher recipients consistently show that voucher recipients would prefer to locate in safe and quiet neighborhoods with quality schools for their children. However, voucher users often don't relocate to neighborhoods with these desirable features because their choices are constrained (Tighe, Hatch, Mead, 2016).). Increasingly, the voucher mobility literature has considered the role of social networks in determining potential housing choices (Gould et. al, 2016).

The larger, general literature on networks looks beyond the presence of social networks to their types and an enormous body of literature shows that weak ties are essential for getting ahead (Granovetter, 1979). From the individual's point of view weak ties are a potentially important resource for mobility to opportunity areas. However, poor people tend to have social ties which are both strong and low-income. Therefore, even when voucher holders' housing budgets increase so that higher resource neighborhoods are more affordable, they often do not know people in those neighborhoods to provide them with information about opportunities (Curley, 2009). Thus, those voucher holders who have or can develop information rich weak ties may more frequently access higher opportunity neighborhoods.

This study draws on an analysis of administrative data from the Boston Housing Authority (BHA) and an original survey data from 128 housing voucher recipients living in both higher and lower opportunity areas across the Boston Metro area and seeks to advance understanding about the network drivers of location outcomes. The survey allows us to explore hypotheses about the role weak ties play in residential selection and to compare households who moved to higher opportunity areas and those who moved to lower opportunity areas. We find that those households who moved to higher opportunity areas used significantly more weak ties in their housing search than those who did not move to higher opportunity areas. This work then reveals some of the mechanisms

through which residential segregation of HCV holders may be channeled and how policy and program interventions can respond.

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Key Words: housing vouchers, housing mobility

SHAPING THE FUTURE: DISPOSITIONS OF FLORIDA MILLENNIALS TOWARD TRAVEL MODE AND RESIDENTIAL LOCATION

Abstract ID: 948

Individual Paper Submission

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Recently, literature has emerged and offers contradictory findings about the causal relations between the built environment and travel behaviors. Along with the belief that the demand for urban living featured with a reduced car dependence is growing, more and more neotraditional neighborhoods are being developed in the United States. However, many researchers consider such development a “market niche” (Schwanen and Mokhtarian, 2007; Morrow-Jones, Irwin, and Roe, 2004). While the initiatives of neotraditional development remain to be disputed, Americans’ behavioral patterns and outlooks are changing with the demographic shift. Millennials, the largest and most diverse generation in American history, currently represent more than a quarter of the U.S. population. Due to the possible effects of the Great Recession and accompanying lifecycle delays, millennials’ perception may seem to be shunning preceding generations’ transportation and residential location choices. In order to explore and understand the transportation and residential location needs and preferences of millennials, this study applies mixed logit models to data from a FDOT (Florida Department of Transportation) survey on millennials. Socio-demographic and lifestyle variables are controlled in the analyses. In addition, attitudes toward travel mode and residential location choices are compared between the demographic cohorts of millennials and baby boomers.

Based on the case of Florida, the results of this study exhibit the millennials’ attitudes toward lifestyle, travel, residential locations, environment and car use. This study highlights some remarkable differences in disposition, in particular, the preference to live in an urban environment and the willingness to use shared modes of transportation, when compared to the previous cohort. As millennials age, their residential and transportation choices will have significant and lasting impacts on Florida’s built and natural environments, with far-ranging economic, equity and public health implications. The findings of this analysis illustrate where transportation and planning efforts are most needed in the following years to accommodate the demands of the current generation.

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Key Words: Travel Mode, Residential Location, Millennials

HEALTHY OR UNHEALTHY MOVES: HOUSING DISPLACEMENT AND SELF-REPORTED PHYSICAL AND MENTAL HEALTH

Abstract ID: 958

Individual Paper Submission

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Research on the social determinants of health identifies structural factors that affect health through risk, exposure, and access, and highlights the central role played by place in physical and mental health outcomes. Neighborhood factors supportive of positive health behaviors include walkable communities, access to green space, healthy food environments, and minimal exposures to environmental pollutants while factors like auto-centric development, poor housing quality (i.e., issues of overcrowding, poor ventilation, mold, and lead exposure), incomplete or poorly maintained infrastructure, public safety concerns, and food environments replete with high calorie, low nutritional value options can hinder health promoting behaviors (Baker, Schootman, Barnidge, & Kelly, 2006; Wen, Hawkey, & Cacioppo, 2006). Substantial progress has been made linking individual health outcomes with these neighborhood level socioeconomic conditions. Lower neighborhood level SES is associated with high prevalence of obesity, cardiovascular diseases, depression, hypertension, and a range of mental health conditions (Diez Roux & Mair, 2010). This paper contributes to the literature connecting neighborhood conditions and health by exploring the relationships between health behaviors and one of the largest components of household expenditures: housing. Specifically, we explore food insecurity and housing costs in a community experiencing gentrification.

Researchers investigating the inclusion of housing cost burdens as a factor in health promoting behaviors articulate two emerging themes: 1) tradeoffs exist between housing and health care expenses resulting in the postponing of health services, and 2) those tradeoffs differ based on housing tenure (i.e., tenancy versus owner-occupied). Postponing medical services to pay for housing costs is more prevalent among those spending more than 50% of their income on housing (Meltzer & Schwartz, 2016) and this effect is more pronounced among renters (Pollack, Griffin, & Lynch, 2010). There is less research into the financial tradeoffs precipitated by housing unaffordability with respect to food insecurity, health promotion behavior, and self-reported stress. We seek to examine these topics with a backdrop of shifting housing costs associated with a gentrifying area.

Gentrification and the possible displacement of lower-income households and small businesses is a controversial topic and is particularly germane in Durham, North Carolina—one of the fastest-growing cities in the United States. Renewed interest in the city's center has increased real estate pressure on six historically black neighborhoods. A recent analysis found increases in median housing prices ranging from 110% to 490% over the last ten years for five of these six communities. The remaining neighborhood, Old East Durham, initially only experienced a 32% increase, but major transit investments (i.e., a proposed light rail transit line) and commercial redevelopment by Self-Help (one of the largest community development financial institutions in the United States) heralded a recent and rapid influx of more affluent residents.

In collaboration with Communities in Partnership, a nonprofit based in Old East Durham, and community residents, we will conduct a door-to-door survey utilizing a random sample of ~250 household stratified by type of housing tenure (i.e., tenancy versus owner-occupied) using community based participatory methods in April 2018. This paper reports on the findings of this survey. Specifically, we will address the following research

question: What are the relationships among housing affordability, attitudes, and beliefs about displacement and/or the threat of displacement, and self-reported health status and behaviors?

This study builds on the literature linking housing expenditures to health with emphasis on how financial tradeoff decisions relate to food security and self-reported physical and mental health. As a contribution to practice, the project continues a dialogue between community stakeholders and decision makers on the topics on disinvestment, gentrification, and displacement and the larger process of integrating local knowledge and technical expertise.

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Key Words: social determinants of health, housing, gentrification, displacement, community based participatory research

THE AVAILABILITY OF CHILDREN’S PLAY SPACES IN YOUTHIFIED NEIGHBOURHOODS: A CASE STUDY OF PORTLAND AND NEW YORK

Abstract ID: 959

Individual Paper Submission

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The purpose of this research is to examine availability of parks and playgrounds and their functionality within the larger network of public open spaces at the neighbourhood scale. The focus is on the availability and connectivity of children’s play spaces in youthified neighborhoods, which are compact inner-city neighborhoods mostly occupied by young adults (Moos 2016).

Previous research demonstrates that despite provision of parks and playgrounds in inner-city neighbourhoods, children are still segregated from urban experience mostly due to their parents’ residential location decisions, and the perceived social and environmental risks of children’s play in urban settings (Veitch et al. 2007; Woolley 2008). Thus, while an important factor in determining usage, proximity to existing parks and playgrounds does not necessarily correspond to children’s usage of public open spaces or parents’ willingness to reside in urban settings.

More research is required to identify factors influencing the use of parks and playgrounds within specific neighbourhoods. Parks and playgrounds provide a formal setting for children’s play, while “informal play” occurs everywhere in the city (De Visscher & Bouverne-De Bie 2008, p. 606). An ideal children-oriented neighborhood model, it has been argued, consists of a network of formal and informal play spaces (De Visscher & Bouverne-De Bie 2008).

Therefore, the main question we ask is “how well are parks and playgrounds connected to the larger network of public spaces”? and “what are the connectivity factors to be considered by planners in provision of future play spaces in urban settings”?

In order to study how well parks and playgrounds are connected to the broader network of public spaces, we selected three youthified neighbourhoods with different urban layouts in North America: Elliot and Lloyd (two adjacent neighbourhoods) in Portland, Oregon and Williamsburg in Brooklyn, New York. These neighbourhoods have experienced rapid influx of young adults (i.e., youthification), however, questions are starting to emerge as to whether these young adults will remain in place as more of them have children. At least in part, whether young adults with children will remain in inner-city neighbourhoods is a function of amenity provisions for children's play. It is often assumed that children do not have as much freedom of play in dense urban environments as they do in suburban areas (Horschelmann & Van Blerk 2013, p. 89-91). This can be one of many drivers of young families' exodus from inner-city neighbourhoods.

We will use distance measurements and what we coin 'connectivity maps' to conduct our analysis. Distance measurement provides data about parks and playgrounds' average proximity to residential buildings and childcare facilities; while connectivity map identifies the paths of public networks (e.g. sidewalks, intersections, streets, etc.) through which parks and playgrounds are connected to other parts of the neighbourhood.

The aim is for the study to inform planning policy that can promote children-oriented neighbourhoods, and help meet Smart Growth goals to retain young adults with children in inner-city neighbourhoods. One could argue that isolation of children into segregated playgrounds is perhaps a sign of planning failure; meaning that dense neighborhoods are developed without effectively considering children's everyday needs for urban exploration and freedom of play in the neighbourhood as a whole. Furthermore, understanding the relationship between children's urban experience and young adults' housing pathways helps planners to predict future patterns of youthification and urban development.

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Key Words: playgrounds, public open spaces, youthification, housing pathways, inner city

PUBLIC LIBRARY BRANCHES AS COMMUNITY-DRIVEN ORGANIZATIONS: WHAT IT MEANS TO BE OPEN TO ALL AMID NEIGHBORHOOD CHANGE

Abstract ID: 960

Individual Paper Submission

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We live in a society of organizations, and our ability to get by and get ahead is shaped by our access to organizations and the relationships and resources to which they connect us. For those who are low-income, unemployed, disabled, or homeless, organizations play an even more critical role in shaping access to opportunity. When neighborhoods gentrify, these are also the populations who are most at risk of becoming marginalized within their own communities. Gentrification can lead to improvements in public amenities and organizations; however, low-income community members may fail to benefit from these community investments when they feel that the improvements are not intended for them. Furthermore, non-profit organizations that target services to these vulnerable populations may experience displacement pressure as the neighborhood gentrifies. How local organizations adapt and respond to external pressures associated with gentrification affects whether vulnerable populations are able to access resources and to what extent they feel comfortable doing

so. This research examines one type of local organization, the public library branch, in the context of gentrification. It asks, as neighborhoods gentrify, how do public library branches adapt to neighborhood change, and to what extent do they continue to provide services for low-income populations?

Scholars have addressed how local organizations adapt to neighborhood change; however, they have focused on organizations that serve a subset of the local community, be it based on religion, race or ethnicity, income, or age and familial status. Public libraries offer a new and unique lens through which to examine neighborhood change because they are community-driven organizations that are accessible to all, regardless of age, income, race, ethnicity, religion, ability, immigration status, employment status, familial status, or other ascriptive or socioeconomic characteristics. As public institutions, they have an important tradition of welcoming and serving vulnerable populations, such as immigrants and the poor. They also, however, are cultural institutions that provide services of interest to gentrifiers, such as author talks and art exhibits. As neighborhoods change, public library branches are faced with the option to continue serving those who are most in need or to adapt services, resources, spaces, and outreach to new community needs.

This research uses a mixed-method study of twenty-five public library branches in Boston, Massachusetts, to study how these local organizations have adapted to gentrification over the last decade. Findings are informed by a combination of interviews, participant observation, archival research, and analysis of branch-level data. This research contributes to planning literature on gentrification and social inclusion. It also focuses on a subject largely overlooked by planners: the social, cultural, and economic role of public library branches in neighborhoods. With services for the homeless, job search assistance, classes for immigrants, and many other services and programs of interest to planners, public libraries are becoming an increasingly important part of the social safety net in cities and beyond.

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Key Words: gentrification, neighborhood change, social inclusion, local organizations, public libraries

"THAT'S SO REZ": UNDERSTANDING THE ROLE OF EVALUATION IN CANADA'S ON-RESERVE HOUSING SYSTEM

Abstract ID: 981

Individual Paper Submission

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Poor housing contributes to the ongoing systemic marginalization of First Nations peoples in Canada. As a variety of fields begin to recognize and address health and well-being outcome gaps faced by First Nations, housing inadequacy and inappropriateness are understood as causes. Current housing systems- processes, designs, implementations strategies and outcomes- are mediated by national-level colonial policies and evaluations removing control from individual First Nations. The objectives of this paper are to uncover, and test through partnership with two First Nations alternative frameworks focused on lived experiences, preferences and priorities to create well-being, through the following objectives:

1. Understanding how Indigenous knowledge systems, values and cultural practices could be implemented in housing systems;
2. An assessment of existing evaluation metrics and whether these are inclusive of Indigenous ways of knowing;
3. Creation of local evaluation metrics with two First Nations; and
4. Review of gaps between existing and alternative evaluation methods and their effect on the design, governance and management of housing programs.

Methodology

Housing systems in Canada are examined to understand the development of existing and historical evaluation strategies. A review of housing assessment tools is conducted in grey and academic literature, first within Canada and then globally, with a focus on Indigenous peoples. Evaluations are coded thematically (motive for evaluation, evaluator, flexibility of data collection tool, data ownership, etc..) and grouped to understand existing variation and innovation within the field.

Housing policy is contrasted with Indigenous knowledge systems; building on the work of Indigenous planning, gaps between practice and theory are explored isolating potential for localized, community-developed tools. An immersive and participatory process is undertaken with two First Nations. Working from an assembled database of potential metrics communities created their own housing evaluation frameworks. Local evaluation findings were contrasted with Core Housing Need to understand the implications on well-being and the built environment.

Findings

Existing housing policy and evaluation strategies in Canada developed in response to growing urban- and suburbanization. Core Housing Need, Canada's nationally-applied housing evaluation strategy, was built to reflect changing understandings of minimally acceptable housing in southern Canada. Mirroring rapid suburbanization in the south, housing designs, policies and evaluations were imposed on First Nations ignorant of climate, geography and culture.

Occupant-based processes are being implemented in other post-colonial settings recognizing housing satisfaction and cultural safety as critical elements of sustainable communities. The two case studies test these alternatives to understand First Nations experiences with housing- beyond the physical realm to the currently unmeasured effect on community well-being. Local understandings of crowding, family arrangements, safety and spatial needs yield design implications reshaping existing housing systems and offering a pathway towards the decolonization of home.

Relevance

This project identifies gaps between existing evaluation systems and community-developed, occupant-focused housing evaluation in First Nations. Building on Indigenous planning theory, this work brings the concept of decolonizing planning processes to the scale of house/home to create equity in the lived environment. Housing shifts from a site of assimilation to one of cultural regeneration, unlocking the emancipatory potential of planning through the recognition of the unique contexts and cultures in First Nations

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Key Words: Indigenous planning, Indigenous housing, housing, participatory planning

A SPATIAL HEDONIC ANALYSIS OF A SHRINKING LAKE MEAD

Abstract ID: 989

Individual Paper Submission

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Persistent arid conditions and population growth in the Southwest have taken a toll on the Colorado River. This has led to substantial drawdowns of many water reservoirs around the Southwest, and especially of Lake Mead, which is Las Vegas' main source of drinking water. Due to its importance, Lake Mead has received a great deal of media attention about its "bathtub ring" and the exposure of rock that used to be underwater. Drops in water levels have caused some local marinas to close, thereby affecting the aesthetic and recreational value of Lake Mead, which is located in the country's largest National Recreation Area (NRA), and surrounded by protected land.

Although a rich literature analyzes how water quality impacts real estate values, relatively few studies have examined how dropping water levels are capitalized in surrounding residential properties (Landsford and Jones, 1995; Loomis and Feldman, 2003). In this context, the goal of this study is to quantify how Lake Mead's water level changes are reflected in local property values. Since Lake Mead is the primary attraction within its recreation area, we are also concerned with how this recreation area, which is a few miles southeast of Las Vegas, is capitalized in the Las Vegas metropolitan area's (LVMA) residential property values, as few valuation studies have examined how proximity to national parks influences these values (Gibbons, Murato, Resende, 2014; Peason, Tisdell, Lisle, 2002).

Because the LVMA is home to more than two million residents, and subsequently a geographically large housing market, we hypothesize that the effect of proximity to the NRA and changing water levels in Lake Mead vary over space. Thereby suggesting that a global model for this very large region may be inappropriate. Therefore, another goal of this study is to uncover how the valuation of both park access and water level varies throughout the LVMA region

To delineate the effect on housing values we will estimate several regression models using single family sales from 2015 to 2017 within 10 miles of an entry point to Lake Mead. In each model, sales price is a function of our primary independent variables: proximity to the Lake Mead NRA and Lake Mead's water levels, as well as common structural characteristics, fixed effects to account for unobserved locally constant characteristics and temporal variation, and specific variables such as distance to the Las Vegas Strip and downtown casinos. We first estimate two global models: (1) standard hedonic model and (2) A spatial hedonic model that accounts for spatial autocorrelation from surrounding property values (SARAR). To guard against biased and inconsistent estimates resulting from heteroskedasticity, we estimate this models using generalized spatial two-stage least squares (GS2SLS) (Arraiz et al., 2010). Finally, we estimate a third local linear regression model: (3) A geographically weighted regression (GWR) that demonstrates how the valuation of water levels and proximity to the NRA varies throughout the LVMA residential sales market.

Preliminary findings show that both local and global results suggest that homes farther from the strip have higher selling prices than homes located closer to the strip. While the local model indicates that proximity to the NRA entry point is positively capitalized in single family residential homes within four miles. The local model also reveals that falling water levels in Lake Mead are negatively capitalized in a single community, Sunrise Manor, which contains residential sales closest to Lake Mead.

This study will contribute to hedonic studies in two ways. It will estimate the economic value of a national park and falling water levels in Lake Mead. Second it quantifies how this value changes throughout the LVMA region.

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Key Words: Spatial Hedonic Models, Real Estate Values, Water levels, National Parks

ATTACHED TO PLACE OR BONDED TO PEOPLE: EVIDENCE FROM THE WESTPARK HOPE VI EVALUATION

Abstract ID: 996

Individual Paper Submission

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With the relocation experience, research found that HOPV VI relocatees lose their social ties from their attached community at their former public housing (Curley 2010; Manzo, 2014). Although research has emphasized the role of social ties and attachment to public housing areas which influence the outcomes at their destination neighborhoods (Goetz 2010, 2013; Kleit & Manzo, 2006; Oakley et al., 2013; Manzo et al., 2008;), it has paid less attention to the difference between those two subjective, cognitive and affective factors. Although their causality has not been established, empirical studies using multivariate analysis found a strong relationship between place attachment and social ties for low-income households (Kleinhans, Priemus, & Engbersen, 2007; Livingston, Bailey, & Kearns, 2008). Another study suggests the positive relationship between place attachment and residential satisfaction may affect residents' outcomes such as their capabilities and adaptation level (Choi, Park, & Lee, 2016). In addition, more social interaction and social ties brings about higher levels of residential satisfaction (Amérigo & Aragonés, 1997; Andersen, 2008; Dekker & Bolt, 2005). To investigate the role of residential satisfaction in the context of revitalization program, this study explores how residential satisfaction is affected by the relationship between social ties or place attachment during the displacement process. Using two waves of survey (pre and post-move) with three time points (retrospective, pre-, and post-move) of the Bremerton Wahsington's Westpark project, this study investigates the casual relationships through the framework of a causal model. Expected results from longitudinal SEM analyses would demonstrate that forming new social ties was associated negatively with place attachment at pubic housing as relocatees moved into a new neighborhood. Place attachment, which functioned as a mediating variable, would be associated with higher residential satisfaction after creating social ties at new residential settings. Therefore, these findings emphasize the importance of place attachment as a possible mediator between social ties and residential satisfaction.

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Key Words: Place Attachment, Social ties, residential satisfaction, HOPE VI

BUILDING CIVIC CAPACITY IN THE FACE OF DECLINE: THE EFFECT OF STATE POLICY ON LAND BANKS

Abstract ID: 1008

Individual Paper Submission

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The term civic capacity was coined by political scientist and urban scholar Clarence N. Stone (2001). It describes conditions in which “various sectors of a community come together to solve a particular problem” (Stone et al. 2001). In shrinking cities and towns, civic capacity can be frayed, or strengthened, with key organizations making the difference (Dieterich-Ward 2016, Safford, 2009). This study posits state policy may enable or inhibit declining places to build new civic capacity. This proposition is examined by using land bank formation and operation as an example resilience in the face of decline. To study this proposition, I analyze state land banking legislation, paying particular attention to funding and property acquisition mechanisms. I then categorize more than 170 land banks according to the legislative context in which they operate. Next, gathering basic information on all land banks and conducting detailed case studies at two initial cities, this study examines whether strong state enabling legislation has led to more effective land banks. Initial findings suggest the state policy is mediated by two factors: the presence of civic institutions (philanthropies, community-based organizations, corporate headquarters, hospitals, universities, etc) and the geographic pattern and extent of economic decline in local property markets.

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Key Words: Urban decline, land bank, civic capacity

BEYOND GENTRIFICATION DICHOTOMIES: NEWCOMER'S AND OLD TIMERS' PERCEPTIONS OF NEIGHBORHOOD CHANGES AND COMMITMENTS TO CHANGING THE NEIGHBORHOOD

Abstract ID: 1014

Individual Paper Submission

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The perspectives and interests of long-term residents and newcomers to gentrifying communities are typically construed as dichotomous and conflicting. Studies tend to examine the effects of the influx of more affluent, educated, and mostly white residents on the physical, economic, social, and political displacement of lower-income, less educated, and more racially and ethnically diverse old-timers. Observations that some newcomers use their influence over planning decisions to curtail displacement counter this sharp dichotomy between newcomer and old timer interests (e.g. Brown-Saracino 2009).

We know less about how newcomers' dedication to preserving their vision of the community's authenticity is aligned with longer-term residents' perceptions of neighborhood changes and their priorities for planning and

development. Nor is the potential for advocacy coalitions that unite residents with different prospects for benefiting from development well understood.

This paper draws on participatory action research in Somerville, Massachusetts – a historically working-class city of immigrants undergoing gentrification in anticipation of transit-oriented development – to provide a more nuanced understanding of residents’ responses to neighborhood change. It compares and contrasts residents’ perceptions of recent changes, their priorities for future development, and their participation in planning and protests with respect to a range of demographic characteristics and along a continuum of length of residence in the community. It also examines the ways in which these commonalities and differences have influenced coalition building and advocacy for development without displacement.

Two primary data sources inform the study. A survey designed with input from residents was administered by resident teams in two phases: in door-to-door interviews in two neighborhoods targeted for development in the new transit corridor (N=80) and at gatherings of participants in four service delivery and community organizing programs (N=67). Three years of participant observation of two neighborhood coalitions’ meetings, city-led planning meetings and design charrettes, and public hearings about permitting and zoning elucidate the variation in civic engagement among sub-groups and the nature of interactions among them. Stakeholder interviews and local media accounts supplement these observations.

Findings suggest that perceptions of whether the neighborhood is changing for the better or for the worse are more similar than interest-based analysis would predict, despite significant differences in financial stress and housing conditions. Life-cycle factors account for somewhat more of the variation in perceptions of change than do length of residence, housing tenure, race and ethnicity, and other socio-economic factors.

Although reported participation in a range of civic engagement activities is positively correlated with income and education, virtually all survey respondents expressed optimism that collective action can benefit all residents. Countering assumptions about the inevitability of political displacement, more people of color and lower-income residents were involved in collective action in the “high-gentrifying” neighborhood where housing costs are rising faster and anti-displacement organizing has been more extensive than in the neighborhood where gentrification is progressing more slowly. Indeed, residents who are most vulnerable to displacement have assumed leadership roles in local coalitions, city-appointed committees, and the elected city council along-side their newer neighbors, often supplanting (mostly white) old timers. Nevertheless, barriers to engagement mean that white, more affluent, and highly educated newcomers tend to be over-represented in forums that promote housing affordability and job creation.

Findings suggest that research should employ multi-factor categorizations of residents to analyze experiences and impacts of gentrification and devote more attention to variation across household, neighborhood, and city-wide levels of action and analysis. The paper raises directions for further research about how service-providing organizations and community organizers influence residents’ engagement in neighborhood change.

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Key Words: gentrification, displacement , civic engagement , community mobilization

"IT'S NOT MUCH, BUT AT LEAST IT'S AFFORDABLE: AN ANALYSIS OF THE IMPACT THAT LIVING IN SUPPLY CONSTRAINED MARKETS HAS ON HOUSING CONSUMPTION."

Abstract ID: 1017

Individual Paper Submission

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By driving up prices, constraints on new residential develop limit the options available to families as they search for housing. Faced with high housing prices and fewer choices, families alter their housing consumption in many ways—some spend more of their income on housing expenses, while others choose to purchase or rent homes farther away from employment opportunities or in underserved neighborhoods. In this paper, I examine whether families in supply-constrained places also respond to high housing prices by changing the physical characteristics of housing they consume.

To test this question, I use data from two (2011 and 2013) metropolitan samples of the American Housing Survey to compare the characteristics of housing occupied by families in highly-constrained housing markets to those living in relatively unconstrained places. I find evidence that in constrained markets where housing is very expensive, households are more likely to live in smaller houses, units lacking certain amenities, or those in poor physical condition. I also examine the distributional impact of these distortions. In every city in my sample, low- and very low-income households are substantially more likely to live in units with certain physical problems than are higher-income families, and I identify little difference between families living in constrained and unconstrained markets. But I find that for moderate- and high-income families, living in expensive, constrained places increases their likelihood of occupying worse housing. While there is a large and growing literature that shows how supply constraints alter the neighborhoods in which families live, my study is the first, to my knowledge, that documents an association between supply constraints, housing prices, and the physical attributes of housing families occupy. The findings of my research add to the list of social problems associated with supply-constraints and high housing prices. By improving our understanding of the breadth of problems supply-constraints cause, my study can help inform policy which seek to mitigate their harm.

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Key Words: Housing Consumption, Quality, Supply Constraints, Affordability

PLANNING FOR FEAR: UNDERSTANDING RISK AS MOTIVATION FOR COMMUNITY ENGAGEMENT IN INFORMAL SETTLEMENTS.

Abstract ID: 1021

Individual Paper Submission

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After decades of authoritarian planning in Brazil, community engagement is increasingly regarded as a valuable process to improve informal housing conditions. However, it remains a challenge to understand why dwellers chose to participate in any collective activity to strengthen and improve the community (independent of its scale). This may be since those motivations are largely tied to subjective emotional components. Such psychological bonds between people and places has long been studied in Environmental Psychology through the

concept of Place Attachment (PA) and appropriated by multiple fields in empirical and conceptual studies (Riger & Lavrakas, 1981). Thus, I employ PA to identify how both quality of the built space and psychological associations influence dweller's motivations for community engagement in informal communities in Brazil. I will explore tenure risk as a motivation, which has not been broadly explored in studies of PA. Engagement is often presented in PA literature as a key positive component based on the premise that people who value an environment tend to be more active in its preservation or improvement (Manzo & Perkins, 2006). However, this study investigates whether negative associations of risk brought by tenure insecurity and government interventions are also drivers of engagement. Specifically, I posed the following questions in the study:

Q.1) Do communities at risk tend to be more engaged?

Q.2) What are their motivations for engagement?

Q.3) What factors and/or stakeholders promote engagement?

I make use of quantitative data and interviews from communities in the city of Fortaleza, Brazil as a representative case study. Fortaleza is the 5th largest city in Brazil and presents about 66% of its population living in informality. Two phases were established for the methodology: 1) Statistical analysis of a dataset that registered the conditions of all 797 informal settlements in the city of (HABITAFOR, 2010); 2) Semi-structured interviews with several key community leaders from diverse informal settlements in Fortaleza. The interviews looked at motivations for citizen engagement, dweller's perceptions of risk and stakeholders that contribute to engagement in three different phases of the settlement: Initial establishment of the community; Consolidation over time and Involvement with government plans.

The preliminary results presented in this paper generally supported the hypothesis indicating that the more community organizations (representative of community engagement), the higher is the probability for intervention with resettlement ($p < 0.05$), for displacing a larger amount of households ($p < 0.001$), for being a smaller settlement (with less than 50hh) ($p < 0.001$) and to be considered a priority for government intervention due to environmental risk ($p < 0.01$). The framework I present points to a disconnect between PA literature which is tied to availability of resources (Lewicka, 2010) and what takes place in the context of shortage of informal settlements.

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Key Words: place attachment, community engagement, informal settlements, risk

IMPACT OF CHANGES IN URBAN FORM ON TRAVEL BEHAVIOR: RESULTS FROM A RESIDENTIAL MOVERS' STUDY

Abstract ID: 1030

Individual Paper Submission

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Central theme or hypothesis:

One of the challenges in land use and transportation research is isolating the effect of urban form on travel behavior (Knuiman, et al., 2014; Frank, Saelens, Powell, & Chapman, 2007). Some studies have used residential relocation as a way to isolate the causal effect urban form on travel behavior (Krizek, 2003; Klinger & Lanzendorf, 2016). However, these studies have not fully accounted for multiple factors that may play a

significant role in affecting travel behavior. Such factors include preference for certain neighborhood types, preference of specific mode of transportation, life events, and past behavior (Van Acker, Wee, & Witlox, 2010). Very few studies have simultaneously accounted for these factors to examine the effects of changes in urban form on travel behavior. This study uses residential relocation as an opportunity to capture the change in neighborhood walkability and regional accessibility and its effects on frequency of auto, transit, and walking trips.

Approach and methodology:

This study uses data from CHANGE (Changes in Health, Activity, and Nutrition across Geographic Environments), a longitudinal study of residential movers in Vancouver, BC, Canada. The participants were recruited for the CHANGE study between April 2012 and August of 2014. Participants were asked to complete a survey, wear an accelerometer for at least eight hours a day for four days, and fill out detailed travel diaries for each trip taken outside of the home during the same four-day period (Time 1). Six months after moving to their new residence, participants were asked to participate in a second, follow-up phase, during which they repeated the same study protocol (Time 2). A parallel “control” sample of households who did not undergo a move was also recruited. Potential control participants were preferentially recruited via a stratified recruitment strategy that sought to match controls to movers based on their socioeconomic and demographic criteria. Controls followed the same study protocol as the movers, completing identical surveys, and wearing accelerometers and filling out the travel diaries during the same four-day period. The study used a first differencing method of panel analysis, which uses change scores of urban form (ΔX , between Time 1 and Time 2) and other covariates (ΔZ) to predict changes in trip frequency (ΔY).

Findings:

The preliminary results show that changes in neighborhood walkability have a significant positive effect on walking trips, but only for home based non-work trips. We did not find a significant effect of the change in neighborhood walkability on transit and auto trips. Changes in regional accessibility were also not found to have any significant effect on trip frequencies. The final results of our analysis will shed light on the causal effect of the change in urban form on the travel behavior while accounting for other important confounders.

Relevance to planning scholarship, practice, or education:

The results from this study provide causal evidence on the effect of change in urban form on travel behavior. In addition, this study will also provide information on the role of residential and travel preferences, life events, and past behaviors affecting travel behavior.

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Key Words: Urban form, Neighborhood walkability, Regional accessibility, Travel behavior, Residential relocation

EMERGING STRATEGIES FOR INTEGRATING HEALTH AND HOUSING

Abstract ID: 1050

Individual Paper Submission

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For decades, housing professionals, public health officials, and city leaders have recognized the link between people's homes and their health and well-being. Residents of substandard housing may face health hazards such as toxic lead paint or mold, and the struggle to cover housing expenses may contribute to chronic stress and reduce resources available for other basic needs such as an adequate diet or access to health care. The housing sector has historically led the charge to create healthy homes and living environments, focusing on improving affordability and housing quality, and forging connections with health services. Only recently, with increased attention on the social determinants of health, have health care leaders embraced interventions that address non-health factors such as housing.

In this study, we identify and study emerging interventions that integrate housing and health services for low-income populations, where the health sector has been a leader to: 1) align health services and housing in one place, 2) optimize health sector investments in housing; or, 3) use housing and community development policies to promote health. We conducted over 30 interviews with national experts, including non-profit housing and health providers, foundations, health payers, environmental health leaders, and community developers. We asked them about new strategies or practices that met our criteria, and what they knew about these in terms of partners, funding, opportunities, and challenges. Next, we selected six case studies that represented a diverse group of strategies, partners, and geographies covered. We interviewed over 50 partner staff members, including leadership of partnering housing and health organizations, funders, local government stakeholders, and community health workers. We asked about: what motivated them to get involved, activities/strategies used, their partners, funding, community engagement, data and evaluation, and policy environments.

Our case studies ranged from those targeting health and housing interventions within a single building, to a single neighborhood, to an entire city, and finally to a national strategy to engage local partners in an array of interventions. The Conway Center in Washington, DC is the only intervention that is not up and running yet. This partnership is between a FQHC and a nonprofit housing developer and employment training center to co-locate new housing, clinic, and employment training center in a single building. The Healthy Neighborhood Healthy Families program of Nationwide Children's Hospital and Community Development for All People took a block by block approach to turn around distressed housing and vacant lots in a Columbus, Ohio neighborhood. The Vita Health and Wellness District in Stamford, Connecticut leveraged public housing revitalization and expansion of the Stamford Hospital to achievement broader community health goals. A citywide partnership between the Boston Housing Authority, the Boston Public Health Commission and local universities, has elevated the profile of housing's effect on population health, and nurtured a number of programs to promote housing as health. In Austin, Texas, Foundation Communities has worked with St. David's Foundation and a variety of local partners to bring health education and services to residents of their 19 affordable housing properties. Finally, UnitedHealthcare has worked at the national level to identify ways to partner with local organizations to better locate and serve their Medicaid members through a number of different strategies.

We found five common themes across all six diverse cases that are relevant to other groups considering these types of partnerships: 1) allies are everywhere, 2) both public and private funding sources are essential, 3) community residents are an asset to the work, 4) data integration is difficult, but essential, and 5) measurement matters, but is lagging. We provide some suggestions for overcoming challenges in establishing new health and housing partnerships.

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Key Words: affordable housing, health

THE IMPACT OF HOUSING AGE ON RESIDENTIAL MOBILITY: EMPIRICAL EVIDENCES FROM THE 100 US METROPOLITAN AREAS, 2000 TO 2012

Abstract ID: 1058

Individual Paper Submission

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The main objective of this paper is to investigate how much of the apparent inter-metropolitan variation in mobility rates is due to the age of the housing stock available to in-movers. There is a common belief that the collective effect of housing on life cycles of individuals and households is pervasive and cumulative. However, existing research on residential mobility is deficient in relation to the spatiality of detailed housing characteristics. The sharply uneven patterns of residential mobility in the US constitute an important dimension of diverse housing market dynamics. This is particularly true if we consider housing market disparities before and after the financial crisis and the subsequent recession in the US. It is clear that residential mobility is dependent not only on one's life-cycle stage and economic circumstances in countries but also on the nature of each metropolitan area's housing market condition, which may constrain individual behavior.

While previous studies have emphasized the role of individual characteristics, the present analysis investigates the influence of housing age and metropolitan housing market conditions in constraining local mobility. Research needs to be comprehensive enough to understand the complex interaction between an individual's moving propensity and metropolitan housing market dynamics. This paper presents a multi-level analysis of factors explaining residential mobility. We adopt the Public Use Microdata Sample (PUMS) from the 2000 census, and the 2007 and 2012 American Community Survey (ACS) for our analysis. This study has extracted data for the 100 largest metropolitan areas in the US. Substantial differences are found to exist across both types of households and metropolitan areas in the likelihood that households have recently changed address.

Age of housing unit is found to make a substantial contribution to explaining inter-metropolitan differences in mobility rates. In models combining owners and renters, introduction of housing age lowers metropolitan variance by about 30–60%, dependent upon the three different cross-sections. The effect of housing age is highly significant, and strong differences are found across successive vintages. At the individual level, households in older housing have substantially lower recent mobility rates even after controlling for age, tenure, income, migration status, and other household- and metropolitan-level factors. We also find that housing market characteristics show some heterogeneous effects on household moving propensity by tenure.

The posited explanation for the housing age effect is that older units progressively contain increasingly settled occupants, which results in fewer opportunities for in-movers in metropolitan housing markets with older housing. This study suspects that older housings may suppress the mobility of residents by creating an environment where relatively few vacancies are generated and opportunities for moving are reduced. It is likely that areas that have older dwelling stocks are more established and are less likely to exhibit high turnover rates and generate fewer vacancies. In other words, households in older housing have a lower likelihood of recent mobility, even after controlling for such comprehensive mobility determinants as diverse demographic and socio-economic household characteristics, housing, and housing market characteristics. This study concludes that housing age can explain substantial part of the variation of the observed inter-metropolitan differences in mobility rates of households that have long puzzled researchers.

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Key Words: Residential Mobility, Housing Market, USA, Multi-level Model

JOBS, AMENITIES, OR HOUSING? THE ROLE OF HOUSING AFFORDABILITY IN INTER-CITY LOCATION CHOICES OF URBAN MIGRANTS

Abstract ID: 1078

Individual Paper Submission

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There have been many debates in urban economics on the relative importance of jobs and amenities in labor's inter-city location choices and urban population dynamics. (Glaeser 2008) By contrast, the role of housing affordability in inter-city migration has received much less attentions, despite its recognized importance in intra-city residential location choices. (Plantinga et al 2013) It has been argued that housing costs play a less important role in long-distance migration compared with job opportunities and amenities. (Greenwood 2014) Nevertheless, research shows housing affordability has been playing a rising role in inter-state migration in the U.S. since late 1970s. (Sasser 2010) Similarly, in China, soaring housing price and the resultant housing affordability crisis have driven many young professionals to leave the top-tier cities and have acted as binding constraints in migrants' location choices, especially in big cities that are destinations of most urban migrants.

A few studies that have explicitly investigated the role of housing affordability in inter-city migration choices have produced quite mixed results. (d'Albis et al 2017; Sasser 2010) Relying on aggregate migration flow and measures of housing costs or instrument variables, these studies either suffer from endogeneity issue or ignore the fact that migrants select cities based on their individual-specific expected housing costs instead of average housing costs. Recent research using discrete choice model and micro-data could circumvent these issues. However, most of these studies either focus on intra-city location choices or the first two stages of inter-city migration decisions, i.e., the decision of whether to move and where to move. (Plantinga et al. 2013) Nevertheless, location choice research without considering migrants' settlement intentions will be less informative to understand long-term urban population dynamics if many of the migrants will ultimately return to origin cities or move to other cities, since only migrants who permanently settle down in destination cities could ultimately translate into long-term urban population growth. Extant research also implicitly assumes the independency between migrants' choices of destination cities and settlement, and separately models these two decisions, while ignoring the fact that some migrants, such as circulating migrants, may have pre-determined settlement intentions prior to migration, and then select destination cities accordingly. (Hugo 2013) Ignoring the inter-dependency between these two decisions has imposed strong behavioral assumptions, producing biased estimates and misleading conclusions on the relative importance of different migration drivers.

To fill these gaps, this research examines the role of housing affordability in migrants' joint decisions of destination cities and settlement. We also explore how migrants with latent heterogeneous choice patterns respond differently to housing affordability in potential destinations. Using individual data from the National Migrant Population Survey in China, we develop a two-stage latent class conditional logit model to jointly depict migrants' decisions of selecting and settling in destination cities. This method allows for latent heterogeneities in individual location preferences and utility dependencies in multi-stage choices. Preliminary results indicate that housing costs play an important role in migrants' decisions of destination cities and settlement. However, migrants with pre-determined settlement decisions prior to migration tend to be less sensitive to housing costs, expected income and other amenities in destination cities. These urban migrants may include circulating migrants, migrants who move due to family reasons, etc.

This research extends current understandings on the relative importance of housing affordability in migrants' inter-city location choices and their settlement propensities in destination cities while accounting for the inter-dependency between these two decisions. Moreover, it reveals that migrants with latent heterogeneous location choice patterns respond differently to housing costs and other urban characteristics, which is particularly important to understand long-term urban population dynamics given the circulating nature of many cross-city migrants.

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Key Words: Housing affordability , Inter-city location choices, Settlement intention, Migrants, Latent class

THE IMPACT OF CHICAGO'S \$1 LARGE LOT PROGRAM ON CRIME AND WEALTH-BUILDING

Abstract ID: 1081

Individual Paper Submission

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Nationwide, as cities struggle with urban shrinkage and spatially-defined hazard vulnerability, urban land vacancy has become an increasingly important issue. To counteract this trend, generate revenue, and encourage development of vacant parcels, cities often seek to sell property via methods including auctions and land banks. Some cities are experimenting with side-yard and same-block lot sale programs, in which property owners are eligible to purchase nearby parcels at discounted rates. Recently, building on similar programs in St. Louis and New Orleans, the City of Chicago began offering some of its 13,000 city-owned properties—many obtained through tax foreclosures—for \$1 to same-block property owners. This 'Large Lots Program' seeks not only to return properties to the tax rolls but to increase safety, generate wealth, and foster neighborhood control of development and land use.

Although scholarship exists on land-banking and urban shrinkage (Dewar 2006, 2015; Mallach 2017), as well as the impact of urban vacancy on neighborhood health (Frazier et al. 2013), few studies have looked at the success of side-lot and same-block programs in particular (See Ganning and Tighe 2015). We investigate two Large Lots pilot programs in Chicago, through which 453 out of an available 4,500 lots were sold to local landowners in two economically distressed neighborhoods on the South and West sides. Specifically we test whether lot sales are associated with a reduction in crime on the same block and in surrounding areas. Utilizing publicly available data from the City of Chicago and the Chicago Metropolitan Agency for Planning, we perform a block-level analysis of the impact of large-lot sales on crime trends and compare changes in crime from before the program was announced to after sales were completed. Blocks with successful sales are compared to a set of statistical control blocks in the same neighborhood. Preliminary results suggest that blocks where citizens participated in the Large-Lot program had a small, but significant reduction in overall crime rates.

In addition to analyzing the impact of the Large-Lot program on neighborhood safety, we also examine the potential wealth generation affects for residents of low-income communities that may occur through a simulation of the full implementation of the program in targeted neighborhoods using a parcel-based projection of land value changes in Chicago.

Urban vacancy axiomatically occurs where property values are low. In the case of Chicago, the greatest concentration of city-owned land is located in neighborhoods defined by urban renewal and decades of disinvestment. While the city's goal of returning property to the tax rolls reflects a general desire to encourage growth and productive use, the program's other stated goals indicate a political and moral imperative for this program: to build wealth, reduce crime, and increase local agency over processes of neighborhood change. The Large Lots program seeks to generate community-driven investment and, as a result, neighborhood health. In this paper, we evaluate indicators of the program's initial success.

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Key Words: vacant land, shrinking cities, land abandonment, land banks, side yards

THE IMPACT OF AIR POLLUTION ON HOUSING PRICES

Abstract ID: 1085

Individual Paper Submission

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This study evaluates the impact of air pollution on housing prices, and estimates the residents' willingness to pay (WTP) for clean air. Under the equilibrium market assumption, people are treated as rational individuals who make decisions based on market prices. Utilizing hedonic price model, air pollution can be measured as one of many property amendments to estimate its implicit market value. Therefore, it helps us to understand how air pollution could affect the residential relocation decision making. Houston is the fourth largest metropolitan area with vast volumes of daily traffic, and also has a top national petroleum refinery industrial at the Gulf Coast region. Both industrial and traffic emission contribute to the degradation of regional air quality. Even though a few studies have addressed the air pollution concerns in this region, we have found no study evaluates its impact on housing prices. In the southern Texas, the city experiences relatively high temperatures over the year than most other cities do, it results in high level of Ozone concentration in the metropolitan region. This study tends to reveal how much the Ozone level would impact housing prices within the Harris County, TX using hedonic price model. And further to estimate the local residents' willingness to pay (WTP). This study acquires air pollution (Ozone) data from Texas Commission of Environmental Quality (TCEQ), housing data from both Harris County Appraisal District (HCAD) and Houston-Galveston Area Council (HGAC), and demographics data from the US Census. Ground level ozone concentrations are measured following the NAAQS. Besides of property structure amendments, economic demographic characters will also be included to further assess the impact of Ozone on low-income communities. The findings can help us better understand the potential effects of environmental degradation on housing demand, it's especially important to those living in low-income neighborhoods.

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Key Words: Air Pollution, Ozone, Housing Prices, Hedonic, Houston

HOLISTIC MODELING OF POST-DISASTER HOUSING RECOVERY

Abstract ID: 1097

Individual Paper Submission

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“Housing recovery is the second disaster”. This is one of the notions that stands out to me when interviewing local stakeholders after disasters. This notion exemplifies how important and how difficult housing is in the overall recovery of a community. Housing recovery is often characterized as a long-term and unequal process largely driven by markets and sometimes supported by government assistance. Slower recovery for vulnerable populations widens the pre-disaster gaps not only with respect to housing but also economic and health conditions, making housing one of the major areas the disaster community can target for reducing disparities through planning. Inequalities in housing recovery could be addressed more effectively if we better understood its patterns and the interconnected factors that shape them. To better understand what factors to change to reduce disparities, we should move beyond single case study events and develop longitudinal datasets that include household level data on recovery resources such as insurance, grants, and loans from government sources and social networks. I will share findings from a research project that links households' socioeconomic features with tax assessments, building permits, and recovery assistance information across multiple events over multiple years to model recovery more accurately and inform planning more effectively.

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Key Words: Housing , Recovery , Inequality, Disaster, Resources

ADVANCING ACCESS TO OPPORTUNITY: HOW MUCH REGIONALISM DO FRONT RANGE METRO AREAS NEED?

Abstract ID: 1111

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As planners and advocates in the U.S. work to increase access to opportunity, they often feel thwarted by the parochialism of small local governments in fragmented regions. Various scholars have tracked regional efforts to address concentrated poverty, segregation, and place-based inequality, but the field remains divided between cautious optimism and pessimism (Bollens 2002, Chapple and Goetz 2011, Lester and Reckhow 2013).

Local governments arguably have had a responsibility to promote equal access to residential opportunity at least since passage of the Fair Housing Act of 1968. After decades of obstruction and tepid commitment by federal and local governments, the Obama Administration finalized in 2015 a new rule on this so-called Affirmatively Furthering Fair Housing (AFFH) mandate (Silverman, Yin, and Patterson 2017). AFFH, under this rule, obliges entitlement jurisdictions (local governments over a certain size, housing authorities, and state departments of housing and community development) to prepare Assessments of Fair Housing (AFH) in tandem with their periodic consolidated plans. AFHs are meant to spur actions within the consolidated plans as well as more broadly through plans, policies, and investments. To support high-quality AFH preparation, HUD developed a series of neighborhood opportunity indicators, an on-line mapping tool, and a step-by-step guidebook; using these processes, while technically optional, could help protect local governments against legal action under the Fair Housing Act. The Trump Administration has delayed the timeline for implementation of the new rule, but the maps and guidelines remain available, and some entitlement jurisdictions and states remain committed to developing AFHs in the near term.

In many metropolitan areas, the highest- and lowest-opportunity neighborhoods are divided among political jurisdictions; in such areas, the prospect of regional equity is diminished by parochialism in the former and disinvestment in the latter. Notwithstanding these disincentives to collaborate, however, some metropolitan areas, including Denver-Boulder (see <http://denver-aurora-boulderafh.com/>), are taking advantage of the new rule's provision for regional AFHs involving at least some jurisdictions (Leonard 2014).

Since mounting a regional AFH involves political will and transaction costs, it's worth considering how regional an AFH would need to be to make substantial headway in access to opportunity. In this paper, therefore, we will capitalize on HUD's opportunity indicators to assess how access to opportunity varies within and among jurisdictions in the 16 metropolitan statistical areas (MSAs) of Colorado (7), New Mexico (4), Montana (3), and Wyoming (2). We will investigate the geography of two of the six opportunity indices—labor market opportunity and school quality—to learn the following:

- 1. How inequitable is access to opportunity in these MSAs for low-income households and for Latinos? (That is, how does the weighted average neighborhood opportunity score of low-income and Latino people compare with that for upper-income people and Anglos?) If access to opportunity is fairly evenly distributed, then few jurisdictions would presumably be motivated to invest heavily in an action-oriented AFH.
- 2. How regional does the AFH need to be? Are there combinations of small numbers of jurisdictions (and perhaps even single jurisdictions) with the potential to capture a large share of the metro area's variation in access to opportunity? And more specifically, can most of the work of regional AFH be accomplished by collaboration among the largest cities and the counties with the most residents living in unincorporated areas?

The analysis will be limited to literature review and quantitative work relying on the AFFH database and Census data (political boundaries). It will then assess the prospective advantages of various levels of regionalism (none, single city-county partnerships, and multijurisdictional) among these varying metropolitan areas.

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Key Words: Affordable housing, Opportunity, Regional equity

MAKING ROOM FOR ALL: CONCEPTUALIZING LONG-TERM NEIGHBORHOOD DIVERSITY IN AN AGE OF MASS MIGRATION

Abstract ID: 1126

Individual Paper Submission

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Since the repeal of racist immigration quotas in 1965, an increasing number of large metropolitan areas have become ethno-racially plural and many of their neighborhoods have become mixed. In Los Angeles, according to Bader and Warkentien (2016), a fifth of all tracts are stable diverse neighborhoods. These are neighborhoods where all major racial and ethnic groups are represented and show no signs of transitioning from one dominant group to another.

This, however, does not mark the end of segregation. In this paper, I examine how the influx of international migrants has changed our conception of segregation through an analysis of the most diverse neighborhoods of Los Angeles, a region that has been highly diverse for decades. Such spaces hold the potential to reveal unique insights into new forms of exclusion that do not rely on the spatial segregation that dominated United States cities until the 1980s (Ellen, 2000). As an initial step in a broader research agenda, I ask whether there is a definition of diversity that can be applied generally across time and metropolitan contexts, but also that carries meaning beyond the description of spatial structure.

There is no proscribed ideal for either the scale or level of diversity (Ellickson, 2006). As such, a neighborhood may be diverse at the block level yet retain clear separations if people do not share public spaces and local amenities. In contrast, at larger scales, diversity may be more meaningful if a cluster of homogeneous areas have to share spaces such that homogeneity quickly dissolve when people leave their home. I address these contending conceptualizations by developing a flexible approach to neighborhood change and build on existing research to insure the measure captures processes that are useful for further analysis.

I use block-level census data for Los Angeles County from 1970 to 2016 to trace the evolution of areas. This enables a spatial analysis that accounts for changes in neighboring units at scales ranging from the tract to meaningful political units. I also use Public Use Microdata Samples going back to 1970 to track metropolitan-level shifts in the incoming and outgoing populations that serve to contextualize small scale changes. Questions of displacement are central to conceptualization of neighborhood diversity and placing small scale changes against larger scale trends can help better understand the processes at work (Zuk et al., 2015).

Diverse areas cannot be easily classified. I show that in a context of large scale changes in the socioeconomic composition of the region, long term diversity, while stable within larger areas changes significantly at smaller scales. Trajectories range from displacement to integrative processes. I begin to disentangle factors influencing these differences with a multinomial logit regression. Factors, such as housing stock, emerge as highly relevant but need further research to establish the mechanism underlying the process. This analysis moves us closer to a definition of diversity that serves to undercut the effect of segregation.

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Key Words: neighborhood diversity, neighborhood change, segregation, displacement

HOMES CHANGING HANDS: PATTERNS OF OWNERSHIP FOLLOWING FORECLOSURE FILINGS, TOLEDO, OHIO

Abstract ID: 1129

Individual Paper Submission

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Previous research on the mortgage foreclosure process in Toledo and Lucas County, Ohio, has shown that between 2004 and 2008, when the foreclosure crisis was at its peak in the state, a number of basic interventions substantially reduced the number of foreclosure filings that eventually resulted in a homeowner losing a home. Among these were, a county-level foreclosure education program, the establishment of a Foreclosure Magistrate's office with the power to send cases to mediation and an aggressive local legal aid community. Still, about 60% of filings ended in owners leaving their homes (Hammel and Shetty, 2013). In this paper, we seek to answer two primary research questions. First, what happened to the ownership of such properties following the homeowners' departure? And second, are there any patterns in the ownership trajectories and locations of these properties that can help guide policy responses?

Since Ohio is a judicial foreclosure state, the foreclosure process generates legal documents at every step, creating several sources of data about individual properties. In general, the complaint, the sheriff's sale, and the confirmation judgment all generate public documents. Data from sources including the Clerk of Courts and the Auditor's Office thus allow us to track the changing ownership of the properties themselves. We take a random sample of homes that entered foreclosure between 2005 and 2009, then follow the legal paperwork associated with each of these properties to see whether they have new resident owners, absentee owners, been returned to banks, been abandoned, become tax delinquent, etc. We are able to map this data. In addition, in order to get a better understanding of the context in which these changes have occurred, we conduct interviews with stakeholders involved in the foreclosure process in the county, including some homeowners forced to leave their homes.

Preliminary findings indicate that foreclosure filings are concentrated within the city and highly focused in a handful of neighborhoods. The suburbanization of foreclosures is not evident. A sheriff's sale on a property indicates a completed foreclosure. Mapping of sheriff's sales indicate a similar spatial pattern of concentration in certain neighborhoods within the city.

The problem of dealing with the large numbers of vacant and abandoned properties resulting from population loss over many decades has only been made more challenging by the recent mortgage crisis. One of the most significant outcomes from a mortgage foreclosure filing resulting in the owner leaving is that the house tends to be abandoned. While the length of abandonment can vary, in areas that have been particularly hard hit, neighborhood stability has also become an issue of significant concern for planners. This research will contribute to our understanding of the processes under way in Toledo and Lucas County over the last few years, in terms of individual properties as well as in terms of neighborhood impacts and provide direction for policy.

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Key Words: mortgage, foreclosures, Toledo, Ohio

GENTRIFICATION NEAR RAIL TRANSIT AREAS: A MICRO-DATA ANALYSIS OF MOVES INTO AND OUT OF LOS ANGELES METRO RAIL STATION AREAS

Abstract ID: 1143

Individual Paper Submission

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The issue of neighborhood impacts of new rail transit stations receives considerable attention from both researchers and the press. However, the lack of adequate fine-grained data over time has precluded the formulation of a consensus view. In using a longitudinal data set on California tax filers, we directly track movements across time and thus alleviate ambiguities of previous studies by directly observing whether rail transit station openings displaced lower-income individuals in Los Angeles County, CA.

Prior evidence of displacement due to rail transit station development is mixed. Chapple (2009) examines a cross-sectional dataset to check for links between gentrification and transit in the San Francisco Bay Area from 1990-2000. She shows that over 80% of 102 gentrifying census tracts during the 1990s were within half-mile of a rail or ferry transit station compared to only 40% of neighborhoods experiencing other forms of neighborhood change (Chapple, 2009). Lin (2002) analyzes whether rail station proximity leads to gentrification in Chicago property values between 1975-1991. He finds mixed results and concludes that while the existence of rail transit helps predict gentrification it is highly context- and time-specific. Kahn (2007) measures the extent of gentrification in income, educational attainment, and home prices in 14 of 16 U.S. cities that have built new transit stations since 1970. He finds that receiving a new station did not necessarily gentrify a tract. Stations exhibiting ‘walk and ride’ characteristics did show evidence of gentrification, while ‘park and ride’ type stations did not. Heilmann (2016) looks at income segregation in Dallas neighborhoods by comparing areas treated with a light-rail station and those treated with an unbuilt and/or canceled light-rail station. He finds that new light-rail stations increase income segregation with low-income households leaving high-income neighborhoods at faster speeds. Though unrelated to transit, McKinnish, Walsh, and White (2008) look for displacement from gentrifying census tracts with a sample of households from the 1990 and 2000 Census Long Form survey. They find “no evidence of displacement [of] non-white households” showing instead that lower-educated African-American households disproportionately stay in gentrifying neighborhoods.

We alleviate ambiguities arising above from cross-sectional data and observations at housing-units by tracking directly who moves in and out and where using a unique dataset provided to us through a partnership with the California Franchise Tax Board(FTB). The data contain annual geocoded California income tax information on household residential location and household income levels between 1993 and 2012. We check using a difference-in-difference framework for one dimension of gentrification: the displacement of lower-income

households by higher-income ones. If the in and out flows of high income and low-income households after the opening of a rail-station is such that there is a net outflow of low-income residents then we observe displacement and; hence, gentrification.

To our knowledge, this is the first study to be able to assess displacement with this level of fidelity; thus, potentially providing the clearest evidence of gentrification to date. Additionally, the paper has clear policy implications when it comes informing the planning of rail-transit lines and their proximate environment in relation to housing needs and preferences.

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Key Words: transit-oriented development, gentrification, displacement, mobility, rail-transit

OUTLAW MUNICIPALITIES: THE SRU LAW, SOCIAL HOUSING AND EXCLUSIONARY PRACTICES IN FRANCE

Abstract ID: 1174

Individual Paper Submission

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In December of 2000, the SRU law (Solidarité et Renouvellement Urbain) was passed in France, requiring all municipalities to devote 25% of their housing stock to social housing. Seventeen years later, the balance is striking: still 1,222 municipalities do not comply with this quota. Out of these, 726 municipalities have to pay a fee, based on the Article 55 of this law. This fee represents a total of 77 million euros for 2017, and helps finance rental social housing.

This law represents a place-based shift for a country long characterized by people-based social housing policymaking. Besides, these figures have to be embedded in a national context of increased segregation trends and housing shortage.

The paradox is that social construction housing is progressing, and peaked in the last triennial time period (2014-2016) as almost 190,000 units were built, which means that 106% of initial goals were reached. Yet, a lot of municipalities are still behind. This generates a vivid polemical debate, particularly when the three-year construction results survey are published along with the list of outlaw municipalities. The two regions that concentrate these outlaw municipalities are Provence-Alpes-Côte d'Azur in the South of France, and the Île-de-France region including the capital city of Paris. Not meeting the social housing quota is often correlated with a right-wing political color.

In this paper, we ask what the impact of the SRU fee on changes in social housing stocks for outlaw municipalities is. To answer such a question, we conduct a Difference-in-Differences study (Freeman 2012) that allows us to measure changes in social housing stocks before and after the passing of the law. Our treatment

group comprises municipalities not complying with quota requirements and subject to the Article 55 fee, while our control group consists in the municipalities not complying with quota requirements, but exempt of the fee.

The theoretical framework in which our questioning is embedded revolves around exclusionary practices and institutional marginalization's role in the making of residential neighborhoods. We consider that local agents, such as municipal governments, contribute to reproducing and further structuring segregated neighborhoods, through the construction of the "social housing stigma" (Wacquant 2006) or the "banlieues stigma" (Dikeç 2007). We also consider that French urban policy making is the product of structural logics of "domination mechanisms" (Tissot 2007). Considering such a framework, can the SRU law manage to curb such exclusionary practices?

We hypothesize that change in social housing production will be higher in the treatment group than in the control group. We assume that variables related to change in social housing stock, approximated using the EPLS (Enquête Parc Logement Social), will be associated with or predicted by several key independent variables, including median income, percentage change in population, political color and property values. We consider these as socio-demographic, political and economic factors that might explain municipalities' behavior. Our findings underscore higher increases in municipalities subject to the Article 55 fee versus those that do not pay the fee. For this reason, our paper fills a gap in the literature by making use of newly released data and by casting a new light on how a Difference-in-Differences model can help us answer our question.

The planning implications of this study are timely, given that in 2017, the government has been examining multiple ways to make the SRU law more efficient, including the possibility for other entities to step in and monitor housing production in outlaw municipalities, the quadrupling of the current Article 55 fee, and the possible inclusion of intermediary housing in the definition of what constitutes social housing stocks.

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Key Words: SRU law, Social housing, France, Exclusionary practices

DIVIDED NEIGHBORHOODS: GENTRIFICATION AND TRANSPORTATION AMONG PORTLAND'S LOW-INCOME BLACK HOUSEHOLDS

Abstract ID: 1177

Individual Paper Submission

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Portland, Oregon's historically segregated neighborhoods have undergone extensive gentrification over the past two decades. Coupled with skyrocketing housing prices throughout the city, low-income Black households have been increasingly pushed to the peripheries of the city, particularly to East Portland (Gibson, 2007). Such housing dynamics heavily affect low-income Black households in Portland. The center of Black culture is still centered in the gentrifying Albina neighborhood with many institutions like Black churches and barbershops offering a safe community in a city where the Black population is very small relative to other large cities in the U.S. As the distances to these institutions grows, it is harder for families to engage in those institutions. Similarly, the more suburban land-uses of East Portland mean there are likely fewer choices of where to go for daily needs and a need to travel further to get to them.

In this paper, I use interviews with 27 low-income Black residents, evenly divided between the Albina neighborhood and East Portland to answer the following questions about low-income Black families in Portland:

- How do their neighborhood environments impact their ability to complete their day-to-day activities?
- How does having friends or family in the other part of town affect their ability to receive help from them?

These questions focus on comparing the stories of those living in Albina and East Portland with an emphasis on transportation as a critical component of them being able to complete their day-to-day activities. I used thematic analysis to highlight commonalities of where they were going, how they were getting there, and difficulties they had in going to the places they wanted/needed to go.

I found that for residents in Albina, gentrification has been a mixed-bag. They remain close to friends and family that still live there, and the neighborhood is familiar as most grew up there. But that is slowly deteriorating as more and more of their friends and family move out, and the neighborhood they grew up in is no longer theirs. Residents highlighted being able to easily walk places was a major advantage of living there. Meanwhile, those living in East Portland limit their activities to specific bus or train lines that go to their house, travel further distances to complete their daily activities, and confront many more safety issues than their Albina counterparts. They too rely on their friends and family that live nearby, but they rely a lot on their family living in Albina even though that trip often adds stress to their life.

Few studies have looked at gentrification from a transportation perspective, or particularly how gentrification impacts the ways families get around. Findings from this study can help planners better understand the implications of dispersal housing strategies that are not well controlled, in particular encouraging the phenomenon of gentrification. These findings also help housing and transit advocates in pushing back on city policies that encourage the negative effects of gentrification.

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Key Words: Housing, Gentrification, Transportation, Neighborhood effects, Black families

THE MARKETIZATION OF PUBLIC LAND UNDER AUSTERITY: THE CASE OF LOCAL AUTHORITY HOUSING COMPANIES IN LONDON

Abstract ID: 1194

Individual Paper Submission

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Set against the backdrop of austerity-led state restructuring and a post-recessionary real estate boom, local authorities in London have started assuming what appears to be a greater role in housing and land markets through the use of council-owned companies to build homes (across a mix of tenures) and to generate a long-term revenue stream for municipal purposes. While there is currently no formal count, surveys estimate that around 150, or about a third of all local authorities in England have set up a housing company since 2014, with the highest concentrations being in London and the South East where land values are the highest (Hackett, 2017).

Local authorities are setting up housing companies for a number of reasons. Within the immediate realm of

housing finance, the use of trading companies has allowed local authorities to circumvent the centrally-imposed cap on their local housing debt (the only part of local government debt that is capped), and to shield future properties from the ‘re-invigorated’ Right to Buy – the policy that gives council tenants the right to buy their homes at a discount, first introduced by Margaret Thatcher’s administration in 1980, and revamped in 2012 under the Conservative-Liberal Democrat coalition. In addition, local authorities are assuming the role of property developers in an attempt to secure alternative sources of income in the context of enduring austerity. Local authorities have then re-emerged as public housebuilders and land developers, but have done so largely using a commercial approach: the housing is technically private, and in the absence of grants for affordable housing, the majority of the new units are set to be at market rents.

The unregulated growth of local housing companies has in turn given rise to a series of tensions and contradictions over the use of municipal land, as local authorities attempt to advance often conflicting housing and revenue objectives. Local authorities are also assuming new forms of risk that have the potential of amplifying the very fiscal and housing crises that they are attempting to solve. They bear, for example, the risk of development not occurring, the risk of bankruptcy, and the risk that a greater share of local revenue is spent servicing debt if companies fail to become profitable.

Drawing on policy documents and interviews with key local authority actors, legal consultants, policy analysts, and others, this paper examines why and how local authorities in London are setting up wholly-owned housing companies, and with what effects. More specifically, through a multiple-case and multi-scalar research design, I address the following questions: (1) What are the contextual drivers for the rapid rise of state-owned housing companies at this particular political-economic conjuncture? (2) What are the motivations for the creation of housing companies from the perspective of state actors? (3) What logics and rationalities influence the policy design process particularly in relation to the financing and valuation of land, as well its future use, management and ownership? (4) What problems and contradictions have emerged as this land strategy is brought into practice?

The key argument advanced in this paper is that an analysis of local authorities as property developers needs to be sensitive both to the idiosyncrasies of land and the historically contingent practices through which rental income is extracted from it, and to the role of the state as manager and mediator of political and economic crises. The research contributes to a growing literature on public land ownership and the marketization of public land, and to debates on urban governance under conditions of deepening austerity and crisis (Christophers, 2017; Whiteside, 2017; Jessop, 2002; Peck, 2012).

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Key Words: Public land, Housing, Governance, Municipal, Finance

AN END TO MIDDLE CLASS WHITE HOUSING PRIVILEGE: INTERROGATING CHANGES IN THE BAY AREA HOUSING MARKET, 2008-2017.

Abstract ID: 1197

Individual Paper Submission

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Subsequent to the housing-led financial crisis in the late 2000s, the prices of housing in many U.S. metropolitan areas stagnated for years at levels well below their peak. However, in a handful of key regions

around the nation, including the Bay Area, home prices (inasmuch as they fell) rapidly regained and surpassed their prior market values. These ‘globally desirable’ cities in the U.S. and elsewhere—Vancouver and Toronto are other North American examples—have become sites of international capital accumulation, where globally wealthy families are simultaneously parking wealth in real estate and using these homes as insurance policies should they need to facilitate relocation or utilize the American health care system (The Economist 2017). This international intensification of already-ongoing wealth accumulation has led to some truly remarkable patterns of urban property valuation. San Francisco’s average house price broke above 1 million dollars in 2013 and 1.5 million in 2017 (Paragon 2017).

This paper asks: what happened to the relationship between Bay Area real estate price dynamics and regional housing politics between 2008 and 2017? This paper analyzes a combination of real estate records and archival data to argue that what has occurred in the Bay Area during the last decade is the rapid passing of an inflection point in which middle and upper middle income, white-identified professionals can no longer afford to own or to rent homes in the region’s core municipalities except in exceptional circumstances. What we are seeing in response, is a widening of a ‘politics of poverty’ to exceptionally privileged households by historical standards. In principle, this is an alarming development, but it is not intrinsically a more alarming situation than one where low or moderate-income households cannot afford to secure adequate housing. Yet despite the increasingly heated rhetoric of housing [in]justice in the Bay Area over the past 10 years, relatively little has changed about the increasing unaffordability of housing. I argue that this is in part because the underlying pricing dynamics are not driven by population levels directly but by an influx of capital that is essentially untethered from the ‘normal’ dynamics of the labor market.

There are two important lessons for the planning community to learn from the unusual housing market conditions in the Bay Area. The first is the surprising futility of housing justice as a motivating framework for systematic urban policy. If a substantial voting block consisting of educated white middle-class households being rapidly priced out of neighborhoods cannot successfully motivate broadly relevant political solutions, this bodes poorly for the efforts of low and moderate-income voting blocks, even in less expensive cities. The Bay Area case illustrates how few widely palatable policy tools are currently available for mitigating unaffordability in the face of regionally pervasive housing price pressure. The second major lesson is evidence of what it takes to motivate upper-middle class households to take up the cause of housing justice: namely, their own housing options must be at immediate risk. The paper closes with a discussion of how the case of the Bay Area over the past 10 years illuminates some of the conditions that would be necessary to cultivate a durable political commitment to adequate housing that reaches all the way to low-income households.

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Key Words: housing, gentrification, Bay Area, housing justice, housing privilege

FROM CITIZEN PARTICIPATION TO STREET POWER AND COMMUNITY CONTROL: A COMPARATIVE ANALYSIS OF THREE COMMUNITY INITIATED URBAN POLICY CAMPAIGNS

Abstract ID: 1202

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Since Arnstein's 1969 seminal publication "A Ladder of Citizen Participation", there has been an important shift toward community-based research to examine participation in community development in the United States. Part of this trend stems from efforts by the state to detach itself from responsibilities for public participation in community development at the local level. Another reason includes a popular assumption by community-based scholars that community-based research might better capture power-sharing questions. There is a gap in the citizen participation literature, however, in that there is the need to transcend generalized descriptions of residents and community groups engaging in innovative citizen participation activities inside public-private participation activities tied to process, outcomes, and compressed deadlines (Brody, D. S., Godschalk, R. D., and Burby J. Raymond 2003). A noteworthy and timely research need is to enter more deeply into the complex nuances of community development campaigns initiated by resident groups and their housing, health, and cultural institutions and community organizing allies, both inside and outside public-private participation practices and do so in a wider temporal scope than typically the case in citizen participation research. Moreover, there is no, to our knowledge, critical research that offers a within city comparative analysis of different community development campaigns that included in their objectives challenges to and reforms for the local public participation planning process and community development policy focused on government transparency, anti-commercial gentrification, and community control over vacant parcels of public land. This article attempts to address some of these gaps in the literature by merging the complexity of real-world experience to theory. We offer questions that concern the manner by which the inside-outside participation model addresses particular issues that are increasingly visible in today's urban and community development context of major cities, such as the commodification of housing, residential and spatial alienation, and gentrification (Madden and Marcuse 2016).

1. How does the inside and outside participation model address the power-sharing needs in today's majority-minority, immigrant, and lower-income inner cities?

2. In terms of practice, what changes to the built environment and urban governance resulted from the inside-outside public participation model?

This case study is based on three participation and community development policy campaigns in Santa Ana, California. We used process mapping methods, participant-observation modes of inquiry (Yin 2003), archival research, and interviews. The campaigns are the 2008 Community Benefits Agreement, 2010 Sunshine Ordinance, and the 2012 Wellness Corridor Resolution. These were initiated by the Santa Ana Collaborative for Responsible Development and the Equity for All Coalition, groups with a history of activist engagement with a track record of concrete policy changes despite noteworthy urban political and urban hardship challenges in this majority Mexican-American, Mexican, and immigrant city (Beard and Sarmiento 2014). The campaigns were a collective urgency to both fulfill and redefine power-sharing ideals between developers and city elites and resident groups and their allies in the face of rapidly encroaching gentrification, transit-oriented development, and new urbanist revitalization. The first and second authors are activist scholars and the remaining authors are campaign coordinators, community organizers, and policy analysts, all of whom had direct involvement in at least two of the campaigns in this study. We show that the move toward what we call street power and community control as suggested by Arnstein takes a more non-linear path than a ladder may suggest and was more successful when community groups initiated a mix of community organizing and more traditional deliberative planning tactics and strategies and carried them out inside and outside public-private planning processes. While city hall adopted or considered some components to all these campaigns, the inside-outside approach was slower, more evolutionary, unpredictable, time-consuming and stress-inducing than standard public-private citizen participation planning that the city had sponsored in the recent past.

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Key Words: participation , public policy , community control, power

PLANNING FOR DEMOLITION IN SHRINKING CITIES—— EVALUATING NEIGHBORHOOD PLANNING IN YOUNGSTOWN, OHIO

Abstract ID: 1210

Individual Paper Submission

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Shrinking cities and the range of resulting negative byproducts have become key features of the current rust-belt landscape. Among their various byproducts, vacant and abandoned properties are the centerpiece of planners and local authorities’ concerns (Hollander, et al., 2009). Although many localities have proposed several ways, like code enforcement and tax foreclosure, to tackle the urban vacancy, there is still a crucial problem remaining: the lacking of any plans to guide the process (Accordino & Johnson, 2000; Dewar, 2006). This study focuses on a well-known shrinking city for its “smart-decline” comprehensive plan, literally Youngstown, its new initiatives to response the aforementioned problem. Since 2014, leading by a community development corporation (CDC) —— Youngstown Neighborhood Development Corporation (YNDC), many Youngstown’s neighborhoods have released and are implementing Neighborhood Action Plans, in which detail parcel-based strategies including demolition, code enforcement and etc and have a five-years’ term of implementation. This study specifically focuses on the plans’ demolition-oriented strategies that have been undertaken by two major entities, county land bank and city government. Therefore, our major research question is: how have the suggested demolitions been implemented by the two entities in terms of demolition. Additionally, our major research motivation is to examine the ongoing Neighborhood Action Plans’ implementation to see collaborative plan’ possibility and feasibility toward tackling the urban vacancy. This study adopts a combination of quantitative and qualitative research methods to answer the research question. Quantitatively, we employed a parcel-based GIS method to compare the Neighborhood Action Plan’s suggested demolitions with the actually demolished parcels to check each plan’s conformance and performance. Qualitatively, we interviewed multiple participants of the Neighborhood Action Plans and crucial stakeholders within related parties, including local neighborhood associations, county land bank, city departments and city council, to inquire details regarding the plans’ making, implementing and evaluating process. Our major findings are as followed. Firstly, we found that the county land bank differs drastically with the city government on implementing the Neighborhood Action Plans’ suggested demolitions that the former has a much higher conformance rate in every neighborhoods than the latter. Second, almost every neighborhoods have relatively high performance rate of the both entities in terms of the number of demolished parcels. Third, the Neighborhood Action Plans’ quarterly-based evaluation meetings are not really put into effectiveness since the plan progress tracking is not clear under complicated collaborative relations. Fourth, we found differentiated feedbacks toward the Neighborhood Action Plans’ implementation in different neighborhoods. This study reveals the bottom-up efforts in a shrinking city that combat with the disinvestment and population loss. Though not being perfectly implemented as supposed, the experience of Neighborhood Action Plans is still worth learning for many other shrinking cities in and beyond the US.

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Key Words: shrinking cities , demolition , neighborhood planning

SHIFTS IN THE RENTAL HOUSING LANDSCAPE: IMPLICATIONS FOR TRANSIT ACCESS IN LOS ANGELES, CA

Abstract ID: 1215

Individual Paper Submission

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Overview of research

Location matters to households for both housing and transportation decisions. As policy makers seek to lower greenhouse gas emissions and vehicle miles traveled, households face a common related issue: rising housing costs. Simultaneously, median wages have remained stagnant. In a hot market, rental housing prices respond faster to market pressures than mortgages as leases are generally not in 30-year fixed terms (Hwang & Quigley, 2006). This can put renters, especially those in regions with growing populations like Los Angeles, in a situation that requires them to relocate in order to find housing at an affordable price point. Some households, especially those with low incomes and no car access, prefer to locate in transit-rich neighborhoods (Glaeser, Kahn, & Rappaport, 2008). Yet, with the return of affluent households to urban housing, this could mean that lower-cost rental units shifted away from urban centers (Lee, 2011). Through this research I examine where rental units at various price points were at two time periods in the Los Angeles region and the associated differences in transit accessibility.

The purpose of this research is first to identify whether and where shifts took place in Los Angeles, CA in the locations of rental housing units across multiple cost brackets, then to identify the associated shifts in transit accessibility for those cost brackets, with a special attention to lower-cost units.

Research questions

Research question 1: What were the changes in the spatial distribution of rental homes by monthly gross rent brackets between the American Community Survey 5-year datasets 2006-2010 and 2012-2016 in Los Angeles, CA?

Research question 2: Based on the changes in spatial distribution of rental homes by monthly gross rent brackets, what were the associated changes in transit accessibility?

Research methodology + data source

Secondary data. Using American Community Survey (ACS) data, I compare the ACS 5-year datasets 2006-2010 and 2012-2016. The ACS includes counts of units within a range of monthly gross rents brackets at the census tract level. Adjusted for inflation, the ACS data can reveal which areas lost and/or gained units during the time period. Transit accessibility by census tract can be measured via the US Environmental Protection Agency's Smart Location Database transit variables, such as destinations accessible by transit.

Analysis. I use geographic information system (GIS) software to look at the shifts within the ACS data in the quantity and location of rental housing units available in each gross rent bracket by census tract. Based on the shifts in location of concentrations of units in a given rent bracket, I calculate the change in transit accessibility. For example, if 100 units at or below \$X of rent were available in 2006-2010 in downtown Los Angeles (census tract A) and only 40 units remained available in 2012-2016, 60 units at or below \$X either increased in another part of Los Angeles (census tract B) or were lost overall in the region. The associated accessibility change would be the difference of the transit accessibility ratings between paired census tracts A and B for rental bracket Z at \$X.

Findings

Research in progress, to be finished by August 1, 2018.

Implications and actionable conclusions

Counting and locating shifts in these rental homes over the time period can reveal transit accessibility shifts influenced by rental housing pressures. Services associated with the income segments which reside in lower-cost rental housing neighborhoods—everything from employment services to transportation—would need to adjust accordingly. The implications of these paired shifts might warrant adjusting policies related to affordable housing (Hamidi, Ewing, & Renne, 2016), transit services (Giuliano, 2005), and economic development in the region (Lee, 2011).

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Key Words: rental housing, affordable housing, transit access

THE EFFECT OF SHORT-TERM RENTALS ON LONG-TERM RENTAL RATES: ANALYSIS OF AIRBNB LISTINGS IN ELEVEN CITIES IN THE US.

Abstract ID: 1227

Individual Paper Submission

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Urban vacation rentals, such as those listing on Airbnb, have surged rapidly in U.S. cities in recent years. This phenomenon raises issues of concern to elected officials, planners and housing advocates about the potential impact of Airbnb listings on communities and housing market. Since the launch of Airbnb, there has been a controversy over its benefits and its external costs on local neighborhoods, and that controversy made it difficult for policy makers and city officials to determine whether and if so how, to regulate it. One reason for this lack of policy guidance is the absence of research on these questions.

Some research has examined the impacts of Airbnb on the hotel industry (Zervas, 2017), and on the spatial pattern of Airbnb listings in cities such as New York, Austin, Boston, and Chicago (Cole et al, 2017, Wegman 2017). But only limited research has been published on the impact of Airbnb on housing markets (Barron et al, 2017; Horn and Merante, 2017). Merante examined the impact of Airbnb in Boston. This research, which examines Airbnb effects on long-term rental housing markets, contributes to the emerging literature on Airbnb in two primary ways. It is the first study that has been done on multiple cities across the United States. It is also novel in that we combine Airbnb data with a new source of big data, daily rental listings from the Craigslist website, to assess impacts of Airbnb on long-term rental rates.

Research has been limited by the lack of available data on Airbnb home-sharing. Airbnb does not provide access for researchers to download the data for its listings directly from its website, like Redfin does for sales listings. To overcome this limitation, this research collected and analyzed Airbnb listings for more than ten major

metropolitan areas in the U.S., using different web scraping methods over the period of six months.

This paper explores the density and nature of Airbnb listings in eleven Metropolitan Areas and their implications for communities and housing market. Rental listings from Craigslist was used to estimate a hedonic regression model to estimate the impact of Airbnb on long-term rents. Our result suggest that although Airbnb advertises that their site is meant for people who want to rent out their house during their own holiday or to rent out a spare room to make an extra money to pay the rent, it has become apparent that some hosts use Airbnb to rent out entire homes, in which they do not live, the entire year. A large proportion of listings in almost all studied areas appear to be commercial hosts with more than three listings. Also, our regression analysis shows that Airbnb density is strongly correlated with higher rents in all metro areas.

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Key Words: Home sharing, Rental market, Airbnb, Housing affordability, Web scraping

REMOVING THE MARKET MASK IN BALTIMORE: AN ALTERNATIVE VALUE ANALYSIS

Abstract ID: 1233

Individual Paper Submission

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In an effort to address widespread property abandonment, the City of Baltimore currently uses a Housing Market Typology map to strategize where to invest its limited municipal resources. The map was created using Market Value Analysis, which uses market and housing indicators to divide Baltimore into five color-coded zones. Purple indicates “regional choice” neighborhoods with strong housing markets, while red indicates “stressed” neighborhoods with virtually no housing market. For the past decade, the City has been using iterations of these maps to make decisions about where to invest its limited municipal resources. Its strategy is to focus resources in middle-market neighborhoods and to move people out of bottom-market neighborhoods, which it deems too financially disinvested to be revitalized in the near future.

The quantitative market data used to create the Housing Market Typology map appear, on their face, to be objective measures of the states of neighborhoods. However, when compared to the data used to create redlining maps in the 1930s, their objectivity is called into question. Indeed, the similarity with the now denounced redlining maps is clear: of the 10 indicators used in the creation of Baltimore’s Housing Typology Map, six appear in some iteration in the “area descriptions” the Homeowners Loan Corporation used in 1937 to evaluate and rank neighborhoods. This current iteration of disinvestment, in which the agent is the municipality, as opposed to private lenders, demonstrates the profound implications of a neoliberal model of community development for future racial equity in a city with a charged history of racism.

Using GIS to overlay Baltimore's racial demographics, urban renewal areas, and vacancies with its Housing Market Typology map, I demonstrate that the trajectory and targets of disinvestment in Baltimore have been consistent over the past 80 years. I then use alternative indicators, chosen in conjunction with residents of neighborhoods deemed "stressed" according to market indicators, to create maps that tell a different story about "regional choice" and "stress" in Baltimore's neighborhoods. One key finding is that by focusing on only market resources to decide where to make infrastructure improvements and where to disinvest municipal resources, Baltimore City is actively disinvesting in neighborhoods most densely populated with its most precious resource: children.

This paper is relevant to practitioners of planning as it points to equity concerns that arise when increasingly accessible quantitative data is used to dictate the course of local policy, without appropriate regard for historical and community context. The paper will be of interest to planning scholars interrogating the objectivity of the data planners habitually use. On a more abstract level, this work addresses foundational questions – as they are currently playing out in the neighborhoods of Baltimore – about the role of municipal government: whether it is to provide services in an equitable manner to all citizens, or whether it is to facilitate economic development and growth. In partial response to these foundational questions, it points to the limitations of depending on market mechanisms to address housing market failures in urban communities.

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Key Words: Vacancy and abandonment, Community development, Housing, Shrinking Cities, Equity

IF YOU LET THEM BUILD IT THEY WON'T NECESSARILY COME: ACCESSORY DWELLING UNITS AND THE LIMITS OF LOCAL LAND USE REFORM

Abstract ID: 1235

Individual Paper Submission

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For decades, planners and researchers have promoted Accessory Dwelling Units for the potential benefits they offer to homeowners, tenants, and municipalities, including housing for seniors to age in place; affordable housing for smaller households; extra rooms for extended families; and infill housing in suburban areas seeking densification. Given these reasons, a growing number of U.S. cities and towns have adopted ADU ordinances. Yet, the production of ADUs remains quite low, especially compared to Vancouver's production of more than 2,000 ADUs since 2010.

Existing research on ADU production notes both the permission to build ADUs and the capacity and political support to promote them are crucial for ADU production. But few studies have explored the varying nature of ADU ordinances or the reasons planners may or may not promote them, even if they are permitted.

This paper is based on three iterative ADU studies in metro Denver from 2012 to 2017. The first, conducted in 2012, combined interviews and email exchanges with planners, activists and elected officials active in the ADU question in Colorado; field work in metro Denver municipalities; and extensive archival and document-based research focused on the proliferation of ADU development in the United States. The second study was conducted in 2013 and 2014 and involved 49 semi-structured interviews with professionals and activists involved in the

planning, promotion, financing, development, and selling of ADUs in metro Denver and the other cities in Colorado. A follow-up survey and interviews were conducted in 2016 and 2017 of the 59 jurisdictions in the Denver regional planning area.

Metro Denver is a prime example of the issues explored in more recent ADU studies. Its ideal conditions for ADU development—a mounting housing crisis, a growing and aging population, and a sprawling suburban land use pattern—have prompted more planners and policymakers to legalize ADUs. Between 2012 and 2017 the number of permitting jurisdictions increased from 12 to 23, with three more considering it. Still, only 3 of the 23 municipalities reported more than 100 legal units having been developed, and most report many fewer than 50, if any. We draw five conclusions from this research. First, the origins of ADU ordinances are mostly planner driven, with a few exceptions, but motivations are widely divergent. Second, the diverse motivations are in part due to the complexities by jurisdiction type, from urban cities to rural counties, such as overlapping districts for water and sewer, and limited land use tools in unincorporated areas. Third, there were varying degrees of contentiousness, but most planners remained cautious. Fourth, to avoid potential contentiousness, planners have intentionally implemented incomplete and prohibitive codes, e.g. with high parking requirements, small footprints, and owner occupancy requirements. Fifth, the planners are unable to actively promote ADUs, either to avoid political issues or because they realize the prohibitive nature of their code.

The gap between permission and production has important implications for both theory and practice. For theory, our findings show a limit in ideological debates over the specifics of land use regulation related to affordable housing. A more holistic approach needs to consider specific regulations as one of many factors prohibiting higher levels of affordable housing development. For practice, we argue most municipalities do not have sufficient resources to promote ADUs independently, given the numerous barriers. Regions need an “ADU Resource Hub” to support municipalities. It should include ADU advocates and builders from local government, banking, the non-profit sector, design and development firms, regional agencies, foundations, and universities. We explore the challenges and opportunities for a Hub in the Denver metro area.

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Key Words: housing, accessory units, politics, density, regulation

THE NEW LOCALLY-OWNED SINGLE FAMILY RENTAL MARKET: UNDERSTANDING THE MOTIVATIONS AND BUSINESS MODELS OF SMALL-SCALE PROPERTY MANAGERS

Abstract ID: 1252

Individual Paper Submission

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In the wake of the foreclosure crisis in the United States, the single-family rental (SFR) market grew rapidly and appears to be a lasting fixture even as the housing market recovers. Many recent studies have focused on the emergence of large-scale corporate landlords of single-family rental properties (Sul 2015, Fields, Kohli, and

Schafran 2016, Raymond, et al. 2017), although there is evidence that the number small-scale single-family property managers have also increased (Immergluck and Law 2016). Single-family rental properties can contribute to neighborhood distress if investors purchase properties in poor condition and perform minimal maintenance. But single-family rental managers can contribute to neighborhood stability by rehabilitating and productively using properties that may have otherwise remained vacant (Mallach 2010). But little is known about why single-family property rental investors choose to purchase and operate certain properties.

This study builds on previous work that examined real estate investor purchases of real estate-owned (REO) properties in the Chicago region (McMillan and Chakraborty 2016). It found that many of the small-scale real estate investors entered the rental management business in the wake of the housing market crash were mostly active in largely African American neighborhoods in the City of Chicago and in the region's older, inner-ring suburbs.

Through interviews with real estate professionals, property managers and local government officials in the Chicago region, this study will examine the factors that small-scale real estate investors consider when selecting single family properties for rental use. The questions of this study include: (1) What property-level or neighborhood-level qualities to investors look for when seeking a single-family rental property? (2) Do local, small-scale investors differ in their selection and operation of single-family rental units compared to large institutional investors? and (3) What can local governments do to attract single family rental property managers that contribute to neighborhood stability or revitalization and discourage property managers that exacerbate neighborhood distress?

This study is expected to identify issues that planners and local government officials should consider when planning for housing recovery. A preliminary analysis gathered from completed interviews suggests that local, small-scale investors are more likely to accept housing choice vouchers than large-scale single-family rental property investors.

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Key Words: housing, rental housing, real estate

THE IMPACT OF HOUSING PURCHASE RESTRICTION ON HOUSING MARKETS—A NEW PERSPECTIVE FROM MODELLING BUY-SELLERS IN TRANSACTION NETWORKS

Abstract ID: 1269

Individual Paper Submission

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Housing purchase restrictions (HPR) in China have drawn a lot of attentions due to its huge influence on markets and households. Current literature focuses on the effectiveness of this policy instrument using longitudinal housing price data in multiple cities and employing econometric methods such as difference-in-differences

analysis. These studies provide the big picture that how HPR has reshaped the housing price growth. However, the micro mechanisms of HPR affecting intra-urban housing market are still understudied. Intuitively, HPR imposes constraints on some households so that their demands cannot be fulfilled. This paper argues that this understanding is only about the direct impact of HPR on households and markets. There are considerable indirect impacts generated through transaction networks triggered by HPR, which have been overlooked in current market frameworks.

In this paper, we propose a transaction network model featuring a new type of households who are both buyer and seller at the same time. We show that this introduction deepens our understanding of market mechanisms and policy implications related to HPR.

Traditionally, economic models treat buyers and sellers in a dichotomic manner, that is, a market participant is either buyer or seller at a given time. However, in many durable good markets such as housing, it is common that one could be a buyer and seller at the same time, and has to make these two decisions---buy and sell---simultaneously (we call this type “buy-seller” in the following). For example, for a single-house owner, switching house involves selling the previous house and buying a new one at the same time. According to our survey for housing buyers in Beijing from July to August, 2016, 45% of our sample (1192) are “exchange buyers”, who are selling a housing unit while purchasing the new one.

As a buyer, one’s successful sale is necessary for his new purchase due to a budget constraint or some policy restrictions; as a seller, he cannot sell without a successful bid, or he will have to rent for living. From the perspective of network, more interestingly, one’s failure in either buying or selling will fail all potential transactions linked to him, and will trigger a ripple effect to the whole bidding and transaction network.

Despite of its existence and significant role in the housing market, the buy-seller and its independence feature have not been explicitly modeled yet. In this paper, we propose an analytical framework and an agent-based model (ABM) for markets with 3 types of households: pure buyer, buy-seller, and pure seller. First, two basic successful patterns---loop and chain---are identified under simultaneous bidding mechanism with limited information (every trader only knows his own information). The HPR are interpreted as a shock converting some pure buyers into buy-sellers, and direct and indirect influences are theoretically measured under the proposed framework. In addition, the role of housing broker industries is introduced as “bidding contracts” which give buy-sellers who fail in bidding/selling additional time to bid/sell before rejecting/withdrawing, and thus increase transaction chances of the whole market.

This research, for the first time, introduces the behavior of buy-seller type market participant to understand the micro mechanism of HPR, and shows the total impact (direct and indirect) of HPR on the whole market. For the ABM literature, this study provides a way to incorporate buy-seller type, and tackles the loop identification issue in ABM algorithm. It is especially significant for empirical ABM applications to regions where resale housing market is dominant.

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Key Words: Housing Purchase Restriction, Buy-Seller, Market Mechanism, Bidding Network, Agent-based Model

THE ROLE OF ACCESSIBILITY TO JOBS AND TRANSPORTATION ON RESIDENTIAL MOBILITY OF HOUSING CHOICE VOUCHER RECIPIENTS

Abstract ID: 1275

Individual Paper Submission

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Housing Choice Voucher program, which serves about 2.1 million low-income households with tenant-based housing assistance for rent and utility, is intended not only to provide rental subsidy to lessen housing burden but also to promote housing mobility to provide low-income families with higher social and economic opportunities. Since families who obtain a housing choice voucher can choose where they live, advocates of the program expected that the families will move to better neighborhoods with lower poverty rate, better school and public services, and higher safety. According to residential mobility research, however, a lot of voucher holders are still living in neighborhoods with high poverty rate, although they live in relatively lower poverty and higher education level neighborhoods than the neighborhoods they have lived before the program. Furthermore, voucher holders who moved to neighborhoods with lower poverty rate have not shown positive improvement in economic self-sufficiency (McClure, 2013; Sanbonmatsu et. al., 2011; Ludwig et. al., 2012).

Recent studies point out that there is another important factor that influence residential mobility of voucher holders which is accessibility to jobs and transportation. They argue that transit access to family, jobs, schools, social networks, and institutions was a primary concern to the voucher holders when they choose the place they moved to through the program. They also found that voucher holders who moved to places with higher access to public transit and jobs more likely to live in neighborhoods with lower concentrations of poverty, higher employment rate, higher median rents, more owner-occupied housing, lower vacancy rates, greater access to open space, and lower levels of cancer risk. This implies that better accessibility to transportation and jobs can enable voucher holders to better search for housing as well as provide access to potential employment, public services, and other opportunities within a reasonable travel time (Graves, 2016; Pendall et. al., 2014).

This study aims to find the role of accessibility to jobs and transportation on residential mobility of voucher holders empirically. In order to identify this, the study will answer to a question: Does housing choice voucher recipients moved to neighborhoods with lower poverty rate or neighborhoods with higher jobs and transit opportunity? In order to answer this question, this study first develop a measurement of job accessibility by different transit modes to identify where higher accessibility areas are located. Further, using longitudinal housing choice voucher mobility data in the Cincinnati Metropolitan Area (Cincinnati MSA), this study tracks residential mobility patterns of individual voucher holders to address where they have moved to in relation to job accessibility indices.

This study found complex outcomes. Voucher holders in high poverty neighborhoods are more likely to relocate to neighborhoods with higher employment opportunity accessible by public transit and lower poverty rate. However, their mobility pattern shows opposite direction when we consider employment opportunity accessible by walking and car. This study can provide policy implication for the future housing policy based on those findings.

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SEGREGATING ACCESS TO MORTGAGE CREDIT: A SPATIAL ASSESSMENT OF RACIAL INEQUITIES IN THE MORTGAGE LENDING MARKET

Abstract ID: 1293

Individual Paper Submission

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This study examines the relationship between neighborhood racial composition and access to mortgage credit before and during the period of recovery from the mortgage lending crisis in the United States. Beginning in the early 20th century with the adoption of Home Ownership Loan Corporation redlining maps by private and government lenders, a long history of discriminatory mortgage lending practices exists in the U.S. Despite the passage of 1968's Fair Housing Act, mortgage discrimination continued to contribute to residential segregation and the uneven distribution of home equity for both minority borrowers and in minority neighborhoods. During the subprime lending crisis, reverse redlining resulted in minority borrowers and neighborhoods being targeted for sub-prime loans (Been, Ellen & Madar 2008), which contributed to higher rates of foreclosure among minority borrowers and in segregated minority during the subsequent downturn (Rugh & Massey 2010). Additionally, the post-crisis housing market recovery saw continued racial disparities in both mortgage lending outcomes and credit costs (Faber 2018) with increased inequities in highly segregated areas (Hwang et al. 2015). Given these findings, the links between mortgage lending outcomes and borrower race, neighborhood racial composition, and levels of segregation are clear. However, a focus on patterns of inequities in historically disadvantaged neighborhoods has left the outcomes of minority borrowers seeking mortgage credit in majority-white neighborhoods under-studied. Accounts of racial steering by realtors and borrower self-selection indicate that these factors contribute to low levels of minority borrowers seeking credit in majority-white neighborhoods. However, the outcomes of those minority borrowers that do seek homeownership in such areas has received less attention. This study seeks to fill this gap by assessing mortgage outcomes and credit costs for black and Hispanic borrowers seeking mortgage credit in homogenous white neighborhoods. While previous studies have shown that mortgage lending outcomes and credit costs vary across races and neighborhoods (Faber 2018; Immergluck 2009) and depending on levels of neighborhood and metropolitan-level segregation (Hwang et al. 2015) none have specifically assessed outcomes and credit costs for minority applicants who seek mortgage credit in homogeneous white neighborhoods. Exploring this issue will shed light on whether discrimination in the mortgage lending market is only a force perpetuating disinvestment in minority neighborhoods, or if it also plays a direct role in the maintenance of white neighborhood homogeneity.

To investigate this topic, this study compares mortgage lending outcomes and credit costs for black, Hispanic, Asian, and white borrowers in census tracts defined based on their racial makeup in neighborhoods in the 20 largest U.S. metros. To assess the impact of the mortgage lending crisis and its recovery on these issues, two time periods will be analyzed: 2005 and 2015. Information on credit applicants and outcomes will come from Home Mortgage Disclosure Act, while neighborhood characteristics will be provided by the US Census and American Community Survey. Mortgage outcomes (i.e. approval decisions and credit costs) will be estimated using logistic regression. These outcomes will be measured as functions of neighborhood racial composition (i.e. whether homogenous-white), applicant characteristics, loan characteristics, and additional neighborhood characteristics. Results will allow for an assessment of the impact of seeking credit in a homogenous white neighborhood for minority applicants compared to white applicants, controlling for other potential causal factors.

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Key Words: Mortgage Lending, Segregation, Neighborhoods, Discrimination

FROM PUBLIC TO HYBRID: THE CHALLENGES AND OPPORTUNITIES IN A PUBLIC HOUSING AUTHORITY BECOMING A HYBRID ORGANIZATION

Abstract ID: 1316

Individual Paper Submission

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Over the past 30 years, public housing policy in the United States has favored increasing flexibility for local public housing authorities (PHAs). These changes are exemplified by initiatives such as the Moving to Work (MTW) program, which grants waivers to PHAs from restrictions on use of funds to allow the testing of new, local initiatives, and the HOPE VI and Choice Neighborhoods Initiative (Choice), which give competitive grants to PHAs to redevelop public housing into mixed-income projects that respond to local needs and priorities. These programs and many other smaller initiatives reflect two parallel efforts. The first is to allow greater adaptability to meet specific local challenges and opportunities by reducing or removing federal regulations and review. The second is to reduce direct federal support for PHAs by reducing transfers and encouraging increased leveraging of private finance. In 2011, the Rental Assistance Demonstration (RAD) was introduced as a new tool available to PHAs to finance rehabilitation and preservation. This program continues the pattern of earlier programs, affording PHAs the ability to leverage partnerships and private financing to meet specific local capital investment needs. Recent proposals to expand both MTW and RAD indicate this pattern is likely to continue and expand.

Within the funding and regulatory environment described above, PHAs have had to reassess their operations and approaches. For some, this has meant adopting a defensive strategy, reducing and refocusing their activities (Kleit and Page, 2008). Others have attempted to adapt to the new environment by becoming hybrid organization, blending characteristics and approaches from multiple sectors – public, private, and nonprofit – to further an organizations mission and goals (Billis, 2010; Nguyen, Rohe, and Cowan, 2012). This paper explores the evolution of Home Forward (formerly the Portland Housing Authority) as a hybrid organization. Drawing on documents, interviews, and participant observation, this paper examines how Home Forward has aggressively used the latitude afforded by MTW and more recently RAD to develop innovative intra- and inter-organizational approaches over the past decade to expand its ability to create affordable housing and meet resident needs. To do this, the organization has adopted and adapted an increasing number of private and sector techniques, practices, and strategies while leveraging its position as a government entity and conduit for federal programs and funds. This is particular true of private sector real estate development and management practices. Among other activities, Home Forward has become a large developer of Low Income Housing Tax Credit units, adopted an asset management strategy for their entire portfolio of properties, created a nonprofit subsidiary to facilitate property transactions, established a risk management division to identify and mitigate property and financial risks, and partnered with a range of private and nonprofit developers and financial institutions on new development projects (including a mixed-use, high-rise, cross-laminate timber project). The recent commitment to convert their entire remaining stock of public housing to project-based vouchers through RAD is a continuation of this transition.

The move to a hybrid structure incorporating numerous private sector practices can afford PHAs new avenues to meet organizational mission and public policy goals, as well as an expanded role in local affordable housing provision. Home Forward has been able to raise capital to rehabilitate and preserve its existing stock, while also strategically redeploying resources to create new affordable units. However, the move has also created new tensions including: need to expand and maintain internal capacity and expertise, pressure to contain costs (esp. personnel), exposure to greater financial risk, and challenge of still being a government entity (e.g., procurement requirements). These tensions suggest that this may be a difficult model for other PHAs to successfully replicate.

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Key Words: hybrid organizations, public housing authorities, Rental Assistance Demonstration

WHERE WAS THE NEW DEAL? INVESTIGATING DISPARITIES IN PLACE-BASED FEDERAL INVESTMENTS AND THEIR ASSOCIATED HEALTH EFFECTS

Abstract ID: 1318

Individual Paper Submission

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The New Deal (1933-1937) included major community development programs of the 20th century in the United States, and represented an unprecedented public expenditure on a variety of welfare and social initiatives intended to provide relief to American citizens during the Great Depression. A wide literature has documented the enduring positive legacy on individual human capital and health, and critical analyses and activism have clarified how these community development programs were designed and/or applied in ways that omitted African Americans.¹⁻³ Only recently have researchers started to apply modern methodologies to interrogate the full scope and magnitude of this systematic racial exclusion.⁴ Using individual-level 1940 Census data linked to health outcomes from the Health and Retirement Study, as well as sites identified by the Living New Deal Project,⁵ this study addresses three primary questions: 1) Were different kinds of place-based projects more race-neutral in their spatial distribution than others?, 2) Were place-based projects funded under the New Deal associated with mortality outcomes of individuals residing in the communities where public projects were located?, and 3) Were existing gaps between white and black mortality widened by unequal distributions of New Deal investments in community development? By merging multiple databases across years before and after New Deal projects were completed, we offer a picture of how one of the nation's largest packages of social programs contributed to unequal health trajectories among both individuals and communities.

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Key Words: race, community development, built environment, health, New Deal

THE EFFECT OF REGULATORY CHANGES ON RENTAL HOUSING IN LOS ANGELES

Abstract ID: 1322

Individual Paper Submission

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Los Angeles needs more housing. The median monthly rental price for a one-bedroom apartment is over 50% of the average renter's household income, and the homeless population grew by 23% from 2016 to 2017. To address this shortcoming, California legislators adopted new laws in 2016 to ease regulations and encourage the construction of accessory dwelling units (ADUs)—small, secondary housing units on lots zoned for single-family homes. Prior to this policy change, fewer than 1,000 ADUs had been permitted in the City of Los Angeles in over a decade. After the legislative change, the City permitted 2,200 ADUs in a single year. However, the affect this shift will have on the rental housing market is undetermined; it is unclear whether these permits were for the legalization of some of the estimated 50,000 unpermitted units already filling Los Angeles or if they are markers for newly constructed ADUs.

This research examines what effect the legislative change has on rental housing in Los Angeles by comparing permitting patterns of unpermitted ADUs with those of permitted ADUs at the census tract level. This research engages with past attempts to identify and measure unpermitted ADU construction in California; however, it differs in two primary ways: first, I measure unpermitted units at the census tract level by using assessor and census data; and second, I examine these unpermitted units in relation to the 3,000 permitted units in the City of Los Angeles. Through this mixed quantitative and spatial analysis of ADUs, I am able to determine what neighborhood characteristics are associated with higher levels of permitted versus unpermitted ADUs. This research provides planners a better understanding of how statewide regulatory changes affect ADU construction and permitting within Los Angeles, who benefits the most from the changes, and in turn, how this might affect the availability of rental housing across the city.

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Key Words: Accessory Dwelling Units, Housing

ACTIVISM IN THE BUILT ENVIRONMENT: COMMUNITY-BASED ORGANIZATIONS AND ADVOCACY NETWORKS IN THE AFFORDABLE HOUSING DEBATE IN BOYLE HEIGHTS

Abstract ID: 1324

Individual Paper Submission

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The neighborhood of Boyle Heights in Los Angeles is currently experiencing two phenomena: gentrification and an affordable housing crisis. The local landscape of social and political relationships continues to intensify due to growing housing insecurity and rising costs of living throughout the neighborhood. Boyle Heights residents and advocacy organizations fiercely engage in public debate with each other, local businesses, outsiders, and political elites. They have struggled to influence development plans in the neighborhood, ensure an equitable distribution of resources, and expand affordable housing. Advocates and community-based organizations (CBO) have largely pursued two contrasting strategies to address these issues. One strategy pursued by professional non-profit CBOs focuses on providing community services, affordable housing options, and advocacy-planning. The other strategy involves insurgent planners. This consists of a coalition pushing an anti-gentrification/anti-displacement perspective. Their underlying goals include efforts to increase direct democracy in urban planning and local governance through confrontational tactics targeting gentrifiers (e.g. coffee shops, galleries). The insurgents have even targeted some professional CBO's, claiming that they are part of the gentrification process rather than the solution. The political activities and networks of professional CBOs require a closer analysis to understand one perspective of this political landscape reflecting the city's political and economic logic on development and housing.

Using the case of Boyle Heights, this paper addresses the types of tactics and political frameworks utilized by CBOs (McCarthy & Zald; Staggenborg, 1988). CBOs engage in the debate with non-contentious social movement tactics, emphasize homeownership for current residents, and utilize normalized political channels of local governance to advance their views concerning urban development. This agenda and tactical approach are contingent upon the networks that CBOs are linked to. Literature on housing advocacy organizations discusses the historical legacy and networks of CBOs and their role in shaping policy but lacks further analysis on the mechanisms used to sustain such networks and how they engage in the politics of urban development (Erickson, 2006; Yerena, 2015). I address this gap in the literature by discussing how organizational networks and tactics can shape social capital and inspire collective action around the distribution of resources (Small, 2006).

This paper examines how networks and tactics help shape local policy grievances and policy outcomes for gentrification and affordable housing. I place such literature in conversation with my own preliminary data retrieved through participant observations at an established non-profit community development corporation located in Boyle Heights in 2017, observations at community meetings and local events, and a content analysis of materials produced by select CBOs from 2017 to 2018. My initial findings present a political landscape in which action, organizing, and agenda setting appear to be shaped by organizational ties to political and business elites of the city, including banks and foundations. The ability of CBOs to effectively address these issues of gentrification and housing seems limited due to their professional character and their networks requiring them to maintain access to funders and political leaders to preserve their resources, political capital, and organizational viability. I argue that dependency on political actors and sources of support can effectively limit the scope of demands and constrain political tactics. CBOs confront shortcomings in their tactical approaches to local issues which may undermine opportunities for marginalized and/or grassroots voices to be accounted for in the debate on urban development and affordable housing resources.

Examining the tensions between CBOs and neighborhood institutions can provide important lessons on how political tactics and networks work in relationship to political representation in the built environment. These lessons have larger implications on the integration of marginalized voices in planning processes and civil society at large.

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Key Words: Urban Politics, Community Development, Advocacy Groups, Affordable Housing, Gentrification

SMART AND CONNECTED COMMUNITIES: EMPOWERING PEOPLE AND PLACES THROUGH DYNAMIC, COMMUNITY-BASED REAL ESTATE VALUATION

Abstract ID: 1342

Individual Paper Submission

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Low-income communities across the United States are losing their real estate assets to institutional investors because they lack critical information and analytic tools that larger scale and better equipped investors have. This paper overviews the disparity in the kinds of information – and its resulting access – that puts low-income communities at a disadvantage and makes them vulnerable to disproportional loss of wealth and displacement

from their historic communities. It will outline the multifaceted components of real-estate value in low-income communities, as defined by the community residents, by leveraging what some have called “cities of data.”

This paper contributes to the field of urban and regional planning and its growing subfield of real estate. By proposing the use of Structural Equation Modeling to disaggregate components of real estate value is rare, but appropriate for a complex and differentiated product such as real estate. We anticipate that future studies will use SEM models to extend the study of such a complex product as land and structures. Because real estate and land economics frameworks have driven the debate on property value, it has never taken an extensive look into how it may be possible quantify the broader social constructs that have long been seen to be important, but too abstract to quantify. The inability to monetize the “capital” part of social capital is a challenge the field has faced for years, and our methods are the first we are aware of that attempts to measure it in a way that directly links it to financial decision making. The integrative research here develops a new metric for measuring land and real estate value based on a new Urban Development Index, uses social media data to measure social capital in space, and converts it into real estate value estimates. Our use of newly available social media and Big Data to operationalize a widely accepted socio-economic form of capital allows us to test the extent to which conventional ways of valuing land align with social capital. Moreover, examining structural relationships will enable future researchers to do similar valuation of planning-oriented assets in related fields such as transportation, water and sanitation, and other areas practical importance to communities.

The project will have impact in four areas: 1) research; 2) tool development; 3) outreach/extension; and 4) youth development. First, the quantification of social capital as a component of neighborhood value has never been done, even though scholars have long recognized its general importance. Because it has not been quantified, the real estate field has not been able to value some of the aspects of valuation that most professionals recognize is important, but lack the tools to integrate it systematically into decision making. Second, because our integrated research plan includes the development of a dynamic application that empirically estimates the value of social capital in poor neighborhoods using social media and big data, the project will result in a generalized application that will be replicable at the national level and a platform for adding additional definitions of value based on community-level interests.

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Key Words: Social Capital, Real Estate Valuation, Assets/Wealth, Big Data, Apps

TRANSIT ORIENTED DEVELOPMENT WITHOUT GENTRIFICATION: TORONTO AND WASHINGTON DC, A COMPARATIVE EVALUATION

Abstract ID: 1344

Individual Paper Submission

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Major revitalization planning projects in the Metro DC will be overviewed along with data about the significant ethnic demographic shifts. The communities **East of the Anacostia River** are in the center of the next substantial transformation in DC. Attention will be paid to one case study - the highly controversial, 15 year, \$400 million

transformation of the Barry Farm neighborhood, which is presently almost entirely occupied by public housing projects. The plan calls for the African American neighborhood of public housing to be redeveloped from single-use, low-income community to a mixed-use, mixed-income neighborhood designed to complement its historic setting and close access to the Metro Station. Public meetings by developers of their plans have been called off because of angry protests from neighbors and activists such as Empower DC opposed to the redevelopment. The Toronto case for the comparative evaluation is Regent Park, Canada's oldest and largest social housing complex dating to the 1940s. This area of Toronto has a long history of government housing, poverty, and higher crime rates. The area is in process of transformation where the old apartments have been demolished but all subsidized renters are guaranteed a new accommodations at the same rate and have been integrated into a new, intensified, mixed use community plan with new, incoming, market rate housing. The presentation reviews planning strategies that can revitalize communities without gentrification.

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Key Words: gentrification, revitalization, Washington DC, Toronto

IS THERE A RELATIONSHIP BETWEEN PLANNING CULTURE AND THE VALUE OF DEVELOPER CONTRIBUTIONS? EVIDENCE FROM ENGLISH LOCAL PLANNING AUTHORITIES.

Abstract ID: 1354

Individual Paper Submission

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There is now increasing recognition that variations in the behavioural and heuristics norms that define context-specific planning practice are fundamental to explaining variations in outcome. For many researchers considering the behavioural aspects of planning has refreshed long-standing interests in 'planning cultures' (Bramley, 2014; Knieling and Othengraffen, 2009; Sanyal, 2005). In this paper we seek to explore the degree to which variations in one aspect of planning culture might begin to shed explanatory light on variations in local planning authorities' capacity to exact developer contributions. Using a case study of English local planning authorities we produce a regression analysis that finds a statistically significant association between the efficiency with which planning authorities deal with applications for development - measured by the time it takes to expedite planning applications - and the value of developer contributions.

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Key Words: Housing, Developer contributions, infrastructure

REGIONAL HOUSING TENURE SYSTEMS, A LEVERAGE IN POLICY MAKING: AN APPROACH ON THE YOUTH JEONSE RENTAL HOUSING PROGRAM IN KOREA

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Social problems create debates which gives birth to a wide range of policies, and as housing is also a social problem, diverse policy actions exist. Ongoing debates on which policy is best for distributing housing for those in need continue. This debate largely divides into two groups, policies of supply such as public housing production programs and policies of subsidy, i.e. demand-side subsidy programs(Orlebeke, 2000). On one side, many claim that the housing problem exist due to the lack of income than supply, and support subsidy programs. Additionally, there are research that identify flaws of public housing such as little social-mix and negative exterior effects like lower living standards that come with this(Winnic,1995; Turner, 2003). On the other side, some claim that public housing programs lowers housing prices and supplies affordable housing to the market(Krumholz, 2004).

Korea's "Youth Jeonse Rental Housing Program" uses Korea's unique tenure system "jeonse" to solve housing problems for the younger generations and stands in the middle of the feud of production and subsidy. The program aims to ease housing expenses by having the Korea Land & Housing Corporation(LH) contract existing homes through jeonse and re-lease it to the youth, leaving the recipient with a small fee. This shows similarities to public housing programs that provide leases at low prices. However, as it offers housing from preexisting supply from the market, it offers the recipient broader choices, similar to the voucher program(Kwon and Choi, 2012).

This research analyzed how three dimensions of the problem are affected by the Youth Jeonse Rental Housing Program. First in supply, LH was able to, despite with relatively less economic and administrative burden, offer a high level of housing welfare. Secondly on the beneficiaries, the program offers lower prices, a broader range of housing choices and allows to take advantage of jeonse's stability. Furthermore, an active social mix between beneficiaries and non-beneficiaries brings less room for discrimination, a strength public housing production programs lack. Finally, analyzes on the effects towards neighborhoods. Existing hypotheses were somewhat contradictory, as some viewed that the increase of low income beneficiaries decreases the neighborhood's market value, while others believed the program actually boosts market value due to public funding. To justify either of these claims, this research used the Spatial Lag Model(SLM) to further analyze the effects of the program. In result, locations affected by the Youth Jeonse Rental Housing Program showed no signs of discount in real estate or leases, but leases that are within the price limit of the program showed rises. This presents that the program minimizes existing problems of public housing programs such as slumification, but still shares a known problem of voucher programs, albeit in only limited price ranges, inflation, which could lead to a reduction of affordable housing.

This research has opened a new branch for finding the solution towards the conundrum of housing by introducing the Youth Jeonse Rental Housing Program. The program started off by understanding the characteristics of the region and aspects of the market, and led to a solution that is superior to its alternatives in supply, beneficiaries, and neighborhoods. It is nearly impossible to directly apply this to markets without systems like jeonse, but suggests the birth of new solution if social characteristics are properly accounted. Especially as this policy used mixtures of existing policies to harness the strengths and supplement the failings, this research believes that this is a core aspect of finding the solution.

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Key Words: Housing Policy, Affordable Housing, Jeonse, Youth, Spatial Lag Model

THE EFFECT OF NEW TRANSIT STATIONS ON HOUSING AFFORDABILITY

Abstract ID: 96

Poster

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Housing affordability has become a pressing concern in the United States' largest cities, where lower income communities are increasingly vulnerable to displacement, as inner city neighborhoods rapidly price-out longtime residents and businesses. Coinciding with this trend has been a renewed interest in urban transit investment, especially in Los Angeles. Concerns, and occasionally loud opposition, have dogged the region's rail projects for decades. Typically the most visible opponents have been affluent homeowners fearing additional development and attraction of crime to their neighborhoods. In recent years, however, lower income neighborhoods have also increasingly mobilized to oppose new transit stations due to fears that they will spur gentrification and ultimately displacement (Hulchanski, 2006; Zuk et al, 2015; Atkinson, 2000).

The purpose of this research is to examine the effect of new transit developments on housing affordability. Using data from the American Community Survey, we analyze the housing data for each of the census tracts that fall within the walk-shed of each of the ten Expo Line Phase 1 rail stations between 2010 and 2016. Los Angeles Metro defines the walk-shed of transit oriented communities as within one half mile of a station. There are 37 census tracts covered by the Expo Line, with all in the city of Los Angeles except for one in Culver City. One reason we selected this rail project is that it was opened in 2012, recently enough to be affected by today's comparable economic conditions. The neighborhoods affected, such as West Adams, are generally lower income than the County median, and are perceived at an elevated risk for displacement by local activists. For purposes of research, we will combine all of these census tracts to form a single "study area" which we can then easily compare with city-, county-, and state-level data.

There are two key measurements that we are tracking, spanning the years immediately before and after the Expo rail line opening. The first is of the distribution of monthly housing costs in each of the census tracts. We intend to track the figures for specifically renters, because the monthly housing costs of homeowners are not as exposed to market fluctuations as renters. The second indicator that we are analyzing among these households is the proportion of monthly income spent on housing. This data allows us to determine how many of these households are spending more than 30% of their monthly income on housing, at which point they are "housing stressed" and considered vulnerable to displacement.

We compare the housing affordability data to that same information for the county, using that as our baseline from which we can determine how much of the change that takes place over those seven years (2010-2016) is aligned with regional fluctuation. We expect to see that during the seven years examined, the monthly housing costs for renters in each of these tracts will have increased at faster rates than the county. We also expect that because housing costs will have increased faster than wages for area residents that the proportion of housing stressed households spending over 30% of their income on housing will have increased relative to the county.

This research demonstrates the change in housing affordability that has occurred in Los Angeles neighborhoods as a result of the new transit station. Ensuring the economic diversity and housing security of Los Angeles' transit oriented communities is critical to the public support and future patronage of public transit projects. With this information, the research will inform the planning community of the unintended consequences of transit projects on housing affordability, and how to be better positioned to mitigate these issues.

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Key Words: Transit, Housing affordability, Gentrification, Displacement

HELPING THE NEIGHBORHOOD: IDENTIFICATION OF SUBSTANDARD HOUSING

Abstract ID: 133

Poster

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The social and economic consequences of the deterioration of housing stock in inner neighborhoods in cities across the US are well known. Although causes for this deterioration are multiple, it is certain that the presence of substandard or deteriorated housing can lead to blight conditions, which in turn decreases property values, affects the overall health of local housing markets, increases safety hazards, and reduces local tax revenue. Different and creative strategies have been undertaken to reverse this deterioration. However, before the implementation of any strategy or policy, conducting an analysis of the quality of housing stock is an important step.

Quality of housing is conceived in the literature as a multi-dimensional concept; therefore, every method and tool to assess it depends on the researcher’s specific perspective and conceptualization ([Sinha, Sarkar, & Mandal, 2017](#)). To consider all these dimensions in an assessment is complex, and although some good strategies have been proposed, they require an intensive collection of data ([Kain, 1970](#)).

Traditional ways to identify deteriorated housing have proved to be time consuming and expensive. Neighborhood organizations usually do not have the knowledge and resources to gather data about the structural condition of housing, never mind perform an analysis. Considering this, attempts have been made to come up with a more efficient way to identify substandard housing. Among those strategies, the most effective have relied on property tax information ([Koebel, 1986](#); [Smith, et al., 2003](#); [Sumka, 1977](#)).

This research relies on these latest efforts to create an index to identify substandard housing using property tax information from a central city neighborhood. This paper adds external validation to the creation of these indexes by comparing the results with a field assessment of housing.

This research confirms that the index of housing quality is a valid tool for the identification of substandard housing. The analysis shows that both the index and field assessment give similar results. These findings are relevant because of the direct impact they have on practice by enabling communities to use existing information to identify deteriorated housing. Identifying substandard housing will provide the necessary data for decision-making in the pursuit of funding and policy-making to help neighborhoods reverse the consequences of deteriorated housing.

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Key Words: Substandard housing, Deteriorated housing, Quality of housing, Structural adequacy, Indexes

HELPING THE LAST, THE LEAST, AND THE LOST: COMPASSIONATE PLANNING FOR BALTIMORE'S UNSHELTERED HOMELESSNESS

Abstract ID: 172

Poster

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Since the 17th century, American cities have been challenged by the problem of unsheltered homelessness. Distinct from those people who sleep in shelters, temporary or transitional quarters, or temporarily stay with a relative or friend, a person is “unsheltered” when they sleep for at least one night in a place that is not fit for human habitation. While many people experiencing unsheltered homelessness live alone, others live in encampments with others for safety and strength in numbers. While encampments provide otherwise itinerant street dwellers with the advantages of communal living, including enhanced safety, pooled resources and labor, and camaraderie, they pose significant challenges for cities and the various stakeholders of their public spaces. Urban policies have frequently viewed the presence of encampments as nuisances, threats to public safety and public health, and as obstructions to the orderly functioning of the cities. These policies have often been promulgated with little concern for the well-being of those who live in these encampments, or have worked at cross purposes with more compassionate public practices and services designed to assist encampment dwellers.

Like many American cities, Baltimore has struggled to deal with unsheltered homelessness and to create effective and humane policies concerning encampments and the citizens that have little choice but to dwell in them. Over the past decade, the city has had several of these encampments, one of which at the intersection of Martin Luther King Jr. Boulevard and West Mulberry Street west of downtown, is the subject of this paper. How should Baltimore City treat their residents who happen to be homeless and unsheltered? What planning policies and housing solutions can assist the unsheltered homeless in their efforts towards residential autonomy?

This paper examines the condition of unsheltered homelessness in Baltimore and chronicles the lives of ten people who lived in a homeless encampment west of the downtown central business district. It attempts to document and understand their perspectives, in the hopes of informing urban planning practices concerning homelessness and the governance of public space. It aims to reform the policies that treat unsheltered homeless as a public nuisance that must be hidden from the public view. It begins to develop more humane and effective practices that accepts the presence of homeless people in the public spaces of American cities and provides them with the maximum opportunities for comfort, health, safety and respect while also helping them obtain permanent housing and jobs.

This paper argues for Baltimore City to develop more compassionate communication and public health policies for dealing with unsheltered homelessness and existing encampments. City officials should also consider supportive housing solutions that range from temporary to permanent, which can be used to improve living conditions at existing encampments and future sites across the city. While the physical needs of unsheltered residents need to be addressed, their emotional needs cannot be forgotten. Planners can help fulfill these needs through planned and unplanned interactions with the unsheltered homeless.

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Key Words: homelessness, encampments, housing policy, public space, equity

THE LOCATION OF AFFORDABLE HOUSING AND COMMUNITY DEVELOPMENT ACTIVITY: ARE WE SPENDING PUBLIC MONEY AT THE RIGHT PLACE?

Abstract ID: 362

Poster

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Formula grants from Department of Housing and Urban Development (HUD) hold a fundamental part in sponsoring affordable housing and community development activities for the low-income population. Since 1995, HUD required the submission of Consolidated Housing Plan as a framework for a community-wide dialogue to identify the priority in receiving Federal supports. This plan is a guiding document for major formula block grant programs including Community Development Block Grant (CDBG) Program, HOME Investment Partnerships (HOME) Program, Emergency Solution Grant (ESG) Program, and Housing Opportunity for Person with AIDS (HOPWA) Program. In the housing literature, there are a handful of studies discussing the spatial issues of housing programs such as HCV, LIHTC, HOPE VI, among others. However, the topic of housing and community development activities covered by Consolidated Housing Plan has not been thoroughly addressed. This research contributes to housing literature by revealing the connection between the concentration of low-income population and spatial distribution of public money spent via housing block grants covered by Consolidated Housing Plan.

Inhering the initial results of the housing plan quality study, the author randomly chooses two cities, from the list of more than 50 cities national wide, for further analysis. The research focuses on two groups of the population. The first one is households with housing problem such as lacking kitchen facilities, lacking plumbing, or overcrowded. The second group is families with severe cost burden. By using the method of spatial statistics and hot-spot analysis, the poster highlights the priority locations for federal support based on the concentration of above population. In addition, each type of Federal support covered in Consolidated Housing Plan is mapped using density analysis. The spatial concentration of CDBG, HOME, and Public Housing activities show where the public money goes. The inconsistency between these maps questions the connection between plan quality and its implementation process. The results also raise serious concerns about the effectiveness of formula block grant programs. Finally, the research expects to trigger a series of discussion between urban planner, researcher, local housing authority, policy maker, and local citizen with the purpose of improving the living condition for people most in need.

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Key Words: Consolidated Housing Plan, formula grant program, affordable housing, community development, spatial distribution

EQUITY PRESERVATION: MAPPING THE GEOGRAPHY OF REINVESTMENT AND COMMUNITY DEVELOPMENT ALLIANCES IN BUFFALO, NEW YORK

Abstract ID: 364

Poster

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Historic preservation is only seldom viewed as an ally to community development. In fact, preservation can be viewed as an adversary or gentrifying force in low income communities (Hurley 2010). Nevertheless, ordinary existing buildings are often more affordable than new construction and the continued and adaptive reuse of building stock can be integral to strategies for maintaining affordable housing (Mueller, Hilde, Torrado, 2018) and the incubation of small, local businesses (Minner, 2013; Powe, et al., 2016). Community development corporations, community land trusts, and other community based organizations, often focus on care and rehabilitation of older properties and therefore they share some interests and tactics with historic preservation organizations. While community development and historic preservation groups may have somewhat different strategies, language, and foci, they are not always mutually exclusive.

In addition, grassroots community development and preservation groups most often take an “asset-based” view, focusing on built and social capital within a neighborhood. Both groups have a stake in reinvestment patterns in communities, with a focus on encouraging economic reinvestment in a community’s built environment. Community organizers and preservationists often recognize the risks of too much investment occurring too quickly within a neighborhood, especially if it results in displacement and demolition.

Drawing on community-based research conducted with the Preservation Green Lab, the Preservation Rightsizing Network, and Preservation Buffalo Niagara- including interviews with local community leaders, and spatial analysis- this poster presents the findings of a community-wide assessment of the linkages between historic preservation, community development and social equity in Buffalo, New York. Acknowledging the need to incorporate "people-based" distributive justice and sustainability goals into the "place-based" preservation dialogue, we propose a preservation framework to unite historic preservation and community development planning.

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Key Words: Historic Preservation, Community Development, Equity, Spatial Analysis, Legacy cities

DISPARITIES BETWEEN PUBLIC HOUSING RECOVERY AND OTHER RESIDENTIAL UNITS AFTER DISASTERS CASE STUDY: LUMBERTON HOUSING RECOVERY AFTER HURRICANE MATHEW, 2016

Abstract ID: 373

Poster

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Scholars believe that residents of public housing are one of the most socially vulnerable people that face significant damages in disasters. Public housing residents often cannot afford temporary or permanent shelters after the disasters due to many factors such as lower income and limited access to information that causes a delay in their housing recovery. Therefore, disaster recovery can be very unequal, where some segments of a community are recovering fast whereas other parts, in particular, public housing residents, are lagging behind. To understand and address this inequality, it is important to explore the differences between the recovery of the public housing units and the other housing units in disaster-affected cities with respect to disaster impact, as well as pace and quality of recovery.

To examine these differences in the recovery process, we chose Lumberton, North Carolina's housing recovery after Hurricane Matthew as a case study. Hurricane Matthew hit North Carolina on October 8, 2016, as a Category 1 storm. Several communities including Lumberton were devastated by heavy rainfall and the river flooding that began after Hurricane Matthew. There were four public housing complexes in the city before the hurricane, which contained 839 units. To investigate the disparities between flood impacts and recovery of public housing and the other housing units in the city we employed comparative statistical and spatial analysis using census data and the collected data in our field studies.

Specifically, we used property values of tax data as well as GIS shapefiles of residential properties in Lumberton. Social vulnerability factors including race, income, poverty, age, education, and housing tenure of the residents at Block Group level were collected from the 2015 ACS-5-year estimation. We used these statistics and spatial analysis to map the social vulnerability of the city. Then, the map was overlaid with public housing complexes locations. Also, data on home damages, recovery resources, decisions, and dislocations were collected using two longitudinal field study surveys conducted in December 2016 shortly after the flooding, and January 2018 one year after the disaster. Therefore, the impact of social vulnerability factors on the damages and the pace and quality of the recovery of public housing units were investigated in comparison with other housing units in Lumberton.

Based on this analysis, social vulnerability hotspot maps were produced. Preliminary findings show that social vulnerability factors including housing tenure, race disparities and incomes below poverty of public housing complexes are greater than the other segments of the city. Thus, these complexes faced severe damages in Lumberton after the flooding. Moreover, the recovery pace of these units and their neighborhoods is slower than the other parts of the city partly due to their greater number of abandoned units. Finally, this poster provides suggestions to help make public housing units and their residents to be more resilient towards similar natural hazards in the future.

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Key Words: Social vulnerability, Public Housing, Recovery, Resilient community

RESIDENTIAL LOCATION CHOICES OF MILLENNIALS – EVIDENCE FROM THE CHICAGO URBANIZED AREA

Abstract ID: 530

Poster

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After more than half a century of massive suburbanization, the central cities of the largest metropolitan areas in the U.S. have grown faster than their suburbs. Mirroring this development, car ownership and driving have also shown a decline after decades of constant growth in automobile use. While many journalists and researchers cheer this potential “urban revival” driven by the Millennial generation, others view the uptick in urban growth as transitory. Skeptics believe that Millennials' seemingly unique location and travel choices are merely an outcome of their economic struggles and delayed lifecycle events (Myers, 2016; Manville et al., 2017). However, if the urban concentration of Millennials is largely lifestyle-driven, especially with respect to their mobility and location preferences, we can expect to see sustained re-urbanization of a kind supported by a more sustainable multi-modal transportation system in the coming decades (Davis et al., 2012; McDonald, 2015; Couture & Handbury, 2016). What are primary location factors that attract Millennials to urban neighborhoods?

This research investigates location choices of the young adult population in the Chicago Urbanized Area for the period of 2006-2015, utilizing a unique mobility dataset, the Info USA Historical Consumer database. This dataset allows us to do an individual household level analysis with fine scale residential location information both before and after their moves. We conduct a series of multinomial logit regression analyses to test several competing hypotheses regarding Millennials' location preferences. We test various location factors including: physical characteristics of the built environment (i.e., density, street connectivity, and land use mix), access to alternative transportation modes (i.e., walking, biking, and public transit), and consumption amenities (e.g., cafes, bars, and cultural facilities) as well as job accessibility, housing market conditions, and other demographic attributes of the neighborhood.

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Key Words: Millennials, Location choice, Consumption amenities, New urbanism

PLACE-MAKING IN THE WAKE OF LIGHT RAIL TRANSIT (LRT): A CASE STUDY FROM SOUTH PHOENIX

Abstract ID: 599

Poster

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In 2016 the United States Census Bureau reported that 80 percent of the U.S. population resides in urban areas (2016). As more and more people choose to live in urban areas, cities must find ways to adapt to and support growing, diverse populations. Part of this adaptation involves increasing the use of transit systems like light rail transit (LRT). LRT, often referred to as streetcars or trams, offers a variety of potential benefits and drawbacks to urban communities. Firstly, light rail an increase human mobility and access to services for those who may not be able to afford a car or who cannot drive (Topalovic et al. 2012). In addition, access to LRT can increase overall

community health, environment, and connectivity, as well as increased transit oriented development and economic development (Topalovic et al. 2012).

However, such beneficial development can lead to an increase in property values, which can displace original community members and cause gentrification (Dziauddin et al; Campbell and Reuter 2008; Kahn 2007). Though bountiful research exists on the benefits and drawbacks of LRT on urban communities, many focus on objective indicators such as housing prices and economic investment to determine its success. A large gap exists in the literature regarding community stakeholder voices. Understanding how members of the community feel about LRT in their community is an important missing piece of the puzzle, especially for social equity issues (Ferbrache and Knowles 2017).

The purpose of this study is to shed light on how LRT development impacts communities that are often ignored in the literature. Thoughts on the benefits and drawbacks of LRT in South Phoenix, and how the community is actively (or indirectly) responding to it, was acquired using semi-structured interviews with the likes of residents, business owners, neighborhood groups, and planners. The case study takes place in South Phoenix, a historically Latino and African American neighborhood, where the Phoenix Metro light rail is to be expanded by the year 2023/2024.

This general area of Phoenix has been described as a ‘hazardscape’, due to the presence of environmental contamination by industry and waste sites, and the unwelcoming traffic from freeways and above flight paths (Bolin, Grineski, and Collins 2005). This case offers a unique perspective on how communities that have been previously marginalized by government and Anglo outsiders preemptively prepare for LRT development in their neighborhoods. Expected findings include that the South Phoenix community will have mixed opinions on the light rail extension, and that their reasoning will be centered around areas of economic development, displacement, and gentrification. In terms of community action, it is expected this community will be highly active in the place-making process surrounding the light rail extension, primarily via community groups and committees, and vocal participation in official meetings. This research serves as a relevant example of how planners need to include community voices in top-down planning projects, especially in historically marginalized communities.

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Key Words: Placemaking , Light rail transit, Gentrification, Displacement, Public participation

ASSESSING BENEFITS OF ARTS AND CULTURAL ORGANIZATIONS TO SINGLE-FAMILY PROPERTY VALUES: A SPATIAL HEDONIC STUDY IN CINCINNATI, OHIO

Abstract ID: 815

Poster

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Recently, promoting cultural industries has become a popular strategy to stimulate city redevelopment (Murdoch, Grodach, and Foster, 2016). By attracting and supporting arts and cultural organizations (ACOs), small retail, and service businesses, the strategy is expected to generate city revenue, transform blighted urban spaces, and develop

urban identity (Markusen, 2013). Research shows that ACOs have positively contributed to city image branding, resident attraction and retention, and brownfield redevelopment (Evans, 2005).

Questions. Although housing prices act as an index to quantitatively measure the attraction of a neighborhood, we have few, if any studies to address the effects of ACOs on residential property values. This analysis seeks to fill this research gap by investigating two questions:

(1) Do ACOs have a positive impact on residential property values?

(2) If so, what type of neighborhood would benefit most from the introduction of ACOs?

It is hypothesized that there is a positive relationship between single-family property values and the number of ACOs within walking distance (5 and 10 minutes).

Methodology. The study area of Cincinnati, a rust belt city in the Midwest, had started to fund local ACOs as part of its community development strategy since 1989. The fund, The City of Cincinnati Arts Allocation, applies 0.14 percent of its General Fund to support of the Cincinnati-based artists and arts and cultural organizations of all sizes. Utilizing property transactions data from Cincinnati Area Geographic Information System (CAGIS), business data from the Infogroup Historical Business Dataset, as well as census data, this paper develops a spatial approach to the evaluation of the effect of ACOs on housing prices. This study implemented three models based on hedonic pricing modeling: a standard hedonic model, a spatial lag model, and a spatial error model. To spatially illustrate the results, this study further used a Geographically Weighted Regression (GWR) function in ArcGIS to identify those areas that would benefit most from ACOs.

Findings. The results show that by controlling lot size, number of bedrooms, year built, distance to the nearest highway exist, as well as community median household income, all three models confirmed the hypothesis that the numbers of ACOs within 10 minutes walking distance are positively significant for single-family property values. This research also found that by controlling spatial autocorrelation, the spatial lag model effectively increased the accuracy of the coefficient estimated by the standard hedonic model. Thus, this research concludes that ACOs do have a significant impact on the prices of surrounding single-family properties. Application of the GWR pointed to three different lower income riverfront neighborhoods having the highest coefficients, suggesting the possibility that increasing the number of ACOs in these neighborhoods might increase single-family property values much more than the other areas in the city. However, the sample size of high impact areas identified by GWR is too small. Thus it is too early to make a conclusion about the common features of these areas.

Implications. For decision makers, the finding that the number of ACOs matters in the single-family property values highlights the need of supporting ACOs in cultural led revitalization strategy. More specifically, by pointing out the high impact areas in the city, urban planners can make a better ACOs promoting strategy in Cincinnati. My further studies will extend the study objects to multi-family properties and apartments, and include a longer period property transactions data to build up a more reliable sample size.

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Key Words: Property Values, Arts and Cultural Organizations, Hedonic Model, Spatial Autocorrelation

NEIGHBORHOODS AS COMMUNITY ASSETS: THE ROLE OF NARRATIVE IN PROTECTING GENTRIFYING NEIGHBORHOODS

Abstract ID: 842

Poster

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Nationwide, cities are experiencing a resurgence as suburbanites and businesses return to vibrant urban scenes. Neighborhoods are assets and sources of stability for these cities. However, during periods of rapid change, maintaining neighborhood stability may be difficult. Gentrification is a type of neighborhood change, which may contribute to residential instability that may lead to weakened social cohesion (Mennis et al. 2013). Existing neighborhoods, particularly those in decline, are ripe for reinvestment and are not always viewed as distinct places. A neighborhood's perceived placelessness may be linked to a lack of narrative.

For neighborhoods without a narrative, how can a meaningful narrative be created that communicates the neighborhood's importance and necessity as an asset to the city at-large? Existing literature on neighborhood narratives involves an analysis of existing narratives (Blokland 2009; Ocejo 2011). Close examination of neighborhood narratives shows how neighborhood culture is developed and maintained over time. These narratives convey the norms, beliefs, values, and future vision of the neighborhood, often from the perspective of gentrifiers. Narrative and storytelling is also discussed as a planning method (Sandercock 2003; Van Hulst 2012). The role of narrative in planning is often overlooked as a resource for formulating policy, creating local knowledge, and critically examining the context of planning issues. Within both of these lines of research, existing narratives are analyzed and evaluated rather than created. Further research is needed into the creation of narratives through a participatory planning process.

Against this background, the purpose of this study seeks to answer the research question: How can planners work with a neighborhood to create a narrative that aims to create social cohesion and empowerment, while also communicating the neighborhood's importance to the city as a whole? More specifically, this research has two objectives: 1) to develop a model for the creation of neighborhood narratives; and 2) to explore the value of narratives in building the capacity of neighborhoods to participate in the planning process.

Using Porters, an historically African American neighborhood in Gainesville, Florida, as a case study, we respond to the research question, with a participatory planning approach. Our participatory "neighborhood narrative" approach documents the Porters neighborhood as an asset to the city in three phases. The first phase of study involves the use of qualitative and quantitative methods create a neighborhood profile in order to understand the past and present neighborhood conditions, including the extent of neighborhood change. Interviews, oral histories, and community engagement activities are used to understand and situate the Porters neighborhood into the context of the surrounding city. In the second phase, we work with a Steering Committee to identify neighborhood assets and formulate the neighborhood narrative. In the third phase, we test the narrative with neighborhood groups and outsiders in a focus group format.

The resulting neighborhood narrative articulates the future vision for Porters. Further, the narrative illustrates the importance of the neighborhood for residents and the Gainesville community as a whole. Our research also demonstrates that the "neighborhood narrative" approach establishes a foundation from which the neighborhood can participate in the planning process. Through the narrative, the residents have the capacity to initiate the necessary planning policy changes. The findings from our study illuminate the complexity of creating

a neighborhood narrative in the face of gentrification pressures, both real and perceived. The study also demonstrates the continued need for planners to engage in supportive neighborhood planning processes to strengthen neighborhoods threatened by redevelopment and displacement.

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Key Words: Gentrification, Neighborhoods, Narrative, Cities, Participatory Planning

DETERMINING MULTIFAMILY RENT IN SPATIAL AND SUBMARKET CONTEXT

Abstract ID: 897

Poster

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It is well known that investments in light rail transit can lead to increases in housing prices and rents with the potential to displace low income residents and lower transit ridership. For this reason, the National Center for Smart Growth (NCSG) at the University of Maryland led the development of the Purple Line Community Development Agreement (PLDA) recently signed by the Executives of Prince George's and Montgomery Counties, the President of the University of Maryland, and a host of other stakeholders and interest group. Foremost among the goals of that agreement is the goal of assuring that housing in the corridor remains affordable for residents of all income levels. As part of its commitment to the PLCA, the NCSG committed to developing a Purple Line Dashboard designed to track a wide range of variables including housing prices and rents. The signatories of the agreement committed to reviewing the data posted on the dashboard on an annual basis to monitor progress toward the completion of the goals.

In this paper we present the Purple Line Real Estate Information tool that is part of the Purple Line Dashboard. This web-based tool presents data on housing prices and rents throughout the Purple Line corridor. The tool includes detailed information on a variety of real estate variables including rents for multifamily units and a variety of attributes such as number of bedrooms, construction quality, school quality, code violations, distance to various attributes, including light rail stations, and more. To gain deeper insights into the performance of the multifamily housing market over time the tool uses information from a hedonic price model that uses multifamily rents as a dependent variable. This hedonic is performed using very high quality rent data provided by the county and advanced statistical techniques, such as spatial hedonic regression. The paper concludes with lessons learned about how to design real estate information systems to promote equitable development in new, light rail corridors.

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Key Words: multifamily, rent, hedonic, spatial, submarket

MIXED-INCOME HOUSING, IS IT FAILURE OR SUCCESS? A REVIEW OF THE LITERATURE

Abstract ID: 973

Poster

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Mixed-income housing has been adopted as a new approach to remedy distressed public housing and to provide affordable housing. The HOPE VI program was one of the federal housing policies to utilize income mixing as a strategy to deconcentrate poverty. The Choice Neighborhood program continues to adopt mixed-income housing with a focus on neighborhood revitalization. However, evaluations about the mixed-income housing practices show mixed results. The two main justifications directly related to poverty alleviation are ‘social capital improvement’ and ‘role modeling’ for the relocated public housing residents. The research results indicate that the assumed impacts did not happen and thus show the necessity of revisiting the theoretical justifications of mixed-income housing policies. Therefore, this study examines the previous literature about mixed-income housing practices for clarifying the different interpretations that are used to determine success or failure of mixed-income housing. The mixed results of previous studies originate from different expectations and broad definitions of mixed-income housing. While studies mainly focusing on neighborhood impact show ‘success’ of mixed-income housing, studies about benefits for low-income population indicate ‘failure’ of the developments. The varied research results indicate that poverty alleviation may not be ideal for theoretical justification of income mixing. Thus, this study recommends further research about examining expectations about mixed-income housing. In addition, further research needs to address whether mixed-income housing policies without the justification of poverty alleviation can be supported as a tool for affordable housing. If the poverty alleviation justification is not necessary, further research is required to examine why the mixed-income housing policies should be supported. This study will help to build clear expectations about mixed-income housing developments and thus improve the future practices.

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Key Words: Mixed-income housing, Poverty alleviation, Affordable housing

EXPLORING BARRIERS/DRIVERS IN LOCAL BUSINESS PARTICIPATION IN DOWNTOWN REVITALIZATION

Abstract ID: 1011

Poster

There has been growing concern over the state of small towns in America as they suffer from outmigration and growing lack of social and economic vitality. One approach to addressing these challenges is creating social space and improving quality of life through downtown revitalization. Yet, over the last decade, especially subsequent to the Great Recession, community development initiatives have experienced even greater decreases in public funding than in previous years (Beckendorf et al., 2014). Diminishing government involvement combined with changing economic conditions have created challenges for rural downtown redevelopment. Despite these challenges, some small communities remain vibrant places, attractive to residents and visitors alike, by leveraging their physical, cultural, and economic assets and investing in a community-based vision, strong local leadership, cross-sector collaboration, attractive streetscapes, and effective marketing (HGAC, 2015).

In recent research conducted by the authors of this study, in which they explored downtown redevelopment of one rural community in Virginia, interviews with communities across the state highlighted leadership of local businesses as a vital ingredient for downtown revitalization. Previous literature also cited these factors in addition to discussing motivations of local businesses and other entities for investment in downtown revitalization efforts. Mowery (2015) highlighted that in bigger cities such as Spokane, WA, many public entities and developers tend to rely on a neoliberal paradigm in which their activities are more or less determined by economic returns for the services offered. However, only few authors explore the motivation and challenges/drivers to participation by local businesses in smaller cities and towns, in a rural setting. For this research, we ask: (a) Why do local businesses engage in downtown revitalization efforts? and (b) What are the practical barriers and drivers for businesses to engage in downtown revitalization?

To answer these questions, we used the case of Christiansburg, Virginia and its downtown revitalization process. Christiansburg, Virginia can be a particularly useful example, as it is emblematic of many small towns in middle America. Christiansburg is a small town, with a population of 22,000 (Social Explorer Tables, 2016). Like many small towns, it has a declining and aging rural population, and has experienced losses in manufacturing and other industry employment. Due to these factors and the rise of big box stores, its once vital downtown in the early 20th century became remote and empty. Now, in an effort to create more public space, improve the overall quality of life, and promote small business growth, public and private entities in the community wish to foster opportunities for the downtown and surrounding neighborhoods.

This study used a three-step methodology to address this topic. We first identified the local businesses situated in downtown Christiansburg by using GIS tools and surveying the downtown area. Next, we narrowed this list to ten local businesses most frequented by community members and interviewed those businesses to understand their perceived role and existing levels of engagement in downtown revitalization. Interviews were semi-structured, allowing for open discussion and deep probing into the challenges and opportunities for business participation in these efforts. Interviews were then qualitatively assessed to draw inferences.

With a growing interest in small downtown revitalization, this study provides important findings to downtown organizations in understanding various drivers/barriers that strengthen/hamper the engagement of local businesses in downtown revitalization. Furthermore, this research strengthens the findings from the previous literature on the importance of local businesses in downtown revitalization and expands on findings that examine businesses' underlying ontologies that inform their engagement in these activities.

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Key Words: Downtown revitalization, Local businesses participation, Small towns

MONETIZING HEALTH IMPACTS OF THE BUILT ENVIRONMENT: MATCHING LONGITUDINAL HEALTH CARE UTILIZATION AND COST WITH LAND USE AND TRANSPORTATION CHARACTERISTICS

Abstract ID: 1031

Poster

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Central theme or hypothesis:

There is growing recognition that health costs are associated with transportation investments and land-use decisions. Improvements in the built environment are associated with increases in physical activity, lower obesity rates, and diabetes incidence, all of which lead to considerable health benefits (Creatore et al. 2016). Conversely, sedentary time spent in cars is associated with higher obesity rates and lower levels of physical activity (Frank, Andresen, and Schmid 2004). Research has linked active transportation with lower risk of cardiovascular disease (Sallis et al. 2012) and with mortality rates (Park and Sener 2017; Woodcock et al. 2011). A recent study has further estimated a monetary value to the treatment of various chronic diseases as a result (Yu et al. 2017). However, no study to date has simultaneously examined systematic relationships between built environment characteristics, activity patterns and obesity, and health care utilization and costs in a single sample.

Approach and methodology:

This study evaluates relationships between detailed built environment features, transportation infrastructure, and physical activity on disease outcomes and healthcare costs with the BC Generations, a cohort study of nearly 13,000 participants in British Columbia, Canada. This study links built and natural environment features with travel patterns, physical activity, and attitudinal and preference data with health care utilization and cost data from the British Columbia Medical Services Plan (MSP).

Findings:

Our findings indicate positive relationships between neighborhood walkability and transport-related walking and physical activity and inverse relationships with obesity, diabetes, and cardiovascular disease. Preliminary results suggest that health care utilization and costs are inversely related with walkability and regional accessibility; but relationships vary considerably across demographic subgroups.

Relevance to planning scholarship, practice, or education:

Results from the proposed study provides evidence that support the inclusion of health related costs into transportation cost-benefit models used to assess alternative transportation funding options. Findings suggest that certain modifications to the built environment will promote quality of life and reduce the economic burden of disease.

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Key Words: Built environment, Transportation, Chronic disease, Health care cost, Administrative health data

ACCESSORY DWELLING UNITS: A NEW PERSPECTIVE, FROM THE DWELLER'S MOUTH

Abstract ID: 1068

Poster

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In recent years, there has been growing interest in accessory dwelling units (ADUs). ADUs offer a self-contained living area, including a kitchen and bathroom, located within the walls of an existing home or a freestanding structure on the same lot as the main housing unit. ADUs are known by many different names, offering insight into prevalent uses and perceptions of such units, including secondary dwelling units, granny flats, in-law units, guest houses, backyard cottages, garage apartments, or carriage houses.

Accessory dwelling units have become a widespread contemporary tool for urban infill (Chapple et al 2011) in recent years. The significance of ADUs lays in the fact that their implementation is mostly done by the single private homeowner and the unit often uses existing infrastructure on site, creating infill development. Lee King (2012) attributes current heightened interest and research regarding ADUs to cities undergoing housing shortages and increased demand for rental housing. ADUs, as a tool for urban infill provides an opportunity to include more members into the fabric of an existing community.

Wegmann and Nemirow (2011) suggest smart growth advocates see directing growth to infill locations as an opportunity to preserve open space as well as reduce traffic congestion, air pollution, and energy use. Duff (2012) adds, that through the use of ADUs, an existing city could accommodate a great deal of the population growth with increased density rather than the construction of new single-family homes.

The city of Portland, Oregon in an effort to encourage the development of ADUs, has been running a System Development Charges program for nearly a decade and has also scrapped any need for creation of further parking on site (a common barrier to building ADUs in other cities).

In 2017 the Institute for Sustainable Solutions at Portland State University carried out a city-wide survey research headed by Prof. Matthew Gebhardt. In this research owners, prospective owners, and ADU dwellers addressed questions ranging from financing to shared-use, neighborhood effects to travel behavior etc.

While past research regarding ADUs has focused solely on the perspective of the owner(s) of the unit, rather than the user(s), this subset of the research offers a different perspective at addressing this contemporary phenomenon, that of the ADU dweller. By examining the population who live in ADUs we, as planners, can gain a better understanding of housing preferences, choices, and needs and address current shortcomings and barriers to creating more efficient and possibly more equitable units.

The questions this research aims to answer include identifying what market(s) is the ADUs model addressing? How does living in an ADU compare to other rental housing? And What can we learn about shared spaces and neighborhood effects of ADUs?

Early findings suggest that residents of ADUs are younger than the general population. Furthermore, the vast majority of residents accounted for having no children (under 18) living in the unit, and over half of respondents reported only one adult was currently occupying the ADU.

Over 40% of ADU residents have lived in their current neighborhood for less than 1 year. Accordingly, reported neighborhood activity is low, the most frequent activity is participating in community events. Nevertheless, the top two reasons for choosing to live in an ADU are cost of living and the neighborhood.

Shared spaces are common, the most frequently reported shared use of a yard, while shared utilities with the main house came at a close second. We asked about the importance of sharing facilities, 70% of respondents claimed access to shared space had not been a factor in choosing to live in an ADU.

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Key Words: Accessory Dwelling Units (ADUs), Portland Oregon, renters, urban infill, rental housing

LOW INCOME HOUSING TAX CREDIT AND TRANSIT ACCESS: A CASE STUDY OF TEXAS CITIES

Abstract ID: 1320

Poster

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The Low Income Housing Tax Credit program (LIHTC), is an integral means of creating and preserving affordable housing throughout Central Texas and the United States. Efforts have also been made to link LIHTC housing to public transit to reduce resident transportation costs and address affordability concerns. State Housing Finance Agencies (HFA) guide project selection through a Qualified Allocation Plan (QAP). Several states use this process to incentivize locating LIHTC housing in close proximity to transit, including the State of Texas. However, research, has shown that the likelihood of transit stations being located in neighborhoods with existing affordable housing is greater than the likelihood of affordable housing units being located near existing transit stations. Furthermore, new LIHTC projects that are located near transit stations are often found in lower-opportunity neighborhoods. This study uses ArcGIS Network Analyst tools to assess the connectivity of LIHTC projects in Texas cities to major job centers via existing public transit. The use of the OD cost matrix analysis is used to measure the time it takes residents living in LIHTC projects to nearby job centers using transit. This data is then mapped with indicators related to opportunity, including poverty and income, to assess travel times in relations to these indicators. The results of the study can help assess whether State of Texas QAP goals of connecting LIHTC projects to transit networks are being achieved in these cities and leading to equitable transit access.

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Key Words: Affordable Housing, Transit Access, Mass Transit

ROLE OF PHILANTHROPIC ORGANIZATIONS IN OFFERING PHYSICAL ACTIVITY RELATED PROGRAMS ADDRESSING HEALTH DISPARITIES IN THE SAN FERNANDO VALLEY

Abstract ID: 80

Lightning Research Presentation

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Research shows that cultural elements (such as emphasis on family) might explain the substantially lower levels of physical activity among Latinas (D'Alonzo 2012, Benitez et al 2016, Eyler et al 2002). However, examples of culturally sensitive public health services to improve physical activity levels are limited.

The purpose of our study was to understand the availability and nature of such services in low socioeconomic status (SES), high minority communities in the San Fernando Valley – accommodating about half the population of Los Angeles.

We identified 1580 nonprofit organizations and 1356 other entities (such as schools, recreational centers, parks, churches, etc.), which potentially provide services to improve physical activity in the San Fernando Valley; and contacted those located in high diversity low SES neighborhoods (13% and 37% respectively) with response rates of 7% and 10%. We asked about the nature of services they provide and their target population.

We conducted unobtrusive observations to document the physical activity related services provided by two of those organizations and entities. We also conducted expert interviews to understand how they identify the need and nature of such services.

The outcomes of our interviews and observations support that a variety of physical activity related services was offered to target specific groups in the community. For example, a weekday late afternoon workout session was offered for parents of an afterschool program participants at that time.

Given the suggested emphasis on family in Latina culture in the literature, targeted scheduling of activities is potentially a successful intervention strategy to improve physical activity.

Citations

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Key Words: Physical activity, Latinas

EXPERIENCING COLLABORATIVE HOUSING. A COMPARATIVE UNDERSTANDING OF RESIDENTS' VALUES AND RATIONALES WITHIN COMMISSIONING CONFIGURATIONS.

Abstract ID: 545

Lightning Research Presentation

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Self-organized production of habitat is a major urban trend, attracting attention from policy and academic circles alike. (Fromm, 1991; Mullins & Moore, 2018; Tummers, 2016). The term collaborative housing is used to refer to a wide variety of self-organized housing initiatives, including self-build housing, co-housing, co-operatives and other forms of collective resident-led housing, all characterized by a high degree of user participation in production. Active user involvement in housing production is welcomed as a way of stimulating housing supply, diversifying housing stock and providing housing that is more attuned to the needs of an increasingly diverse society. Collaborative housing has been celebrated as a positive alternative to turn-key housing production and a means of increasing citizen control over the production of urban space as a whole.

A starting premise is that, while self-building is imbued with discourses of self-sufficiency, freedom and autonomy, residents must negotiate and interact with other stakeholders in the realization of collaborative housing initiatives. External stakeholders are instrumental in overcoming challenges related to knowledge and resources, such as land or financing. The division of responsibilities and relations between residents and stakeholders crystallizes in the form of different commissioning configurations. Amongst the less studied aspects of collaborative housing is the degree to which resident participation is enabled or constrained within different commissioning configurations. This is relevant given that this has strong implications for the potentials and merits of collaborative housing with respect to housing affordability and meeting residents' needs.

To contribute to our understanding of collaborative housing this paper proposes a comparative comparison of the rationales and social values held by residents, as well as the degrees to which residents have been to realize these within different types of commissioning configurations in practices of collaborative housing. It seeks to understand how, under varying commissioning configurations, residents navigate their aspirations in relation to housing process and form. In order to do so, the paper takes on a conceptual social constructionist approach that underlines the meaning given to housing in procurement and materiality. We expect that collaborative housing can be best understood through interrelated motives of asset accumulation, cost-saving and varying degrees of collectivization and individualization motives, dependent on the commissioning configuration.

Empirically, the paper draws on semi-structured in-depth interviews conducted with resident-builders of the Homerus neighborhood in Almere, the Netherlands. Here, resident-led production of housing and neighborhood facilities has been the cornerstone of the development of a mixed-use, urban neighbourhood on greenfield land. It is particularly innovative through its mix of types of collaborative housing, as well as its affordability scheme for lower and middle incomes. Since 2006 a total of 1600 housing units have been realized through self-organized housing production. For this paper, a total of 45 interviews have been conducted with residents of three different types of collaborative housing: individual, collective and co-housing in conjunction with developers.

The paper is valuable in particular in terms of its comparative perspective on self-organized housing practices, linking the micro-level of residents' experiences with the meso-level of stakeholder collaboration. Through this, it does not only scrutinize the experiences, rationales and values of collaborative housing residents, but also highlights the repositioning of actors' positions in housing provision and changing relations between state, market and civil society.

Citations

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Key Words: collaborative housing, self-build housing, affordability, coproduction, housing provision

FRAMING HOUSING DENSITY IN CONSERVATIVE SETTINGS

Abstract ID: 940

Lightning Research Presentation

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The need for framing local planning policy in response to the existence of multiple publics and special interest groups is well established. A common hot-button issue is housing density. Political ideology contributes to the contested way housing density is publicly debated (Lewis & Baldassare, 2010). Political affiliation causes people to align with the members of their political circle without considering the broader implications. Members of the public rarely base their perception of planning policy on rationalist principles (Baum, 2012); rather gut feelings and impressions can sway policy makers (Lewis, 2014).

Partisan voices in the local decision-making process link political ideology to policy language, and as a result, impact the discourse through emotions and value-laden language (Bassett, 2009). In many cases, the discourse is unresolvable by an appeal to facts (Schön, 1979).

However, an effectively leveraged approach to communicative planning, based on the underlying predispositions of a group (Healey, 1996), offers a more productive means to discussing the planning and policy implications of density guidelines. Understanding the prevailing narratives and frames of reference conservatives hold, before entering discourse concerning density goals, is more complicated than presenting empirical facts, or simply describing the viewpoint of the planner.

This project uncovers the prevailing narratives and frames of reference concerning housing density in the highly conservative Mississippi Gulf Coast region. Following Hurricane Katrina, Governor Barbour inaugurated the Mississippi Renewal Forum. The forum brought together hundreds of planners to re-imagine the region's eleven coastal cities along the principles of New Urbanism. Since that time, eight of the eleven cities have adopted comprehensive plans that address housing density with varying degrees of adherence to the concepts of compact development and increased density.

This project attempts to specifically answer the following questions:

1. What commonalities do the adopted plans share regarding housing density?
2. How do the plans represent housing density through language?
3. How do self-described conservatives respond to common phrasing, descriptions, and frames of reference regarding housing density?
4. What ways of describing and framing density are most conducive to agreement and acceptance by self-described conservatives?

Findings are based on the results of four interrelated questions and grounded in the textual analysis of the language contained in adopted planning documents; on the results of public opinion surveys submitted to members of the Jackson, Harrison, and Hancock Counties Mississippi Republican Party; and the results of coded interviews with conservative leaders in the region.

If concepts taken for granted as sound practice by planners ignite social, cultural, or political stress in the minds of citizenry, and only results in greater conflict, then planners need to understand why it happens, and how those tensions can be minimized or removed. Donald Schön (1979) described this as the act of policy setting. Reconceptualizing policy is the act of demonstrating the meaning of policy through a wholly different set of ideas (Lackoff, 2005). The meanings expressed and interpreted through language by those on differing positions of the political spectrum can vary substantially, and often leads to misunderstanding, stalled debate, and conflict in the participatory process. Framing housing density in a language that can be “heard” by conservatives is vitally important to developing long-term solutions to the pressing problems of affordability and sustainability.

Citations

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Key Words: Communicative Planning, Density, Framing, Housing, Politics

POLICY, PREFERENCES AND PRACTICALITY: AN INVESTIGATION INTO MILLENNIAL HOUSING CHOICE

Abstract ID: 1292

Lightning Research Presentation

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In North America, between 15 and 20 percent of all urban (non-rural) households move in any given year. But how do they decide where to move? What locational and housing attributes do they prefer? Which do they consider in choosing a new home? And how do those decisionmaking processes and factors differ across different types of households? Answers to these questions are critical to understanding housing market dynamics, meeting housing demand and informing policy efforts to increase urban – and suburban – residential densities and reduce household vehicle miles traveled (VMT).

In the United States, the available evidence indicates a decreasing demand for large-lot homes and an increasing demand for small-lot homes, townhouses and multifamily units in transit-accessible urban areas. The shift in residential location preferences results in part from, and will likely continue to be aided by, changing demographics. For example, millennials have a stronger preference for neighborhood walkability, a greater interest in living in urban locations than other types of neighborhoods, and greater support for and a greater willingness to live in smart growth communities than any other age group.

However, this is not necessarily a simple “build it and they will come” situation. Stated preferences are often not acted on, and therefore are not an accurate proxy for actual housing demand. But if stated preferences cannot be trusted to accurately inform land use planning, housing policy and real estate development plans, then what can? How do millennials actually decide where and in what type of house to live? What factors are most influential to them? And how can policy and marketing impact them? Planners everywhere are asking these questions, because millennials – who, with more than 80 million people, now outnumber the baby boomers – are expected to dominate the demand for new housing in coming years.

My study will explore these questions through at least 30 in-depth interviews of millennial couples in California and Arizona who just recently bought and moved into a new house. My interview-based study will improve our understanding of the “why” and the “how” of household’s residential location choices, and develop a “greater understanding of the heuristics, biases, and other non-economic motives that might drive consumer choice in the housing market” (Reid, 2013, 3). My results will enrich the currently predominating life-course theory, and help fill the significant gaps in the literature about the extent to which residential location decisions are actually guided by “attitudes and lifestyle preferences,” as most “current research relies on a priori assumptions about households’ motivations for choosing where to live” (Lund, 2006, 358). They may also assist policymakers and developers in tailoring their policies and developments to attract households to the lower-VMT urban areas.

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Key Words: Housing, Millennials, Residential location choice, Transportation costs, Qualitative

TRACK 6 - INTERNATIONAL DEVELOPMENT PLANNING

ROUNDTABLE: PLANNING THE INFORMAL CITY

Abstract ID: 359

Roundtable

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Informality has been called the dominant mode of urbanization in the 21st century. It manifests itself in the rapidly expanding cities in the Global South in the form of informal settlements, informal transit, informal livelihoods, and informal political practices. There has also been increasing attention to informality in the cities and institutions of the Global North. Research on urban informality in planning and related disciplines has exploded in recent years.

Yet the term 'informality' itself is both murky and contentious. There has been little agreement on how to define informality, let alone how urban plans and policies should respond to it. The tools of planning, even planning that attempts to be inclusive and participatory, are often inapplicable where informal practices dominate. Some question the need for planners to 'formalize' the informal, while others argue that lack of state recognition hinders attempts to provide welfare to the poor. Some argue that 'informality' is not a useful conceptual category at all, and that the designation simply stigmatizes the urban poor and perpetuates unequal power relations.

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Key Words: informality

ROUNDTABLE: ORGANIZING COMMUNITY AND NONPROFIT NETWORKS FOR COMMUNITY REBUILDING

Abstract ID: 575

Roundtable

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Community organizations play a critical role in disaster recovery owing their ability to motivate volunteerism, assess local needs and distribute goods and aid.[1] But few such organizations have the capacity to successfully navigate the dynamism and uncertainty of the disaster recovery process. Networking and communication can provide these organizations with new avenues of information and action[2], boost their diminished capacities, provide better means of community representation, and improve “cognition” of “emerging risk to which a community is exposed and to act on that information”[3]. Evidence also suggests that neighborhoods that undertake social networking may be better able to respond to disasters because it facilitates information exchange, collective action, and access to new resources for recovery.[4]

This roundtable will analyze the benefits of inter-organizational communication between community organizations for local recovery. Participants will share and discuss their experiences to examine the ways and means in which inter-organizational communication improves post-disaster recovery efforts of community-based organizations. Participants will present examples from recovery efforts in Kobe, Gujarat, Indonesia, India, Japan, Trinidad, Tobago, Haiti, Turkey, Nepal, New Orleans, New York, Houston, Florida, and Puerto Rico.

[1] Patterson, O., Weil, F., & Patel, K. (2010). The Role of Community in Disaster Response: Conceptual Models. *Population Research and Policy Review*, 29(2), 127-141.

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Key Words: Community organizations , Disaster, Networks, Social Capital, Recovery

PRE-ORGANIZED SESSION SUMMARY **SPATIAL POLITICS AT THE LIMITS OF THE URBAN**

Session Summary: 27

Abstract ID: 319

Abstract ID: 321

Abstract ID: 1167

Abstract ID: 1365

This panel brings a Global South urban design and planning perspective to spatial politics research. Immersive research, drawing from the experiences of those at the limits of cities and government services, pushes against a territorial-only rendering of spatial politics. In so doing, the panel emphasizes the on-the-ground political stakes of urbanization processes and the value of looking outside, anew, and beyond the spaces that have been central to the theoretical formulation of dominant notions of urban theory. We argue that emerging political, economic, and ecological shifts are creating new spaces, relationships, and modes of contestation--particularly in cities of the Global South. With research situated in India, Indonesia, Lebanon, and Rwanda we ask: How do the dominant forms and mechanisms of making cities, and marginal approaches to constructing alternative places of belonging, reveal the range of spatial politics at work in urbanization today? How do these spatial politics recast urban limits and articulate alternative conceptual frames for the analysis of power, development, labor, and conflict?

Objectives:

- Understanding land politics surrounding planning interventions in cities in the global South

PLANNING WITHOUT DEVELOPMENT

Abstract ID: 319

Group Submission: Spatial Politics at the Limits of the Urban

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This paper traces the tenuous relationship between development and planning discourses (Yiftachel, 1998; Beauregard, 2001; Roy, 2002), highlighting the corresponding shifts in approaches to the ordering of territories over time as they played out in Beirut, Lebanon. I explore how these shifts intersected with the temporalities of war and conflict that rocked Beirut since the emergence of Lebanon as a post-colonial state in the 1950s. The paper illustrates how these shifts in logic coincided with global moments of anxiety around communism, and later, political Islam (Rostow, 1990; Hart, 2010). It shows how spatial practices were eventually transformed through militias' and religious-political organizations' spatial interventions into a collection of innovative design and planning exercises aimed at balancing the spatiality of a sectarian order. I propose that this shift in the approach of planning from the quests and questions of development centered on issues of poverty to an exercise in spatializing sectarian difference changed the discourse around Beirut's southern peripheries from that of informal and poor peripheries to sectarian frontiers. The paper illustrates how this reformulation of the political consciousness vis-à-vis the periphery, its economy, marginality, and inhabitants has had major repercussions on poverty, segregation, violence, and environmental degradation.

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Key Words: development , peripheries , conflict

URBAN WATERSCAPES: THE HYDRO-POLITICS OF FLOODING IN A SINKING CITY

Abstract ID: 321

Group Submission: Spatial Politics at the Limits of the Urban

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Shifting interfaces of land and water – sometimes defined, often indistinct – expose the fault lines and gradients of power in cities. Urban water offers spaces of possibility and threat. In rapidly growing cities facing chronic flooding due to land subsidence and climate change-related sea level rise, the conflicts around such urban spatial politics are determined by decisions made on watershed management, land development, and water infrastructure and provisioning. They are subject to contestation between city officials’ objectives for development and modernization, and the struggles of marginalized urban residents living in low-lying coastal and riverine areas. The multiplicities of urban water take on different forms depending on point of view. Urban water is biophysical, involving geology, geography, meteorology, and ecology. It is an issue of governance, involving the planning, implementation, and maintenance of infrastructure and land use. And it is sociopolitical, involving historical social and spatial marginalization and evolving contestation.

These interrelated issues, exacerbated by the uncertainties of climate change, often confound efforts to propose effective and just planning solutions to flooding. This paper makes sense of urban waterscapes by tracing the conceptual and physical contours of flooding across these conflicting ideas and narratives. It follows the hydro-politics of water along one river, the Ciliwung, and its watershed in Jakarta, Indonesia, a city that is literally sinking as it confronts social striation and ecological catastrophe. It looks at the increasingly dire flooding conditions, the large-scale urban infrastructural projects meant to address the problems, and the protests and “counterplans” by grassroots activists.

Taking cues from environmental ethnography, the study uses a mixed methods approach involving observation, interviews, and visual methods at varying points along the watershed. It brings into dialogue theoretical frameworks – and underlying modes of knowledge – from landscape ecology, urban political ecology, and urban anthropology to explore the interrelationships between the biophysical and sociopolitical factors behind urban flooding. The paper analyzes the materialities and scales involved in planning for urban flooding, including the ecological scales of the watershed, the infrastructural scales of flood protection implementation, and the global-urban scales of planning and development, governance, and social activism. It concludes with a proposition for a hybrid, multi-dimensional approach to thinking and acting on problems of urban ecological change.

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Key Words: climate change adaptation, urban spatial politics, water politics, environmental conflicts, Southeast Asia

HOW CO-PRODUCTION AND INFORMALITY SHAPE THE SPATIAL POLITICS OF ACCESS TO WATER AND SANITATION IN AFRICAN CITIES

Abstract ID: 1167

Group Submission: Spatial Politics at the Limits of the Urban

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Despite global reports of progress towards reducing the vast numbers without access to improved sources of water and sanitation, 844 million people lack basic water service (access to an improved source within 30 minutes) and 2.3 billion lack access to basic sanitation (improved forms where excreta is not safely managed). Those numbers

greatly underreport access when equity and human rights indicators like affordability, quality, reliability and acceptability are factored in. While the MDG goals focused on improved and unimproved sources and newer water and sanitation targets under the Sustainable Development Goals (SDGs) focus more on equity, scholars have uncovered important sources of disparities to basic services like water and sanitation. Development studies scholars have noted how political processes and institutions manufacture scarcity in ways that disadvantage the poor and the poor outcomes of the wave of new management reforms of public services that focus on marketization and insulation of the state from society (Mehta et al. 2014; Herrera and Post 2014). On the other hand, human rights scholars have wrestled with the important role of non-state actors (from multinational corporations to civil society to militia) in defining their responsibilities as duty-bearers to respect, protect, and fulfill their obligations under the international human rights framework.

Critical urbanists have looked at self-organization and shadow provision of basic services in developing countries as forms of insurgent, subaltern urbanism (Miraftab 2009; Caldeira 2017; Holston and Caldeira 2008), while urban political ecologists focus on how contestations over class and power shape and impact people and environment (Swyngedouw 2009; Keil 2015). Elinor Ostrom's pioneering work on coproduction opened a new field of inquiry that has animated social science research on a wide range of institutional relationships (Ostrom 1996). On the other hand, conceptual ambiguity and political realities have some scholars questioning if coproduction further imposes state responsibilities onto the backs of vulnerable populations under the guise of democratic governance and cooperation (Allen, Dávila, and Hofmann 2006) with others seeing it as an opportunity for political influence and social transformation (Mitlin 2008). Among hundreds of papers on coproduction in various domains, most look at what influences it and not on outcomes, nor how it works in challenging environments where institutional arrangements are "unorthodox" or "hybrid" (Joshi and Moore 2004). In particular, scholars have not yet fully explored the importance of citizen co-production in water and sanitation in developing countries, particularly the broad range of actors (variously classified as formal or informal, state and non-state) involved in basic services delivery, nor the real variation in who is included and excluded in planning processes around infrastructural services. Without understanding how co-production and informality shape the planning and provision of basic services in these contexts, we are left with an inadequate analysis of barriers to realizing human rights and a continued cycle of declarations and reforms that fail to deliver the most essential of services to the most vulnerable and marginalized. We also miss out on how urban citizens in the Global South are transforming their access to services by creating new opportunities to voice and negotiate their demands and rights to water and sanitation.

Drawing from archival sources, surveys and household interviews carried out in cities of Nigeria and Kenya between 2015-2017, this paper examines the tension between co-production and the complex patterns of formal and informal governance structures regulating access to water and sanitation services across neighborhoods in rapidly growing cities. I use the findings and cases to develop a typology of the forms and outcomes of co-production in one instance of African urbanism, the "self-service city."

Citations

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Key Words: water, sanitation, infrastructure, coproduction, informality

RURAL URBANIZATION: BUILDING PEACE AND NATION IN RWANDA

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As prototypes for urbanization in the rural domain, Rwanda's model villages reveal cities-in-the-making that are founded on a peacebuilding and developmentalist ethos to build a new, post-genocide nation. Still inhabiting the long shadow of the genocide, 30 government model villages—one per district in Rwanda—have been designed to remedy deficiencies in peacebuilding and development. These idealized settlements were designed in 2009 as part of the country's Integrated Development Program (IDP). Described as an economic development project that integrated the good governance initiatives of a newly decentralized administration, the IDP is one of several government projects that link development progress to peacebuilding work. Model villages represent the smallest scale in a series of nested administrative territories that connect families to national concerns. Rural urbanization creates conditions for land consolidation and agricultural efficiency, and are tethered to projects of “integration, peace, and security” in Rwanda and the surrounding Great Lakes region. Model villages are thus uniquely positioned to reveal relationships between urban and rural domains in the most densely populated country in Africa, which has only, in the last 20 years, endeavored to develop a nation-wide urbanization strategy.

This paper provides an ethnographic and historical view of one model village in northern Rwanda to explore the intersections between urban development, nation-building, and peacebuilding. In this “urban village,” relocated residents enacted strategies to render themselves “ordinary”: dutiful citizens that pronounce their affiliation with state development policies and do not attract unfavorable attention from the government. This ordinariness is in one sense reproduced as placelessness—a sameness that derives from the settlement's technocratic administration and homogeneous spaces. Rural communities are “sensitized” to uphold urbanization as a value and a means to improve quality of life. This is also a placelessness that shuns relationships between identity and region; that strategically suspends associations to a history of northern political extremism and power. Residents' construction of ordinariness arises from an interest in negative rights: the right to be left alone, to not be implicated in a history of a region, and to participate equally in national development objectives. It is furthermore an ordinariness that is incapable of denying this history. It is actively constructed by compensating for national losses during the genocide and positioning residents as model citizens willing to apologize and recompense for the wrongs of others. Doing so seeks to demonstrate that residents are worthy of urbanization benefits. The village reveals a case in which citizenship is not only defined by building and living in Rwanda's model villages. To be a model citizen here is to assume the burden of government expectations and a nation's narrative of a region, and to attempt to repair that image through accord and labor in service of village construction.

Citations

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Key Words: Rural urbanization, Peacebuilding, Nation building, Global South, Rwanda

PRE-ORGANIZED SESSION SUMMARY

DISASTER, CRISIS, RESILIENCE AND PLANNING IN A CHANGING WORLD, THE CROSS-CULTURAL PERSPECTIVES FROM ASIA AND THE US

Summary ID: 30

Abstract ID: 442

Abstract ID: 444

Abstract ID: 445

Abstract ID: 446

Abstract ID: 731

The session intends to invite the urban planner and researchers from China, India, Singapore and the USA to elaborate the role of planning in the post-disaster and post-crisis decision making process to evaluate the natural disaster responses, adaptive governance, community resilience, and economic capacity in the post-crisis era. Three aspects of issues will be addressed. First, what is the role of planning and how does the role of planning play in the decision making of the public policy in the context of post-disaster and post-crisis era? Secondly, what are the short-term and long-term outcome of the planning and policy? Thirdly, how does different planning and policy work in the cross-cultural context? What could be learnt through different contexts and international settings? It intends to provide a research collaborative platform between Asian research institutions and American experts on post-disaster and post-crisis governance and urban resiliency to provide a communication platform for mutual learning among all participants.

Objectives:

- The session intends to invite the urban planner and researchers from China, India, Singapore and the USA to elaborate the role of planning in the post-disaster and post-crisis decision making process to evaluate the natural disaster responses, adaptive governance, community resilience, and economic capacity in the post-crisis era.
- The main purpose of the session is to provide a research collaborative platform between Asian research institutions and American experts on post-disaster and post-crisis governance and urban resiliency in a changing world to provide a communication platform for mutual learning among all participants.

ECONOMIC RESILIENCE AND DISASTER RECOVERY IN POST-WENCHUAN EARTHQUAKE OF CHINA

Abstract ID: 442

Group Submission: Disaster, Crisis, Resilience and Planning in a Changing World, the Cross-cultural Perspectives from Asia and the US

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For the past ten years, Wenchuan earthquake is considered to be one of the largest and most influential earthquake in China. After the Wenchuan earthquake, a large scale of planning and reconstruction have been initiated in terms of Paired Assistance to Disaster Affected Areas (PADAA) programme to achieve the post-disaster planning and reconstruction. The research intends to elaborate the short-term and long-term outcome of the PADAA policies for post-disaster planning and large scale of reconstruction in China. The research intends to answer (1) what are the mechanisms through which post-disaster governance makes impact on the recovery in the post-disaster context? (2) How does Paired Assistance to Disaster Affected Areas (PADAA) programme policy make impact on the recovery? (3) How do post-disaster financial packages make impact on the recovery? What are the disaster recovery outcome and economic resilience after the policy?

In order to answer the question, the research groups the 310 comparable counties into four categories: the non-damaged counties, the counties that are damaged but not under government reconstruction plan, the damaged counties under the government reconstruction plan, and the PADAA supported counties. The research first construct indexes for the economic and social outcomes of the four categories of counties to reveal their short-term recovery; secondly, it adopts the same method to compare their long-term recovery; thirdly, it adopts a counterfactual analysis to estimate the impacts of the PADAA from economic and social perspectives.

Our preliminary findings are as follows. Firstly, the PADAA boosts the short-term economic recovery of the assisted counties. But in the long-term, the economic growth is not sustainable with high debt growth and social fixed asset investment crash after the PADAA. Secondly, the PADAA quickly stimulated the social recovery both

in the short-term and long-term. Thirdly, the PADAA has enhanced the social resilience of the residents as we see robust growth in the number of primary and middle school students.

The empirical findings suggest that the PADAA stimulates the recovery from both social and economic perspectives, but it also causes over-investment. The country's top-down political system enables the central authority to mandate the provincial and local governments from more economically developed regions to assist devastated areas with post-disaster reconstruction through the PADAA programme. The unconventional disaster recovery governance in terms of PADAA is considered to be a 'multi-level moderated competition' process (Zhong and Lu, 2017), and it is differentiated from other democratic countries, which focuses on the planning phases for stakeholder interaction to achieve agreement in the disaster recovery research. Under the policy, it is possible that the moderated competition system works to overreact by donor provinces or cities and over-competition among donor provinces or between cities. The empirical results show that the intensity of disaster relief support increase the economic and social resilience within a few years after a disaster as governments return to previous routines that help to well suited for long-term post-disaster support. But other ways of embedding disaster risk reduction and reliance in routines of governance are still needed in an age of increasing frequency and impacts of disasters. It brings about new knowledge and implications on the economic resilience of post-disaster reconstruction influence on the disaster recovery in the developing context (Adam and Liao, 2005; Adam, 2007; Campanella, 2006; Xiao, 2011).

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Key Words: Disaster recovery, Economic resilience, Wenchuan earthquake, China

PARTICIPATORY PLANNING AND LIVELIHOOD RECOVERY IN THE POST-DISASTER RECONSTRUCTION OF YUSHU IN QINGHAI-TIBET PLATEAU OF CHINA

Abstract ID: 444

Group Submission: Disaster, Crisis, Resilience and Planning in a Changing World, the Cross-cultural Perspectives from Asia and the US

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China has experienced Yushu earthquake in 2010, which occurred on the Yushu fault of Qinghai province, in the northeastern part of the Tibetan Plateau with over 4000 meter high altitude. The post-disaster reconstruction of Yushu has the participatory features which are the most unusual and worth of attention. In the planning literature, scholars have long emphasized the importance of public participation in planning practice and policymaking in the post-disaster context, and special attention has been paid on the failure of public participation, modes of public participation (Ganapati and Ganapati, 2008) and the non-traditional mode of participation in urbanizing China (Chandrasekhar et.al, 2014). Seldom research has been paid on the outcome of livelihood recovery under the different planning approaches, participatory or non-participatory. The research intends to not only offer a unique case of participatory planning in the post-disaster reconstruction in Qinghai-Tibet Plateau, but also argue that while physical repair is always required, equally important are concerns about loss of livelihoods and community support and impacts on families that can too long endure. Social resilience,

economic resilience are also important components when considering the sustainability of public policy and planning approaches.

The studies intend to compare the livelihood recovery outcome of different planning approaches to investigate the relationship between planning modes and livelihood recovery. It intends to explore the answers to the following questions: (1) Can the post-disaster participatory planning help to recover the livelihood of the earthquake survivors; (2) How does the participatory planning affect the livelihood and what factors contribute to the change of livelihood, if any; (3) What implications can be generated to the post-disaster planning and reconstruction in the developing context; (4) What lessons could be learnt through the participatory process of post-disaster reconstruction process.

The analysis will use both quantitative and qualitative analysis to investigate the relationship between participatory planning and livelihood recovery. First, it intends to use the interviews of stakeholders and government documents to explore the learning and policy-change processes to show the participatory process. Secondly, learning from the Scoone's (1998) livelihood framework, it will use the survey questionnaire with ten components to identify the relationship between planning mode and livelihood recovery, including planning mode, participatory and non-participatory, housing type, perception of reconstruction, change of physical assets, change of social assets, change of natural assets, change of financial assets, change of human assets, to represent the livelihood context, livelihood resource, livelihood strategy, livelihood process and the livelihood outcome. The interviewees will be the heads of households from selected communities with different levels of participation. We expect to find that the livelihood changes of earthquake survivors are beyond recovery from the disaster losses. And the participatory planning outcome could be evaluated with livelihood recovery with the comparison of other post-disaster planning in the international context to bring about new knowledge in the literature (Berke, et.al, 2014).

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Key Words: Participatory planning, Livelihood recovery, Post-disaster reconstruction, China

EVALUATING URBAN RESILIENCE IN CHINA BASED ON INDEX SYSTEM

Abstract ID: 445

Group Submission: Disaster, Crisis, Resilience and Planning in a Changing World, the Cross-cultural Perspectives from Asia and the US

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In recent years, China is experiencing a rapid development period of urbanization. As economic and social activities are highly concentrated in urban area, the urban risks are increasing. Traditional way of urban disaster prevention can't meet the needs of urban safety. How to improve urban resilience to reduce the risks is attracting more and more attentions from all over the world. This study aims to construct an index system for general urban resilience applicable for China and then apply it to evaluate the Chinese cities to understand urban resilience and its improving strategies.

The first step is to construct an index system for resilience evaluation. After a brief literature review of Baseline Resilience Indicators for Communities (BRIC), 100ResilientCity index system and etc, the research establishes an index system for urban resilience evaluation from six categories (social, economic, infrastructure, institutional, community and environmental) and 32 indices for evaluation China's urban resilience. The weights of each index of evaluation system are calculated by using analytic hierarchy process (AHP) and entropy weight method. The differences in China's urban resilience are grouped into five grades based on the standard deviation: low resilience, relatively low resilience, moderate resilience, relatively high resilience and high resilience. Data used in the study is with the year of 2014 and 288 statistical units which are prefectural cities. Some cities like Hongkong, Macau and so on are excluded due to data shortage.

The study shows that the general level of China's urban resilience is relatively low, and there is remarkable difference among different cities. Urban resilience has a spatial difference and has a significant positive correlation with city size. The findings implies that China should make every effort to improve urban resilience by re-structuring administration system, increasing relative investment, strengthening urban infrastructure, promoting social organization and improving insurance system. It makes contribution to the current resilience index and resilience assessment in the international settings.

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Key Words: Resilience index, Evaluation, China

PLANNING THE PUBLIC SERVICE FOR COMMUNITY RESILIENCE: BOOSTING CAPACITY WITH BONDED RESOURCES

Abstract ID: 446

Group Submission: Disaster, Crisis, Resilience and Planning in a Changing World, the Cross-cultural Perspectives from Asia and the US

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Disaster resilience gains its popularity in the study of emergency management and related fields but still faces challenges of its multiple definitions and measurements (Mayunga 2007). At the same time, local public decision makers are facing the challenges of higher demand in public service but lack guidance to utilize limited resources available to them. The disaster resilience can become an opportunity for public decision makers to fix such a dilemma without torturing the scarce resources if the existing public service provision can be better organized (Tidball et al. 2010). In observance of this potential, we articulate the dilemma within a community in promoting resilience, propose a theoretical model presenting the dynamic structure in public service provision, and examine the current and possible solutions to mobilize the “hidden” resources toward community disaster resilience. Our preliminary study compares the local efforts of planning and responses to Hurricane Harvey (2017) and Jiangsu Tornado (2016) by reviewing the government documents and by interviewing the key personnel. The findings confirm the existence of mobilizing non-emergency resources during emergency phases on both supply and demand sides. The preliminary results also reveal that both structural and nonstructural planning are critical to reserve the capacity “potential” in the public services that are typically not considered emergency-related. On a

side note, the overall political stances of taxpayers that affect the local revenue are a strong indicator of this potential on the demand side of the theoretical model.

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Key Words: community, disaster resilience, planning, Hurricane Harvey, Jiangsu Tornado

ROBBING THE POOR TO PAY THE RICH? SOCIAL AND ECONOMIC RESILIENCE OF THE CONCURRENT HOME OWNERSHIP RESTRICTION IN SINGAPORE IN THE POST-CRISIS ERA

Abstract ID: 731

Group Submission: Disaster, Crisis, Resilience and Planning in a Changing World, the Cross-cultural Perspectives from Asia and the US

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This research argues that the concurrent home ownership restriction undermines the resilience development of the housing market and it may robs low-income home renters but subsidizes high-income renters in the Singapore housing market. It argues the social and economic resilience of the housing policy responses and challenges facing Singapore in the Post-Crisis Era. It intends to contribute to the housing literature through the investigation of the post-crisis housing policy in the international context (Landis and McClure, 2010; Zhang and Wu, 2016; McClure, 2017).

Singapore has two housing sectors, the public housing sector (also called HDB), and the high-end private housing sector. The two sectors are not geographically segmented. The HDB is subsidized by the government and has lower quality in neighbourhood environment and building design. The HDB homes around 80% of the residents. The private homes are not subsidized, have better structure the neighbourhood quality, and each project development is enclosed and not accessible by non-residents. The private sector homes the rest relatively high-income residents. Thus, the prices and rent rates of the HDB are much lower than an equivalent private home. The renters in HDB are mainly the relatively low-income foreigners and the renters in the private homes are mainly the high-income renters.

To curb the escalation of housing prices, on Aug 30th, 2010, the Singapore government implemented the concurrent home ownership restriction. It bans the private home owners from buying resale HDB homes and requires that a private home owner who buys a HDB home after Aug 30th, 2010 should sell the private home within 6 months. It also extends the minimum occupation period (MOP) of HDB owners before they can buy another private home.

This policy twists the two market sectors. It reduces the potential supply of rental HDB homes by stopping private home owners from buying HDB homes and also by forcing the HDB owners to occupy the HDB homes for longer time of period before they can buy private homes and lease out the HDB. Besides, the policy adds to the supply of rental private homes because few private home owners really like to downgrade from private homes to staying in HDB homes, and they are forced to invest only in private homes which adds to the supply of rental private homes.

Empirically, we use difference-in-difference method, and find that: firstly, private housing prices are relatively raised while HDB resale prices are relatively reduced, this is consistent with the findings of Diao, et al. (2018); secondly the rent rates of the private homes are relatively reduced while that of the HDB homes are relatively raised. Besides, we also find that the vacancy rate of the private homes is raised while that of HDB is stable. Lastly, we adopt a scenario analysis method to calculate the additional rent the HDB tenants need to pay and the rent savings that the private home tenants realize.

Our findings have implications for housing markets beyond Singapore. Countries like China also take the purchasing restriction as a major tool to cool its regional housing market down (Sun et al., 2016). The side effects we find in the Singapore experiment implies that the purchasing restriction will twist the equilibrium between the restricted housing sector or region and the unrestricted regions. Besides, it also has implications on how to avoid harming the social resilience of low-income migrants (Wang, et al., 2015) who are more likely to be home renters.

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Key Words: Purchasing restriction, housing policy, welfare

PRE-ORGANIZED SESSION SUMMARY **GLOBAL DISPLACEMENTS & REFUGEE URBANIZATION** Session ID: 34

Abstract ID: 453

Abstract ID: 454

Abstract ID: 455

Abstract ID: 1016

We live in an era marked by unprecedented movement and crisscrossing of capital, labor, and populations. The varied and intense contemporary processes of global displacement have profound implications for cities and citizenship. For example, in the context of the current geopolitical struggles and wars waged in the Middle East, we witness cities obliterated and others erected overnight as refugees' temporary camps, which only become permanent human settlements. In this processes of "refugee urbanization" people as stateless in-between subjects do not cease their practices of citizenship. But what forms and shapes do these practices of citizenship from below take? What new organizations and relationships govern these urban forms and their inhabitants' interactions? Solidarity and humane citizenships? White citizenship and propertied citizenship? Displacement and displaced people, whether produced through financialization of cities or through climate change, war, economic and/or gender violence, and/or immigration present complex dynamics with particular spatiality and politics that need interrogation. In this panel, we aim to do that.

Objectives:

- Interrogating the relationships between rising global displacements and new forms of urbanization

SLUMS AS CAMPS

Abstract ID: 453

Group Submission: Global Displacements & Refugee Urbanization

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Over 2 million Bangladeshi slum inhabitants are rural to urban migrants. In development literature, landlessness, climate change, soil erosion, environmental disasters, and unemployment are the oft-cited reasons for rural to urban movement. However, others have studied the finer dynamics of displacement in Bangladesh and cautioned against depoliticized explanations of displacement in the context of Bangladesh's neoliberal development (Feldman, Geisler, 2012). In Dhaka, the country's capital, hundreds of thousands of migrants lack formal access to basics of life: housing, utilities, healthcare, education, and so on. Living in spaces that are socially porous but economically confined, rural migrants work as garments factory workers, domestic aids, rickshaw pullers, and provide labor for many sectors critical for the functioning of the city. In public perception migrant settlements are seen as permanent strongholds of criminal activities, and in the state's perception the same settlements are considered temporary arrangements for people who will move back to their origins in the future. Building on existing research that problematizes the older dichotomies of voluntary/involuntary movement (King, 2002), this paper looks at Dhaka's migrant slums with concepts developed in planning literature around refugee camps and shows the migrant settlements as captive labor camps. In Dhaka, migrant workers are offered IDs at work but are not provided formal addresses, which bars them from accessing basic services such as utilities. Political campaigns aim to secure migrants' votes as citizens, while migrants' constitutional right to shelter remains unacknowledged. Instead, mass evictions and arson are common practices of displacing migrants from urban land slated for private and public development projects. Migrant slums are permanently moving throughout the city but as a whole are not temporary. This paper examines testimonies of migrants and the processes of migrant slum making/breaking underway in Dhaka, a post-colonial megacity, and brings to focus the neoliberal logics of calculated exclusion, partial citizenship, permanent temporariness, and state and market violence to contribute to the growing comparative literature on refugee camps as an emerging urban feature.

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Key Words: Bangladesh/South Asia, internal displacement, citizenship, development

SEEING THE CITY AS A MOTORBIKE RIDER PRACTICES OF SYRIAN MALE REFUGEES IN BEIRUT, LEBANON

Abstract ID: 454

Group Submission: Global Displacements & Refugee Urbanization

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As our understanding of the categories of displacement shift away from temporary crisis, national belonging, and encampment to recognize the protracted nature of refugee displacement and its urbanization, there is need to articulate new frames through which we conceptualize forced population mobility and its consequences for the government and planning of today's cities (Fawaz 2016, 2017). Against the imaginary of a population protected by a legal status of “refugee” and supported by international relief, hundreds of thousands Syrian refugees in today's Beirut (Lebanon) navigate the complex landscape of a city where their presence and labor is criminalized

through the impossible requirements of legal residency while their only means of survival is “work” they compete over with other refugee populations, migrant workers, and impoverished Lebanese individuals.

In this research, we map the trajectories of 35 “food delivery men”, individuals aged 24-45 years, to unravel through their experiences of navigating the city on motorbikes the processes through which they “learn” the variegated geography of Beirut and build competence in circulating within its sectarian and class divides as well as beyond militarized security. Our findings confirm the importance of a thick web of social networks that builds on the history of labor migration through which the presence of Syrian men in Beirut has been historically inscribed: Syrian men learn landmarks and strategies of police avoidance from older relatives and rely on social media and cellular communication for their wayfinding. Research findings further indicate that the nature of “delivery” work allows these men to negotiate an otherwise impossible mobility and visibility in the city, alongside other refugees and Lebanese men. Consequently, the shared experience of delivering food with motorbikes brings the men closer and ushers new forms of claiming the city based on class solidarity among individuals who resist policing and poor working conditions instead of the expected solidarity of “national belonging”.

These findings expand earlier arguments for refugee responses to shift from targeted subsidies based on individuals’ national belonging to neighborhood upgrading strategies in urban areas that recognize the shared experience of vulnerability among numerous urban populations (Fawaz 2017, 2018). They invite us to think about changing forms of city-zenship and innovative models of inclusive urban government, particularly in contexts such as Beirut where elected municipal officials and planning authorities have come to represent almost nobody.

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Key Words: urban refugee, mobility, city-zenship, Beirut

REFUGEES, XENOPHOBIA, AND ANTI-IMMIGRANT POPULISM IN POST-ANC JOHANNESBURG

Abstract ID: 455

Group Submission: Global Displacements & Refugee Urbanization

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Heralded as Southern Africa's immigrant and refugee haven since the end of Apartheid, Johannesburg appears to be becoming less welcoming to non-South African migrants under the city's current political regime. While anti-immigrant and refugee violence is not altogether new in South Africa's largest and most diverse city, Mayor Herman Mashaba-- the first in Johannesburg from the Democratic Alliance party -- had taken a more aggressive anti-immigrant stance than earlier administrations and utilized increasingly aggressive and exclusionary discourse. This paper draws on fieldwork in Johannesburg examining the context of anti-refugee violence (by both citizens and the local state) to analyze the conjuncture of the urbanization of refugees (and related questions of cities and citizenship), on one hand, and the city-level spatialization of right wing ideology and exclusionary forms of populist politics. How are these two broad global-level developments -- of displaced persons and right wing populism -- manifest at the city scale, and with what consequences? This paper analyzes the experiences of refugees in contemporary Johannesburg, including their ambiguous and precarious position vis-à-vis domestic and international policy, as well as the antagonistic or competitive relations they have with other marginalized or impoverished urban groups, amid the transformation of South Africa's political party structure and its leaders' increasing use of anti-refugee language to elicit support in an increasingly competitive political landscape.

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- Mona Fawaz 2016. Unsettling the “Refugee Crisis”: Notes from Beirut *IJURR* special issue. 7 pages.

Key Words: Refugee Urbanization, Global Displacement, Right Wing Populism

HUMANITARIAN PLANNERS IN THE “CENTURY OF THE UNSETTLED MAN”

Abstract ID: 1016

Group Submission: Global Displacements & Refugee Urbanization

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Rather than build rural refugee camps as they have traditionally done, international humanitarian actors now manage increasingly complex urban relief projects for refugees, disaster victims and migrants. In the process, their work seems to be shifting from crisis response to city planning. How do aid actors go from protecting individual lives to creating inclusive cities? How do they retain legitimacy as they take on roles, usually reserved to states, and surely at odds with their neutrality?

Scholars of the international humanitarian system have not theorized questions of urbanism and spatiality. Nor have urban scholars adequately historicized the contingent relationship between refugee protection and urbanization processes. This lack of periodization hinders attempts to properly situate today’s concerns within a longer history of what I call “Humanitarian Urbanism”. To begin to fill this gap, this paper traces the historical, institutional, and technological trajectories of the physical planning policies and tools that were developed and employed by the United Nations Refugee Agency (UNHCR), in the period starting from the internationalization of the refugee protection system in the 1960s, through to the late 20th century.

A first section examines the shift from a primarily legal endeavor explicitly concerned with the protection of European refugees displaced by World War II to a global project of humanitarian assistance taking new physical dimensions following forced displacement in the decolonizing world. As UNHCR’s mandate expands, the ‘field’ (meaning simultaneously the crisis zone, the remote, the rural, or the “Third World”) becomes its new terrain of intervention, opening new possibilities for planning and new arrangements with local stakeholders. A second section deals with the emergence of the concept of human settlements (or human “habitat”) as a new area of concern in international aid, and within the United Nations system as a whole, in the mid-1970s. For the first time in UNHCR’s history, explicit human settlements policies are crafted, and a Technical Support Unit created to manage its expanding planning activities. A third section traces the massive standardization of physical planning practices that occurs in the organization over the 1990s and 2000s, a move that goes hand in hand with changing attitudes towards refugee settlements, the question of “warehousing” (conflated with, though not equivalent to, prolonged encampments) and urban refugee protection.

Drawing on urban theory, as well as science technology and society studies (STS), this analysis triangulates between public-facing publications and archival material collected at United Nations Refugee Agency (UNHCR) and the United Nations Library.

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Key Words: Refugees, Camps, Humanitarian Aid, UNHCR, Habitat

PRE-ORGANIZED SESSION SUMMARY

THE RIGHT TO DECENT HOUSING AND URBAN RESILIENCE IN THE GLOBAL SOUTH

Summary ID: 45

Abstract ID: 1148

Abstract ID: 1149

Abstract ID: 1150

Abstract ID: 1343

Our panel will consider the relationship between "vivienda digna y adecuada," or "decent and adequate housing," urban resilience and climate change policy. The right to decent housing, as defined by the United Nations, is an increasingly important and contested idea as cities in the global south experiment with policy strategies concerned with urban resilience and climate change. These policy strategies might include mitigating GHG emissions through energy efficiency programs or relocating communities to adapt to more frequent flooding and landslide events. The general questions this panel will address include: 1) How is urban resilience and climate change policy influencing residents' access to decent housing? 2) And how is decent housing included in these policy frameworks? This panel will address these questions through a comparison of case studies from Mexico, Colombia and Indonesia.

Objectives:

- The concept of decent housing and its incorporation into the Climate Change /Urban resilience frameworks
- Reiterate decent housing and adaptation/mitigation to climate change as complementary objectives

RIVER NORMALIZATION FOR WHOM? THE DILEMMAS OF RIVERBANK INFORMAL COMMUNITIES IN INDONESIA

Abstract ID: 1148

Group Submission: The right to decent housing and urban resilience in the global south

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As flooding risks increase in urban areas, Indonesian city governments recently began to implement so-called 'river normalization,' an engineering-based approach for mitigating seasonal floods and managing river space as public goods. However, this approach is controversial in that it causes the massive eviction and displacement of existing riverbank informal settlements. For example, there have been a number of arguments on the displacement of informal settlers along the Ciliwung River in Jakarta, Indonesia to public rental housing far from the original site. Also, squatters in Kampung Akuarium of Northern Jakarta had long resisted against the former Governor's demolition and relocation scheme, and very recently, managed to grasp a chance to come back to the original place thanks to their win at the court. These stories clearly show that the package of compensation and relocation to public rental housing offered by the state does not appropriately meet the needs of relocating informal settlers.

Within this background, this paper aims to examine the way in which river normalization has an influence on riverbank informal settlers' access to decent housing. Questions include: "how does river normalization interpret riverbank informal settlements as indecent housing?" and "how does river normalization constrain and/or support the housing choice of riverbank informal settlers?" To answer these questions, fieldwork was iteratively conducted in Surakarta City of the Central Java island between 2017 and 2018, involving document analysis,

interviews and field observations. By doing so, this paper aims to fill the gap between the right to decent housing and urban resilience.

The research finds that river normalization recognizes riverbank informal settlements as indecent based solely on their physical proximity to the river while ignoring the actual varying perceptions across the residents. Although river normalization is strictly implemented by the city government based on the central government's guidelines, it minimally considers the right of informal settlers to decent housing by adding an option of relocating to landed houses, albeit in off-city sites in nearby counties. Contrary to the state's typical laissez-faire or simplistic relocating to public rental housing, this more humanistic approach is justified by the city government due to the increased public benefits from clean and improved river space at the cost of informal settlers. However, from the perspective of relocating informal settlers, whether the condition of housing they would gain is tradable with their socioeconomic interruptions is still questionable. These findings will provide implications for dealing with the complexity of intersections between urban informality and urban resilience.

Citations

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Key Words: river normalization, informal settlements, relocation, public housing, Indonesia

CLIMATE CHANGE AND DECENT HOUSING IN MEXICO

Abstract ID: 1149

Group Submission: The right to decent housing and urban resilience in the global south

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The author analyzes the presence and relevance of the concept of decent housing in Mexico's strategies to address Climate Change. Using the Green Mortgage Program (GMP) as a case for analysis, the author explores the correspondence between the GMP, Mexico's Housing Law and Mexico's General Law of Climate Change. The Green Mortgage Program (GMP) is the largest and fastest growing effort to increase residential energy-efficiency in low-income households in the world. Since its implementation in 2011, it has facilitated the incorporation of energy efficiency appliances into more than two and a half million dwellings in Mexico. The GMP is part of Mexico's largest housing finance institution.

Using the United Nations International Covenant on Economic, Social and Cultural Rights (UN General Assembly, 1966) which defines decent housing in Article 11, the author analyzes three main issues related to the GMP: Firstly, the program increased the cost of housing by approximately 5-10% by incorporating the cost of the devices into the mortgage debt, therefore making housing less affordable. Secondly, the GMP is presented as a mitigation strategy to climate change in urban areas but provides no empirical evidence to corroborate that predicted reductions in greenhouse gases have been met. Thirdly, one of the goals of the GMP is improving the living conditions of its inhabitants, but two recent case studies (Davis et al., 2018; Giottonini Badilla, n.d.) show no difference between the living conditions of habitants of the GMP as compared to inhabitants of houses of similar characteristics which are not part of the program. These three premises guide two research questions

addressed by the author: is the GMP effective, and is the GMP equitable. The author uses existing research and analysis of official documents to answer the first two questions. The third question explores the role of the GMP in advancing the climate change, energy efficiency and emission reduction discourse in Mexico, and an analysis of the relevance of the concept of decent housing. This question is addressed through a discourse analysis of printed and online media, as well as semi-structured interviews to officials at the three levels of government, and the results of a survey of 150 inhabitants of GMP houses.

The findings show that the GMP has been ineffective at reducing energy consumption, therefore greenhouse gas emissions; and there is no significant improvement in the living conditions of its dwellers. The GMP is not equitable, as it increased the cost of housing for the lowest-income sectors of the population while providing no benefit to compensate for this increment. The GMP has been successful in advancing the regulatory context for energy efficiency in housing construction. Since its implementation, more than 20 new standards and regulations have been created by at least seven regulatory bodies in Mexico. The GMP has also accelerated the growth of a market for energy efficiency appliances, which would not have been possible without the financial support attached to it. The interviews to officials as well as the responses to the survey provide no conclusive findings in terms of a possible advancement in the discourse of climate change and efficient behavior in Mexico.

The results of this analysis add to an ongoing exploration of the effectiveness and equity of climate change mitigation and adaptation strategies for urban areas in the global south (Adger et al., 2003; Smit & Pilifosova, 2003). The results provide valuable information to urban planners and policymakers about the creation, implementation, and evaluation of housing, energy and climate change related policies; and also point to the urgent need to incorporate issues of quality and equity in the provision of decent housing.

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Key Words: climate change mitigation, decent housing, energy efficiency

LOOKING AT THE SPATIAL DETERMINANTS OF BOGOTA HUMANA'S RESILIENT HOUSING STRATEGY

Abstract ID: 1150

Group Submission: The right to decent housing and urban resilience in the global south

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Since the 1990s, the city of Bogota has pioneered disaster risk reduction strategies. Following this practice, during the Petro administration period (2012-2016), the city invested heavily in housing resettlements to recover and prevent construction in areas of zoned at risk of climate-related threats such as flooding and landslides. The goal of the city's development plan, Bogota Humana, was to develop a "resilient urban territory." The administration recognized these risks have been socially constructed through the exclusion of low-income residents from the formal housing market and the building of informal settlements in risk-laden topographies. Bogota's climate resettlements relied on two land-use and housing strategies: the use of risk zoning to mark the areas to be recovered, and the construction of social housing to provide alternative housing solutions. Moreover, the resettlements were prospective so that households could be resettled even if they did not face imminent threats.

However, ultimately, much of the city's new social housing was built in the extreme urban periphery, in some cases, in high risk zones. That is, resettled households often found themselves leaving behind homes which faced no obvious risk only to be relocated to social housing projects built in risk areas.

This apparent contradiction in Bogota Humana's land-use and housing strategy raises questions about the spatial relationship between risk zoning and the housing market in Bogota. How effective has risk zoning been as a land-use strategy to prevent new construction in ecologically sensitive areas? Has new construction in the city followed the spatial logic of risk zoning? Relatedly, what is the strength of market factors relative to risk zoning in determining where new social housing is constructed?

This paper addresses these questions through the findings of a logistic model which evaluates the relative effect of risk zoning, market (land values) and land-use on the construction of new social housing by comparing building permit data between 2006 and 2016. Data was provided by Bogota's Secretariat of Planning, District Cadaster Special Administrative Unit and the District Institute of Risk Management and Climate Change (IDIGER). The model's findings were supplemented with interviews of housing and risk management experts in Bogota. Data was collected over a year and a half as part of the fieldwork for a dissertation project.

This paper contributes to the emerging literature on resettlements as a climate change adaptation and urban resilience strategy. (de Sherbinin 2011, Ferris 2012) It aims to bring conceptual clarity and empirical depth to this new literature by closely examining the case of Bogota Humana. Social ecological systems (SES) theory, the dominant analytical frame in this field of study, defines resilience as the ability for SES systems to withstand external shocks, maintain functional persistence, through self-organizing and adaptive capacities. (Holling 1973) However, SES theory advances a value-neutral, systems-thinking, epistemology which ignores power asymmetries in social relations, and their economic basis in capitalist market dynamics. (Adger 2006) Borrowing from the emerging critiques of SES (Pelling 2011) this paper relies on political economy, examining the influence of the market on climate resettlements, to critically an example of growing investments in climate change adaptation.

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Key Words: Housing, Urban Resilience, Climate Change Adaptation, Latin America

ENERGY USE AND CLIMATE CHANGE MITIGATION IN MEXICO CITY'S COLONIAS POPULARES

Abstract ID: 1343

Group Submission: The right to decent housing and urban resilience in the global south

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Energy used for heating, cooling, and other household needs in residential buildings accounts for 30-40% of the world's total energy consumption, making household energy use in housing a fundamental component of climate change mitigation (Ramesh, Prakash, & Shukla, 2010). However, energy use in housing differ widely between low- and upper-income households (Rosas, Sheinbaum, & Morillon, 2010), exemplified by the distinction between wealthier communities and informal settlements such as the so-called "colonias populares" in Mexico City (Connolly, 2009; Ward, Huerta, & Di Virgilio, 2014). Despite the fact that colonias populares account for

most of the Mexico City's housing stock (Connolly, 2009), there is a poor understanding of the extent to which residents in these settlements use energy and thus contribute to greenhouse gas (GHG) emissions. The author explores the relationship between energy use and informal self-help housing in Mexico City's colonias populares. To that end, the author presents empirical results from her fieldwork conducted in Isidro Fabela, a colonia popular in Mexico City. Residents in Isidro Fabela pursue strategies that allow them to use less electricity, such as taking advantage of daylighting and natural ventilation. However, gas for water heating is particularly challenging to save because of the relatively cold mornings in Mexico City, which increase the hot water demand for bathing purposes (Giglio, Lamberts, Barbosa, & Urbano, 2014). Surveys on household energy use revealed that the gas bill is more expensive than electricity and water. Nevertheless, people in Isidro Fabela use comparatively less gas and water than upper-income residents in Mexico City. To save gas, residents take five-minute showers and some use buckets of hot water that they heat on the stove. Another obstacle to savings on gas usage is lack of access to technological innovations (Rosas-Flores & Gálvez, 2010); for example, most families use ineffective cylinder heaters that they operate manually. In their interviews, residents expressed great interest in acquiring energy-efficient and solar heaters to decrease the costs of gas. The author concludes that solar technological innovations may serve to mitigate greenhouse gas emissions and at the same time improve the household economy and the quality of life of families in Mexico City's colonias populares.

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Key Words: Energy use, Self-help informal housing , Consolidated informal settlements “colonias populares”, Climate Change Mitigation , Solar Water Heaters

NATIONAL POLICY AGENDAS ENCOUNTER THE CITY: COMPLEXITIES OF POLITICAL-SPATIAL IMPLEMENTATION

Abstract ID: 91

Individual Paper Submission

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This paper critically investigates the implementation trajectories of national political agendas in two distinct urban settings—Israel's program aimed at sole sovereign control of Jerusalem and Northern Ireland's effort to build peace in Belfast. The case studies are similar in political contestability but different in how public authority addresses the ethno-nationalistic conflict. I study the relationship over the past 24 years between national policy agendas and the spatial, economic, and social changes in these two cities. I research urban interventions that address economic development, borders, public services, urban violence, housing, development regulation, public space, and community participation. I examine how these urban policies and their impacts have influenced effectiveness in achieving national policy agendas.

The paper is based primarily on seven months of field research in 2015 and 2016. I undertook 122 interviews with urban professionals, political leaders, community and non-governmental organization representatives, and academic experts. I also investigated published and unpublished documents. Jerusalem and

Belfast illuminate the dilemmas and challenges faced by societies that are polarized by nationalistic conflict (Hepburn 2004). Both cities encapsulate deep-rooted cleavages based on competing arguments over sovereignty, provide multi-decade records of urban planning in contested bi-communal environments, and are embedded in long-term and uncertain peacemaking contexts.

This paper informs theoretical perspectives on the local implementation of national policy agendas. While Pressman and Wildavsky (1973) and others focus on the top-down structuring and design of policy implementation, Lipsky (1980) highlighted the role of implementing personnel in carrying out programs that are often underspecified. Scharpf (1978), and Sabatier (1986) describe how policy implementation involves the interaction of multiple actors throughout the chain of implementation which can have separate interests and strategies. Other scholars emphasize the urban political world as a complex arena of intersecting multiple orderings of authority whose coordination with one another cannot be assumed (Lucas 2017, Orren and Skowronek 2004). The interpretive approach emphasizes how policy goals are often formulated at an abstract level, creating for implementing actors a “struggle for the determination of meaning” in carrying out national objectives (Yanow 1996, 19).

I find disconnection between national political and urban spatial levels—between the abstract and the operational. Higher-level political goals by Israel and Northern Ireland are problematized as they are enacted in urban space. As abstract political programs confront micro-scale urban dynamics and resistant patterns of community power, their impacts become variant and contradictory. Difficulties in implementation of national policy agendas are partially rooted in the structural features of urban realities which act to thwart and redirect policies and agendas from above. There are inherent micro-level complexities of urban environments that are beyond the capacity of national policymakers to effectively address in ways implementable in urban space. In both Jerusalem and Belfast, the actualization of national goals is a social/spatial as well as political process that takes place over an extended period and is subject to obstructions and disruptions. Implementation of national policy agendas is jointly produced through the interaction of local, city-based, actors and national elites.

The political development studies theoretical approach to policy implementation is useful in understanding the Israel case. The implementation of Israeli national policy is characterized by different policies occurring which are at times consistent with national goals but at other times exhibiting unintended and counter-productive impacts on national objectives. In the Northern Ireland case, the interpretive approach to policy implementation provides insights as underspecified peacebuilding goals become stymied in their implementation by politically-motivated competing interpretations of national goals. The fact that national-urban disjunctions were found in fundamentally different national programs illuminates the inherent obstructive quality of urbanism in resisting and confounding national mandates.

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Key Words: Planning amidst ethnic conflict, Intergovernmental relations, Policy implementation

UPGRADING HOUSING SETTLEMENT FOR THE URBAN POOR IN INDONESIA: AN ANALYSIS OF THE KAMPUNG DERET PROGRAM

Abstract ID: 120

Individual Paper Submission

In Indonesian cities, most poor residents live in spontaneous informal settlements referred to as *kampungs*. *Kampungs* are scattered throughout the city and have limited water supplies, inadequate drainage, narrow alleys and footpaths, and are characterized by the poor management of solid waste (Winarso 2010). *Kampungs* have small plots of land for each dwelling and low-quality building structures and materials. Most of the dwellings are constructed gradually by the residents from permanent and non-permanent materials, depending largely on what the residents can afford (Tunas and Peresthu 2010). Poor *kampung* residents are marginalized urban residents who occupy state land such as disposal sites, riverbanks, railway tracks, and private unoccupied land, illegally constructing their dwellings (Winayanti and Lang 2004).

Over the past decade, Indonesia has implemented three housing policies: (i) self-help housing policies such as the *Kampung Improvement Program* (KIP), the *Community-based Housing Development* (P2BPK), and *Self-help Housing Assistance* (BSPS); (ii) the *PERUMNAS* Program, the national program for public housing development; and (iii) the cross-subsidized housing policy, which is an instrument for balancing segmentation in the housing market and linking the growing number of high end houses to provision of more low-cost houses (Minnery et al. 2013; Tunas and Peresthu 2010). Despite these three housing policies, informal housing settlements remain a critical issue in many Indonesian cities.

The *Kampung Deret* Program is a new local housing program that builds low-rise apartment blocks for very low-income residents in Jakarta's *kampungs*. The program was initiated by the Jakarta City administration in October 2013 and gained considerable support from among the poor in Jakarta's *kampungs*. The program built nearly 4,500 permanent housing units for the urban poor in Jakarta in less than one year. The *Kampung Deret* Program aimed to create houses and an environment to provide ideal health standards and to assist residents obtain proper ownership documents.

This study offers a review of the self-help housing policy, the *PERUMNAS* Program of public housing development, and the cross subsidization housing policies. The discussion includes an account of housing finance and the interplay of the state and the market in housing outcomes. This study suggests that the three national housing policies have not addressed the issue of housing provision for the urban poor in Indonesia. This study then discusses how the *Kampung Deret* program differed from the three national housing policies for the Indonesian urban poor. The discussion includes a review of land tenure, funding and beneficiaries, the housing development process and changes in social and economic conditions. Using the case of *Kampung Deret* program, this study explores ways of moving beyond a focus on land legalization, self-help housing and government subsidies for addressing the housing problem for the poor in Indonesia. The main research question of this article is "What ingredients are important and have more impact on upgrading housing settlements for the urban poor in Indonesian cities?" The study concludes by offering some policy implications from the implementation of *Kampung Deret* program.

Data for this study derives from multiple sources, including interviews with three planners in Jakarta, three academics from the Bandung Institute of Technology and Trisakti University, a lawyer of the Jakarta Legal Aid Institute and some residents of the *Kampung Deret* program in the Petogogan Jakarta during a field trip in June-July 2015. The interviews have been supplemented with secondary materials from federal and local housing documents, published and unpublished reports, and newspapers and news magazine articles.

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Key Words: housing, poverty, urban, upgrading, Indonesia

HOMELESS PEOPLE OCCUPYING PEOPLE-LESS HOMES: JUDICIARY-SPONSORED EVICTIONS IN BRAZIL

Abstract ID: 148

Individual Paper Submission

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This paper analyzes the gap between the legal framework on land use and judicial adjudication in Brazil. Despite having one of the most progressive land regulations in the world, approximately six million households do not have access to adequate housing in Brazil (Fundação João Pinheiro, 2017). The 1988 Federal Constitution declared housing an institutional right. The City Statute, promulgated in 2001, reinforced that property rights should be subject to the “social function” of urban land by creating mechanisms to prevent its underutilization through mechanisms like progressive estate taxation and adverse possession law. Officially, these new legislations enabled municipalities to demand owners of vacant urban parcels to promote their immediate use. These Decrees also produced the legal framework to ensure the right of individual and collective actors to claim the formal tenure of urban plots that have been occupied by them for at least five consecutive years. In practice, however, despite these legal apparatuses, judges are determining the evictions of thousands of families from abandoned private and public-owned buildings located in central areas of Brazilian cities.

There is a growing body of literature that argues that the banishment of the poor of the city is more than a simple outcome of housing commodification or a direct consequence of urban development projects led by the State (Caldeira, 2000; Roy, 2017). Some authors suggest that displacement is increasingly being endorsed and carried out by judiciary systems on behalf of aesthetics norms and “public interest” initiatives and at the expense of the criminalization of the poor (Gherner, 2011; Bhan, 2016). According to James Holston, the judicial process in Brazil has been “a means of manipulation, complication, stratagem, and violence by which all parties – public and private, dominant and dominated – further their interests” (2008, p. 203). The objective of this paper is to reflect upon the legal discourse that it is being used to support displacement in occupied buildings whose tenure security is supposedly guaranteed by federal legislation. In other words, my aim is to understand, as Gherner (2011, p. 131) puts, how eviction can be perceived as an “act of governance rather than violation”. At stake, is not only how public actors denied the right to housing to the urban poor, but more importantly how a legal rhetoric on land and apparatus of property put at risk equitable and democratic urban regimes.

I will ground my analysis in the case of Porto Alegre, conducting discourse analysis of the court records involving the repossession of the almost one hundred occupied buildings since the 1990s, when housing movements started to adopt this strategy in Porto Alegre. Porto Alegre is a paradigmatic case due its tradition in mechanisms of participatory planning. The city hosted eight editions of the World Social Forum, including the first one in 2001. Porto Alegre was also the first Brazilian state capital to adopt the Participatory Budgeting in 1989, a mechanism of participatory democracy that allows citizens to decide on municipal budget investments. At the same time that approximately 75,000 families have no access to adequate housing in Porto Alegre, the Brazilian Institute of Geography and Statistics estimates the existence of 40,000 vacant or abandoned dwelling units in the city. Although I do not have findings yet as I am still gathering documents from judicial archives, I expect to discover that there is a growing disparity between formal law and its application and that the Judiciary does not recognize the inclusive mechanisms created by the 1988 Constitution and the City Statute and still condemns informal arrangements of dwelling.

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Key Words: displacement, right to housing, Brazil, City Statute, property rights

JUSTICE IN RESILIENCE? A REVIEW OF GLOBAL RESILIENCE INITIATIVES

Abstract ID: 175

Individual Paper Submission

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As cities globally deal with increasingly complex and interrelated problems such as climate change, the idea of building general “resilience” in urban systems is outpacing other policy frameworks in popularity. Yet, many scholars have cautioned that resilience is an inherently conservative (rather than transformative) concept which obscures issues of power and justice (Joseph, 2013; Meerow, et al., 2016; Ziervogel et al., 2017). To date, there has been little by way of in-situ or empirical findings to test these claims.

The Rockefeller Foundation's 100 Resilient Cities (100RC) program attempts to mainstream resilience thinking into city planning. We have taken this ongoing program as an opportunity generate empirical findings on how planners confront issues of justice and inequity in resilience planning, focusing on the global South.

To support our analysis, we draw upon Anguelovski et al.'s (2016) concepts of “acts of commission” and “acts of omission” to consider both procedural and distributive justice in a selection of 100RC city planning reports. Procedural justice processes such as negotiation and redistribution of power are necessary to generate the transformative systems changes that resilience narratives promise (Harris, Chu & Ziervogel, 2017). These procedural considerations also influence distributive justice by affecting spatial and infrastructure planning which, in turn, affect economic and resource inequities.

Using key informant interviews and directed content analysis of 13 “Resilience Strategy” reports, we examine whether and how the 100RC Chief Resilience Officers have understood and implemented principles of procedural justice in the development of their city's resilience strategies. Our findings suggest that resilience planning in these selected cities has not sought to radically transform power relations, nor focused explicitly on procedural justice. These findings will help guide future planners and policymakers to reflect on justice not only as an outcome for resilience, but also as a critical element in planning processes.

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Key Words: Resilience, Justice, Planning, International

PLANNING NATIONALIZED OR NATIONALISM SPATIALIZED? THE PLANNING OF THE ANURADHAPURA NEW-TOWN IN 1949

Abstract ID: 187

Individual Paper Submission

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This paper attempts to explore how nationalism entered the Sri Lankan planning discourse, using master-planning of the Anuradhapura new town in 1949 as a case study. Anuradhapura is the most ancient, key sacred site for the majority of Sinhalese-Buddhists in Sri Lanka. It was also the first planned town in independent Ceylon (Sri Lanka after 1972) where Buddhism and nationalism met postcolonial spatial expression. The year after independence in 1948, the Ceylonese government inaugurated the Anuradhapura new town planning project on a site a few miles away from the location of ancient sacred monuments. The monuments were in ruins, but many people lived in the area. Structures that served daily routines, i.e., ‘secular uses’ of the inhabitants of the ‘sacred area’ – schools, markets, shops, and offices – were relocated to the new site. The sacred area was left with the remains of ancient monuments such as stupas and monasteries which belong to the first capital of Lanka’s ancient civilization, which has a history over two-millennia.

Influenced by Sinhalese-Buddhist revival movements of the late 1800s emerged a demand for a new town in Anuradhapura that would spatially separate sacred from secular. This spatial separation reflects religious revivalists’ beliefs in their authority to control the sacred space by removing or moving the non-Buddhist practices from the site. In the early 1940s, the revivalists’ claim for spatial separation and the stamping of the Sinhala-Buddhist will was politicized expressly by nationalist political elites, who demanded Ceylon be a Sinhalese-Buddhist state. The Anuradhapura new town planning project thus marks the location where the ‘colonial planning discourse’ (see Perera 2008, 2005) met the national consciousness.

By employing both archival materials such as political debates, newspaper reports, and the government correspondence (from early 1900s to mid 1950s), and the empirical data from fieldwork conducted in Anuradhapura during summer 2017, the study analyses the Anuradhapura planning discourse.

We aim to understand how the planning project negotiated different standpoints and tensions within nationalist politics and the needs of the emerging nation. We approach this project as a ground-up knowledge-building project in which the study of Anuradhapura new plan and the planning process may enable us to understand the influencing ideologies such as Sinhalese-Buddhist nationalism, how they were negotiated, and the potential impact of the planning process and the plan. Following the work of postcolonial urbanism (Yeoh 2001; King 2008), the findings of this study argue that planning in postcolonial cities is a complicated political action that is manipulated by historicity, religion, culture, and nationalist conceptualisation of space. Findings on Anuradhapura’s planning will be instrumental to understand crossroads between colonial and nationalist politics in shaping the modern planning and spatial ideologies in a postcolonial nation. However, the research produces a body of knowledge that has implications far beyond Sri Lanka’s geographical boundaries.

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Key Words: Anuradhapura , Sri Lanka, Nationalism, Postcolonial Cities , Spatialization

LAND USE CHANGE IN CHENGDU 2005-2016: CAN ACCESSIBILITY CONTROL SPRAWL?

Abstract ID: 222

Individual Paper Submission

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China is currently experiencing the “Century of the City” (Seto et al, 2010). There are more than 100 cities where there is a population of over 1 million and 70% of the country's population is expected to be urban by 2050 (Seto et al, 2010). Chengdu, one of the largest cities in Western China, is the capital of the Sichuan province and has grown rapidly in the last 20 years. Local municipal authorities have adopted aggressive plans for growth (Schneider et al, 2005; Zeuthen, 2017). In a study in 2005 Schneider et al used satellite data for Chengdu from 1978-2002 to examine land use change for signs of sprawl. They found three spatial phenomena that suggest sprawl in the region: land-use specialization, clustering, and periurban development. More recently, Zeuthen (2017) and Gao et al (2016) note that the second wave of urbanization in Chengdu and other cities in western China is occurring at a considerable distance from the urban core. In Chengdu, the improvement of transportation infrastructure has been a key goal for the local government and several thousands of kilometers of roads have been built. The central government has also initiated the planning and development of a new CBD in the southern periphery and transit lines have been built to this new CBD since 2010. Much of the periurban development in Chengdu appears, therefore, to have been initiated by the planners.

Sprawl is of great concern because it results in people having to travel longer distances to access not only their place of employment but also non-work activities such as shopping, recreation and education (Yang and Gakenheimer, 2007; Zhao, 2010; Cervero, 2013). This is particularly relevant in China where urban structure used to be more compact and jobs in the local Danwei (work unit) were close to residences. At least one recent study (Feng, 2017) suggests that, with rapid urban expansion in China, the number of economic and social opportunities in a neighborhood have decreased rapidly, leading to poor accessibility for socially vulnerable groups like the urban poor. Improved accessibility to jobs could thus be used to influence more sustainable travel behavior through non-motorized travel modes as well as transit (Zhao and Lu, 2010). Shen et al (2016) note that rail transit-supported urban expansion can also produce important positive outcomes in integrating land use and transportation planning even as cities urbanize.

In this paper we study land use change in Chengdu in the last 10 years using Landsat satellite data for 2005 and 2016. We use metrics such as the mean patch size, landscape shape index, largest patch index, and Shannon's diversity index that have been suggested by other researchers (Schneider et al, 2005; Yue et al, 2013; Gao et al, 2016) to test for signs of continued sprawl-like urban development in the region. We then estimate the role of accessibility to employment through multiple modes including transit in predicting land use change using a multilevel logit model. Finally, we compare the travel behavior of households in a peripheral location which resulted from leapfrogging development with another peripheral location that has developed near existing urban development. We also pair several case study locations for land use and travel behavior changes between 2005 and 2016 using data from two travel surveys conducted in 2005 and 2016 in Chengdu.

Our initial findings suggest that proximity to transit and accessibility to employment could be a potential mechanism for cities in China and other developing countries to grow in a sustainable way.

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Key Words: Sprawl, Job Accessibility, Land use change, Transit, China

SYNCHRONIZING THE CITY: TOWARDS A TEMPORAL LOGIC OF AGGLOMERATION IN METRO MANILA

Abstract ID: 255

Individual Paper Submission

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Many cities are no longer constrained by the local time zone of the region in which they are located. This is especially true in Manila, where the rapid growth of the business process outsourcing sector (BPO) is shifting traditional hours of business activity and fundamentally changing daily life for its workers. In recent years, the Philippines has emerged as the fastest growing economy in Southeast Asia. Much of this growth has been driven by the BPO industry, which is today responsible for approximately 1.3 million jobs in the country and over \$25 billion USD in revenue annually. The BPO sector in the Philippines includes a variety of industry sub-sectors, ranging from back office accounting to digital animation and human resources management. However, the overwhelming majority of BPO jobs in the country are in customer service work or customer service “call centers” which service corporations based in Australasia, Europe and, most frequently, North America. Owing to the 12-hour time difference between United States Eastern Standard Time and local time in Manila, the most common work shift in the BPO industry in the Philippines takes place from 9:00PM to 6:00AM local time.

This paper analyzes how the growth of the BPO industry in the Philippines is giving rise to a new logic of urban agglomeration – a temporal logic of agglomeration in which firms’ locational choices are determined by the desire to co-locate near other corporations that operate on a foreign time zone. This, I argue, has led to a larger re-synchronization of proximate urban areas to more effectively operate at night. Examples of the intensification of planning activities to support these agglomerations include increases of food and beverage outlets open 24 hours a day (or only at night and closed during the day), increased nighttime illumination and visible security, the construction of dormitories and other housing specifically for those working a night shift, and the introduction of new informal and formal transportation networks to bring employees to and from offices throughout the evening and early morning. In order to demonstrate this emerging temporal logic of agglomeration and the accompanying re-synchronization of sectors of the city, this paper investigates three business districts in Metro Manila which are dominated by the BPO “call center” industry: Bonifacio Global City, Eastwood City and Filinvest City. The study draws on one year of dissertation research conducted in the Philippines, including spatial analysis and semi-structured interviews with business leaders, designers, politicians and BPO office workers.

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Key Words: International and comparative planning, rapidly urbanizing regions, technology, infrastructure and development, Southeast Asia

MASTER PLAN ADJUSTMENT AND OVERBUILDING UNDER URBAN ENTREPRENEURIALISM IN CHINA: THE CASE OF ORDOS CITY

Abstract ID: 328

Individual Paper Submission

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Overbuilding has been a noteworthy phenomenon in China, which has significant implications on sustainable urban development (He et al., 2016). Meanwhile, master plans in China are required by the state to guide socioeconomic development and spatial land uses at the local level (Qian, 2013). Nonetheless, few studies have investigated the implementation and adjustment of master plan under overbuilding in a mid-sized city in China. Under the conceptual framework of urban entrepreneurialism (Harvey, 1989) and state entrepreneurialism (Wu, 2017), and by employing a qualitative approach including in-depth interviews and document collections, this study fills this gap through the examination of the implementation and adjustment of master plan and its role in facilitating overbuilding in Ordos City, China. As a mid-sized inland city with abundant natural resources, Ordos has attracted tremendous attention for its recent unprecedented overbuilding and real estate boom-bust cycle.

This study yields several significant findings. Firstly, urban master plan has been adopted by Ordos municipal government as a strategic tool to bolster urbanization and economic development, nurture a more competitive city, and form a new regional growth pole in central Inner Mongolia. Under the booming economy—particularly the real estate sector—since the 21st century, and shortly after the initial implementation of the 2004–2020 Master Plan, Ordos City has astonishingly revised its master plan in 2009 and 2011 respectively to embrace the frenetic land development activities. In the plan adjustment process, the 2009–2020 Master Plan was soon abandoned due to its conservative nature, and was replaced by the 2011–2030 Master Plan with a much more ambitious stance. Secondly, the implementation and revisions of the master plan have significantly contributed to the overbuilding phenomenon in Ordos City. Rather than an effective tool for development control, planning has been employed by the municipality as a means to legitimize growth and open new arenas for accumulation. Not surprisingly, great discrepancies exist between the actual land development outcome and the designated land uses, and master plans have been made subordinate to market forces in Ordos City. During the interviews, government officials and planners in Ordos City admit that the 2011–2030 Master Plan was overly planned, and the overbuilding and real estate bubbles could have been mitigated, if not eliminated, had the abandoned 2009–2020 Master Plan been implemented. Thirdly, although the implementation and revisions of master plans have been much regarded as local endeavors, alignment with central policies, namely the Western Development Program and the regional strategic development plans, as well as the involvement of provincial-level officials also play key roles in the practices of master plans in Ordos City. Finally, this research confirms the institutional and legal instabilities of master plan in China, as noted by Qian (2013), and argues that master plan should be tailored towards a more socially and environmentally inclusive system to ensure the healthy socioeconomic and environmental conditions of cities. It should be further noted that the interactions between the master plan and land development are intrinsically tied to the economically decentralized and politically centralized system in China.

This research also makes crucial theoretical contributions. It verifies the legitimacy of the urban entrepreneurialism and state entrepreneurialism theses in interpreting master plan implementation and adjustment under overbuilding in China, thus confirms the notions of “planning for growth” and “planning under urban entrepreneurialism” in China (Wu, 2015). Meanwhile, it argues that the interactions between municipal and upper level governments should not be overlooked in examining the practices of master plans. More broadly, it calls for an increased attention on the role of planning in shaping land development outcomes in China and beyond.

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Key Words: Master plan, Overbuilding, Plan adjustment, Ordos City, China

WEALTHIER BUT POORER: THE HIGH COST OF FREE HOUSES IN A LARGE-SCALE COLOMBIAN HOUSING DEVELOPMENT

Abstract ID: 363

Individual Paper Submission

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Addressing housing needs for historically marginalized groups entails a difficult challenge. Since 2010, Colombia has undertaken an extraordinarily large expansion of national housing subsidy programs with the construction of 1 million "free" homes for the poorest families in the country, many of them victims of political violence and natural disasters. This paper draws on an investigation of living conditions in Ciudad del Bicentenario, a large-scale project on the outskirts of Cartagena that features both "free houses" and other forms of low-income housing. Based on 75 interviews with residents who have relocated to this community, we developed three paradoxical research findings about the high costs of free housing, expressed through social, economic and environmental mechanisms.

The first paradox is that the vast majority of respondents, who had all recently moved into this new housing project, reported that their quality of life had improved but that their economic projects and livelihoods had diminished. The second paradox is rooted in the growth of economic and physical informality in Ciudad del Bicentenario—even though this project had aimed to counter the densification and expansion of informal settlements in Cartagena. The third paradox speaks to the dual social condition of the residents; while moving to the outskirts of the city isolated them socially and economically, they also shared a widespread perception of being 'revueltos' or scrambled within the community of Ciudad del Bicentenario itself. This paper investigates the conditions that produce these paradoxes, as well as the interrelations between them.

To do so, we employed quantitative and qualitative methods. Our interviews and field observations built upon baseline surveys undertaken in 2014 and 2015 by the Fundación Mario Santo Domingo. We linked to these surveys when conducting follow-up semi-structured interviews with a random sample of households, stratified by level of income reported at the time of the baseline surveys.

Empirical evidence shows that providing new housing amenities in over regulated environments isolated from job opportunities undermines the livelihoods and community autonomy goals of these families. In Ciudad del Bicentenario, we found a struggle between the State's preference for standardized production of "free" houses in remote peri-urban areas and the resistance of residents, who wish to retain the complex and diverse informal practices that make their livelihoods possible. This struggle is expressed in many ways once residents seek alternative pathways to livability. This can lead to disputes among neighbors over which practices are permissible but, more positively, can also yield informal self-governance initiatives that carry forward specific micro-agendas, in areas such as waste management, public space maintenance and security surveillance.

We identify a tripartite tension between the highly regulated built environment, the norms that affect community behavior, and the State's wish to provide families with significant autonomy, exemplified by entrepreneurship initiatives and self-governance practices. These tensions get expressed in three principal ways: 1) struggles between formal and informal livelihood strategies in the built environment; 2) conflict between entrepreneurship goals and the physical restrictions that the houses impose; and 3) a disconnect between the diverse life histories experienced by the project's component groups and the official belief that these places house a monolithic low-income constituency.

We conclude that this ambitious housing venture has unintentionally produced a new social group in Colombia: impoverished homeowners of 'free houses,' paradoxically rendered 'revueltos' in their peri-urban

isolation. By failing to identify the diverse needs of these rehoused low-income residents, housing policy makers and planners have inadvertently generated diminishing economic opportunities. By constraining the development of informal processes within large-scale housing projects, such policies have reproduced the quantitative and qualitative housing deficit, even after significant public-sector efforts.

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Key Words: Low-income housing, Urban informality, Designed communities, Social cohesion

PLANNING THE INVISIBLE CITY: MIGRATION AND URBAN CITIZENSHIP IN GURGAON, INDIA

Abstract ID: 379

Individual Paper Submission

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The right to move freely within India's borders is guaranteed to citizens in the constitution. For the most vulnerable, however, the process of crossing state, regional, and cultural geographies is fraught with barriers to inclusive or permanent resettlement. In Gurgaon, thousands of migrants have opted to live dual lives, working and raising families in the city, while travelling hundreds of miles to vote, give birth, find a spouse, or access entitlement programs in their ancestral villages. The cost of preserving ties to home is invisibility, living without local political representation or benefits for decades at a time.

The paper investigates the complex decision-making behind this pattern of cyclical, low-income migration and its implications for planning in Gurgaon. As a relatively new city, the majority of Gurgaon's nearly 2 million inhabitants come from elsewhere. While Harriss (2005) finds that Delhi's urban poor are more politically active than the wealthy, in neighboring Gurgaon, the poor often avoid the lengthy bureaucratic task of obtaining local residency and voting rights altogether. What prevents this floating and invisible population from investing in the city as a long-term home, achieving urban citizenship, and participating in the city's politics? How can planning acknowledge this transitory public and begin to address some of the structural challenges and precarious living conditions that affect large swaths of the city's population?

Rural migrants in cities are often "socially rejected" while "economically accepted" (Murphy 2006). In Gurgaon, they provide a vital source of income for local farmers (turned landlords), and comprise the bulk of the service, construction, and manufacturing labor forces driving the city's rapid economic growth. Yet these groups also face severe discrimination, inflected by cultural, political, and regional attitudes towards outsiders (Abbas 2016). The ancestral inhabitants of Gurgaon's urban villages offer the primary source of low-income housing for migrants, a condition that has allowed a complex patronage relationship to emerge between landlords and their tenants. While landlords rely on migrants for rents, they also fear political displacement and, in some cases, deliberately obstruct tenants from achieving legal residency (Naik 2015).

The paper draws on fieldwork conducted from 2015-2016, including semi-structured interviews and surveys with approximately 120 households across four of Gurgaon's urban villages, as well as with landlords, migration NGOs, and local planners. The majority of participants were from West Bengal and Bihar. Migration strategies and urban settlement patterns in Gurgaon varied by state of origin, as did long-term aspirations to return home. The findings reveal complex strategies for improving social and economic prospects for the next generation.

While various bureaucratic obstacles prevented many from seeking residency in Gurgaon, the fear of losing one's citizenship back home posed the greatest perceived risk and deterrent to pursuing it.

Additionally, the paper discusses the specific challenges of obtaining residency and providing identification for low-income migrants, considering how doubts surrounding nationality and urban citizenship are mediated at the local level. The paper concludes with an overview of the ways in which planning institutions and NGOs have responded to and shaped these issues in Gurgaon, offering moments of success as well as missed opportunities.

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Key Words: Migration, Urbanization, India, Participation, Citizenship

URBAN DEVELOPMENT PATTERNS AND SURFACE WATER POLLUTION IN ADDIS ABABA, ETHIOPIA

Abstract ID: 382

Individual Paper Submission

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In the next fifty years, the majority of urbanization will take place in the country of China or on the continent of Africa (Keil 2018; Pieterse 2011). Understanding the patterns of urban development in African cities and identifying opportunities to increase their livability and sustainability at the beginning of this transformation could positively shape city decision-making (Glaeser and Henderson 2017). Ethiopia is second largest country in Africa in terms of population but it is one of the least urbanized countries with only 19% of 100,000,000 people living in cities. Its capital city, Addis Ababa is rapidly growing as residents from the rural Ethiopian countryside migrate to the city in search of better jobs and educational opportunities. The specific location where development occurs within the city impacts environmental concerns such as water quality and stormwater management.

Understanding how to reduce water pollution and flooding requires knowledge of topography, hydrology, and land use/land cover. After three years, planning faculty members Larsen (University of Michigan) and Kumelachew (Addis Ababa University) and graduate students have completed the first step in their collaborative environmental planning project by measuring land use and land cover change in Addis Ababa, Ethiopia between 2006 and 2016 using Geographical Information Systems (GIS). Beginning with high resolution satellite imagery from the two time periods, the team categorized 14 major land use types and 43 subcategories. Between 2006 and 2016, 37% (19,135 HA) of the city has changed land use types. The area of impervious surface has increased by 13%. Residential development has increased by 6% in ten years to cover 39% of the city's land area in 2016. While much of the new condominium housing offers higher quality dwelling units compared with the original informal housing, the new housing is located near the city's boundaries and this sprawling development increases transportation needs. Other significant changes include the reduction of urban agriculture from 38% to 23% and the increase in manufacturing and industrial areas from 0.1% in 2006 to 4% in 2016. From this presentation, audience members will learn how urban development in different locations differentially impacts surface water quality and flooding. Second, audience members will learn how the progressive housing initiative is generating new urban challenges and unforeseen consequences. We will highlight how three entities (the informal sector, the city government, and outside development interests) are shaping this Sub-Saharan city. Finally, we will share our

concern that the low-density development pattern emerging in Addis Ababa, Ethiopia is emblematic of patterns in other rapidly growing Sub-Saharan cities.

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Key Words: Urbanization, Water, Ethiopia, Sprawl, Land Use

PUBLIC-PRIVATE PARTNERSHIP FOR MUNICIPAL WATER SUPPLY IN DEVELOPING COUNTRIES: LESSONS FROM KARNATAKA, INDIA, URBAN WATER SUPPLY IMPROVEMENT PROJECT

Abstract ID: 383

Individual Paper Submission

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Central theme or hypothesis

Scarce and poor-quality municipal water is arguably one of the most pressing problems facing developing countries of the Global South, including India, where only 64 percent of the population has access to individual water connections or to water stand posts and water supply ranges from one to six hours per day, with a per-capita supply of as little as 39 liters per day (HPEC 2011). To meet Global South's water delivery challenges, experts have suggested a variety of approaches, such as decreasing the proportion of non-revenue water, covering 100 percent of O&M expenses through user charges, and the use of public-private partnerships (PPP). The PPP model for infrastructure delivery is often employed for one or more of the following reasons: a) to attract private investment for developing a project (capital funding); b) to benefit from private-sector technical expertise; and c) to realize gains from private sector operational and management efficiencies. While the overall performance of the PPP model has been mixed, the potential signaled by the contagion effect of a few examples is noteworthy. For example, the PPP model for water supply employed by three cities in Karnataka, India—Belgaum, Gulbarga, and Hubli-Dharwad—has encouraged water delivery reforms in other cities in Karnataka and in Nagpur, Maharashtra. Through a review of the Karnataka PPP project—the Karnataka Urban Water Supply Improvement Project (KUWASIP)—this paper seeks to identify lessons that India and other countries of the Global South can learn as they invite private-sector participation in the urban water sector.

Approach and methodology

Step 1: Provide an overview of the use of PPP in the urban water sector in India and globally.

Step 2: Describe the case study—KUWASIP.

Step 3: Review the extant literature to identify criteria for evaluating KUWASIP. Because KUWASIP is primarily a management-contract PPP project, extant literature focusing on this contract type is reviewed to identify the evaluation criteria. The criteria are grouped into the following three broad categories: a) project-output criteria, which measure outputs such as the quality of water; b) project-input criteria, which measure the quality of inputs such as the stakeholder engagement process and the PPP contract; and c) policy/program criteria, which measure the success of the project in advancing the broader policy goals.

Step 4: Evaluate KUWASIP based on the evaluation criteria identified in Step 3. Step 5: Synthesize the lessons learned for improvements to the PPP model in urban water projects.

Findings and relevance of work to planning education, practice, or scholarship

This paper's evaluation of KUWASIP provides key and widely applicable insights for planners of other regions and countries, especially those involved in projects that use management contracts for urban water PPP projects. The paper discusses four of these key insights. First, a 24/7 water supply could reduce water usage because water is not wasted by consumers who throw away stored water if adequate water pressure is provided so that water can reach households living on upper floors and if the water infrastructure (for example, pipes and pump stations) are of high enough quality to withstand high and continuous water pressure. Second, management contracts are less controversial compared to long-term concessions involving privatization of water infrastructure, especially when the implementation of the management contracts is accompanied by extensive community outreach efforts that address consumers' and local stakeholders' privatization concerns. Third, it is important that pro-poor policies be developed as well as implemented effectively. Finally, inclusive decision making could help generate local, broad-based support for urban water PPP projects.

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Key Words: International planning and development, Global South, Public-private partnership, Infrastructure planning, Infrastructure development

RECOGNIZING SEWAGE INFRASTRUCTURE IN URBAN INDIA

Abstract ID: 389

Individual Paper Submission

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This paper examines sewage infrastructure in Agra, India through the concepts of visibility, function, and work – three ideas often used to characterize infrastructure. In addition to the commonly accepted technical artifacts of sewage infrastructure, such as toilets, pipes, and treatment plants, I investigate the physical elements of the city that function as infrastructure. In doing so, I argue for an expanded conceptualization of sewerage to include things such as agricultural fields, open drains, and rivers.

I begin by tracing the physical evolution of Agra through three major eras – Mughal, British Colonial, and modern. I then inventory the sewage infrastructure in present-day Agra. I draw on interview data, participant observation, spatial data, and archival data from the Uttar Pradesh Regional Archives in Agra. I find that many of the constructions readily recognized as infrastructure are, in fact, simply representations of sewage infrastructure. Further, improvisations enacted by those without access to services have made other components of the city de facto infrastructure, but are not recognized as such. This means that formal governance institutions plan and manage structures that do not deliver services while ignoring those that do.

Many STS scholars claim that infrastructures are largely invisible and only become visible when they breakdown. Conversely, Carse (2012), and Larkin (2013) after her, argues that visibility is situated and what is invisible, or backgrounded, for one person may be a daily struggle for another. In these critiques, scholars refer to the situated visibility of things commonly recognized as infrastructure, such as toilets and sewage treatment systems. In this research, I argue for an expanded understanding of invisibility to include physical elements of the city

unrecognized as infrastructure. In other words, social groups who do not access to service-providing infrastructure improvise to meet their daily needs. In the case of sewage, this includes practicing open defecation. Those improvisations make elements of the city not usually viewed as sewerage, such as agricultural fields, railway lines, and natural waterways, into de facto infrastructure. Formal governance institutions do not recognize these physical components as sewage infrastructure even though they function as such for many of the urban poor.

Conversely, technologies that are easily recognized as sewage infrastructure in Agra do not provide sewage services. Following Lee and Pholeros' (2010) discussion of aboriginal housing in Australia, much of the sewerage in Agra is not sewage infrastructure; it is a representation of sewage infrastructure. The sewage pipes in many slums of Agra are not pipes. Pipes are devices that carry liquid through them. When they cannot function as pipes, they are merely empty cylinders that are representations of pipes. However, to Larkin's (2013) point, these constructions do function in other ways. Their existence allows them to be counted. For those who do not require sewage services, the representation of infrastructure may be sufficient to meet their ends.

Following this logic, the Yamuna flowing through Agra is also not a river; it does not function as a river. It functions as a drain. Carse (2012) argues that nature can be made to function as infrastructure through the work performed to manage it. In the case of the Yamuna in Agra, I show that nature has become de facto sewage infrastructure through its failure to be managed. Neglect has made the Yamuna a sewer.

To achieve the goal of complete sewage services in Agra and other cities of the global South, the processes of development and planning must be attenuated to how the physical elements of the city actually function as sewerage and how they do not. In short, we must be able to better recognize urban infrastructures.

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Key Words: Infrastructure, Sewage, Informality, Urban India

GLOBALIZATION AS AN URBAN FORCE OF GENTRIFICATION; THE CASE OF ITAEWON IN SEOUL, SOUTH KOREA

Abstract ID: 398

Individual Paper Submission

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Since the 1990s, Seoul has undergone a process of globalization. More and more foreign visitors, students, migrant workers and investors from different parts of the world now find Seoul an exciting, modern, vibrant city in which to live and work. An increasing numbers of Koreans also go overseas for their studies, holidays and work. One of the consequences of this globalization process has been the change of social and economic aspects of some neighborhoods in Seoul. This does not mean that these neighborhoods become identical places, which share a single global culture. Rather, an emerging transnational elite social class creates vibrant places, which embrace and diffuse diverse global culture. These places attract people, especially millennials, who value and appreciate new experiences, ideas and cultural and artistic activities.

This research starts with two research questions: 1) what is the relationship between the globalization process and gentrification in Seoul? and 2) who are the transnational elites who lead the gentrification process? This paper

explores these research questions with particular reference to the case of Itaewon in central Seoul, using two interrelated methods: 1) analysis of census data to confirm the occurrence of gentrification, and 2) semi-structured interviews with residents, business owners, realtors, and local government officials to understand the motives or personalities of the gentrifiers, and 3) analysis of a location quotient of business, culture and political opportunities to confirm spatial change occurred by gentrification.

Historically Itaewon has been an unique enclave since the US army base was stationed there in the 1940s. This area, the so-called ‘America within Korea’, has been changed with recreational and amenity facilities for the US troops and their dependents. Also, people from different nationalities and cultural backgrounds have come to the area with the introduction of embassies and consulates. Unlike other parts of Korea, Itaewon embraces and welcomes people from diverse backgrounds. However, until recently, Itaewon was not a place favored by the general public. In fact, being located adjacent to the biggest US army base in Korea, it was an area often avoided. There were shops selling fake designer goods; bars and clubs mostly frequented by US soldiers, foreigners and the LGBT community; and areas with high levels of prostitution.

Nevertheless, since 2000 Itaewon has become one of the most popular places in Seoul to visit in order to experience the multicultural aspects of the area. Increasing numbers of younger generation of Koreans who are used to or interested in global culture come to Itaewon to enjoy more authentic cultural experiences. The emergence of more cosmopolitan consumption practices and spaces in Itaewon is indicative of the occurrence of gentrification. The gentrification of Itaewon is considered to have assisted in its transformation from what was once a taboo place for many to a very popular place to visit and live.

Census data demonstrate that the gentrification of Itaewon has accelerated in recent years. This acceleration is epitomized by a rapid decrease in houses in poor condition, which have been taken over by fashionable restaurants and shops. By tracing the changing fortunes of Itaewon on the basis of in-depth interviews, it becomes apparent that globalization is the most significant driving force of gentrification. And the people leading these changes are transnational elites, who are often returnees who once lived or worked overseas, second-generation emigrants or frequent international travelers trying to replicate their overseas experience and maintain a similar lifestyle back in Korea. In addition, a longing for Western culture by the younger Korean generation has also accelerated these transformations.

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Key Words: Globalization, Gentrification, Itaewon, Seoul

WHAT ARE THE URBAN AND REGIONAL DEVELOPMENT NEEDS OF FORMERLY TRAFFICKED WOMEN IN POST-CONFLICT ENVIRONMENTS?: PHOTOVOICE EVIDENCE FROM NORTHERN UGANDA

Abstract ID: 420

Individual Paper Submission

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Post-conflict situations offer unique opportunities for true social transformation that improves women’s ability to participate fully in society. However, women’s claims on social, political, and economic structures in post-conflict situations are often excluded in favor of interests deemed more vital to local social stability and economic development (Deiana 2016). Further, women-led grass roots organizations are often prevented from playing a

meaningful role in post-conflict reconstruction due to low group and individual capacity and local social norms that prevent practical action by women (Gizelis and Joseph 2016). International development donors, scholars, and practitioners are too often missing basic knowledge about both the long-term impacts of conflict on women in terms of their day-to-day conditions, their participation in community transformation efforts, and their needs and priorities for regional investment and service provision (OECD 2017).

Northern Uganda is a key context for developing this knowledge. The region received significant international attention during and immediately after the conflict between the Government of Uganda and the Lord's Resistance Army. However, in the approximate 10 years that followed, there has been a significant departure of NGOs present in the region and an extensive scaling back of international and national attention to the area. There remain deep fissures in society and few institutions are willing to critically engage in transformative peace building activities that address the gendered causes of conflict and bring about more equitable development investments. Of particular concern are issues related to women's land access, ongoing gender based violence, and the breakdown of traditional social networks and coping mechanisms, all of which impact access to services, livelihood development, and overall stability and quality of life for women (Kobusingye, van Leeuwen, and van Dijk 2017).

This paper presents original photovoice evidence (Wang 1999) about the everyday needs, priorities, and drivers of inequitable development from the viewpoint of 13 women. All 13 are members of the Women's Advocacy Network, a grass-roots organization seeking to improve life in northern Uganda for women; all are formerly abducted individuals by the Lord's Resistance Army; and all are rebuilding their lives in Gulu, the principle town of northern Uganda. The 13 women use photography to catalogue daily life and the needs of their families and communities. The photographs and the meaning given to them by the participants provides unique information for urban and regional managers about the everyday needs of women who have experienced abduction and trafficking and who are forced to resettle in urban areas in post-conflict situations.

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Key Words: Post-conflict, Gender equality, Sub-Saharan Africa, Photovoice, Human Trafficking

URBAN SPRAWL AND EQUITY IN WATER AND SEWER EXPANSION PATTERNS IN BRAZIL, 1980-2010.

Abstract ID: 506

Individual Paper Submission

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The contribution of urban sprawl to higher infrastructure costs and more inequity in infrastructure access than would be experienced under more compact development patterns has been well-documented in high income countries, yielding consistent policy recommendations for more compact urban planning (Blaise 2011, Fulton et al. 2013). While problems of infrastructure coverage have been studied frequently in low and middle-income countries, quantitative studies on the influence of urban form on network infrastructure performance and the

equity with which access to infrastructure has been expanded have relied on highly aggregated measures of both equity (such as number of slum households covered as in Feler and Henderson (2010)) and urban form (such as average population or household density or customers per length of distribution line) (see Berg and Marques 2010 for a review including such studies). This study applies a spatial perspective to infrastructure access in Brazil by using both tract-level census data and household-level census sample microdata to compare the spatial distribution of population of Brazilian cities with each city's distribution of water and sewer with respect to household income over time, between 1980 and 2010. To accomplish this, two innovations were required. First, a novel measure of equity in infrastructure expansion between two or more time points was developed by building on an existing bivariate concentration index corrected for binary variables (Erreygers 2009). Second, census-tract polygons for census rounds prior to 2010 were generated from the 2010 polygons and tables published by the Brazilian census documenting the splitting and combination of census tracts between each census round, allowing for the measurement of population dispersion, fragmentation, and residential polycentricism for every Brazilian city over time. Panel data methods were used to measure the correlation between water and sewer expansion equity and urban form, as well as a variety of municipal economic, climatic, political, and water utility organization characteristics. The findings indicate a consistent relationship between more sprawling urbanization patterns and less equitable expansion of water and sanitation service. This suggests a preference for more compact urban planning in rapidly urbanizing contexts such as South Asia and sub-Saharan Africa for those concerned with equity in access to infrastructure.

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Key Words: water supply, sanitation, urban sprawl, equity

MASTER PLANNING IN THE MEGALOPOLIS: CREATING A COMMON AGENDA FOR LOCAL ENGAGEMENT EFFORTS IN BANGALORE, INDIA

Abstract ID: 533

Individual Paper Submission

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- One only has to read the local papers in Bangalore for a few days to quickly grasp the key quality of life issues impacting residents in the growing megalopolis: traffic congestion, insufficient garbage collection, polluted lakes and water bodies, and encroachment of protected lands for real estate development. The list of grievances and the need for such newsworthy tactics by the public such as protests or public interest litigation filings are perhaps ironic from a planning point of view; after all, this progressive city has been ostensibly 'governed' by routinely updated master plans since 1985 which should have been able to anticipate and mitigate the consequences of urban growth over time.
- Bangalore's latest/current master planning process (Revised Master Plan 2031--which was released in draft form to the public in November 2017) epitomizes the tension between India's "contested processes of national-level reform...and local mobilizations around redevelopment" (Shatkin and Vidyarthi 2014, p.23). The master planning process, although mandated by an amendment to the Indian Constitution, is seen by the public as merely a means of maximizing opportunities for capital accumulation for real estate developers, corporations and some actors in the government itself and has not been viewed as an endeavor that has or will address key quality of life issues for residents. As the process stands today, the master plan for Bangalore is not galvanizing local efforts to collectively feed into a common vision or

agenda for the city. In the absence of clear metropolitan level direction, local actors are searching for alternative forms of collective action.

- Using qualitative research methods, many accounts of local engagement practices were based on the author's participant observations at meetings and public gatherings as a Fulbright-Nehru scholar in Bangalore from July to November 2017. Several semi-structured interviews were conducted with local and state officials as well as community members and activist organizations who were employing various means of public engagement. Archival artifacts from local newspapers and social media were also referred to as a critical discursive element of urban governance.
- Given the perceived degradation of Bangalore's quality of life primarily attributed to the region's unprecedented levels of growth, most interviewees did not see positive results from previous master planning processes. Yet the most evident sentiment from multi-sector stakeholders in Bangalore was that people were desirous for a better planned city, and therefore have begun to turn to various means of local engagement to reclaim control over urban land and processes.
- The research in this paper provides a case study that shows why mismatch exists between regional master planning processes and robust, growing local engagement efforts. In the absence of significant resources or authority for small-area capacity building and cross-pollination of ideas at the neighborhood/ward levels, the question is whether these local engagement efforts can be sustained and truly influence Bangalore's long-term trajectory. Ultimately, the case study provides a look into the messiness of urban governance among multi-sector stakeholders all vying to affect decision-making in the modern-day megapolis.

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Key Words: master planning, urban governance , global south

THE MAKING OF SPACE AS A SELF-GOVERNING PRACTICE IN SÃO PAULO'S FAVELAS

Abstract ID: 557

Individual Paper Submission

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Favelas are informal and self-built urban settlements in Brazilian cities that developed in response to the lack of affordable housing. In favelas, residents build their own houses, sometimes with the help of a local contractor, usually on land they do not own. Favelas maintain an informal status due to their illegal occupation of land and non-compliance with urban and architectural codes and regulations. Generally located on city peripheries, favelas might look the same from afar, but each is unique in its history, population, socioeconomic conditions, spaces and even aesthetics.

Past research has characterized favelas either as chaotic spaces or as governed by gangs and drug traffickers through fear and violence. According to these portrayals, favelas are either disordered and ungoverned spaces or ruled by trafficking and crime (Leeds 1996). Neither of these descriptions details how favela residents govern themselves through the making of space or through community organizations (Gay 2010; Holston 1991). Through a case study approach, this article examines how favela residents govern themselves through the making of space independently of the state and of criminal organizations. Using ethnographic research methods including

participant observation and semi-structured interviews, this study draws on six months of fieldwork in two favelas of São Paulo to understand residents' social and spatial self-governing practices.

Drawing on Henri Lefebvre's concept of autogestion (Lefebvre 2009), I define self-governance as the individual or collective ability to manage one's own life, condition of existence and physical environment with resources available to them. Self-governance is thus the individual and collective autonomy to make decisions and affect outcomes concerning one's own space and community. This study's findings show how processes of community self-selection, autoconstruction, and struggles over space are part of self-governing structures organized by favela residents. The maintenance of space and the upkeep of interpersonal relationships in residents' everyday life contribute to the embodiment of self-governing social-spatial nodes on the street scale. These nodes make favelas vibrant urban communities that are in constant transformation through a complex socio-spatial-political network.

Understanding how favela residents govern themselves through the making of space offers the possibility of incorporating such existing processes and networks to attempts at improving informally-produced urban settlements. The study of self-governance in low-income communities sheds light on the residents' realities and needs. This framework expands possibilities to improve living conditions through collaboration and empowerment, moving beyond empty rituals of participation (Arnstein 1969). Grappling with the concept of self-management within informal poor communities provides valuable knowledge for the future development of theory, policy, and practice within the fields of urban planning and international development.

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Key Words: favelas, space, autogestion, community, self-governance

KOREAN-STYLE NEW TOWN IN VIETNAM: DONOR STATE-LED TRANSNATIONAL URBAN DEVELOPMENTS AS EAST ASIAN STRATEGY

Abstract ID: 581

Individual Paper Submission

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The growing difficulty of distinguishing between private investment and ODA seems to emerge under contemporary East Asian donor strategies. The recent events, such as the MOU agreement between the Korean government and the World Bank in 2015 to support building new towns and infrastructure in developing countries, and the naming 'Avenida Corea' to a road across a new town symbolizing the cooperation and friendship between Bolivia and Korea in 2017, are clear indicators of what Korea aims to achieve and how far it has reached its goals through exporting new towns under the mission of global cooperation. The question is to what extent such donor state-led transnational urban projects would solve severe and urgent urban housing conditions in developing countries. This, in particular, is important when perspectives of global activities have changed from the Washington Consensus to the Seoul Development Consensus on Shared Growth based on economic growth and partnership as a new way of achieving the SDGs.

The ideological shift behind the change reflects the turn of global developmental liberalism, which is augmented by the outcomes of Asian state-led developmentalism (Cammack, 2012). Moreover, the government-supported push to export new town construction has been amplified since Korea joined the OECD's DAC in 2009, graduating from an aid recipient to an aid donor. According to the UN in 2007, the world will require over 10,000 new urban developments capable of housing 300,000 people each with the global population predicted to exceed 9 billion by 2050. There is thus a strong case to be made for a country like Korea, which possesses knowledge of new town development and experience of rapid urbanization, to work with developing countries to overcome these urban and environmental challenges.

Such transnational globalism in inter-regional and inter-referenced (Shatkin, 2011) has been actively discussed since it is recognised that western knowledge dominated across the world, notably by Robinson (2002). Especially, the 'worlding' or 'ordinary city' approach is favorably adopted to overcome the particularism of the developmental divided from the developed in recent years (Roy, 2009). In the 'worlding' process, interlinks between non-Western countries tend to be based on replication of Asian cities (Roy and Ong, 2011) in terms of urban design and governance practices as best models and through intra-Asian foreign direct investment (Percival and Waley, 2012). However, most research is limited in local contexts that are played by diverse international actors. There is no presence of donor states the private actors are originated from and how their activities are shaped by. Given the one-sided approach, it is biased to view partial activities of private agencies or FDI, and also limited to the activities in overseas not in origin countries of international activities. It limits in understanding the role of donor state that frames broader perspectives of both partner countries' sake and donor countries' interest outlined in the aim of and as a new way of achieving the SDGs.

Therefore, by looking at the role of the donor state and the urban projects by Korean developers in Vietnam where Korea became the largest investor in 2015 this paper suggests its limit of the current model of the donor state-led transnational urban developments as no different to earlier neoliberalism despite its new perspective of global developmental neoliberalism. Data was collected through mainly semi-structured interviews with relevant actors and institutions from both countries. It identifies that how private developers play a role in transnational urban developments should be a concern related to aid structure as a strategy of donor state along with urban planning and development which can enable us to manage international urban development more effectively and coherently.

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Key Words: transnational planning, donor state, global developmental liberalism, international urban development , East Asia

INITIATING ACTION RESEARCH IN VULNERABLE URBAN NEIGHBORHOODS: LESSONS FROM MONTERREY, MEXICO

Abstract ID: 582

Individual Paper Submission

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This paper posits the importance of the initial relationship-building phase between the outside action researchers and the local community in determining the ultimate efficacy of the initiative. The action research literature advises the researcher to begin by embedding, observing, and listening (Chambers, 1994). This paper adds three concrete tools to strengthen the initial phase using ‘deep dive’ interviewing (Scharmer, 2009), network analysis, and ecosystem mapping (Gopal, Clark, 2015). Through the resulting relationships and lived stories (Sandercock, 2011) across multiple perspectives in the ecosystem, the researchers lay the basis for new conversations and new collaborations to arise in the ensuing action research.

The context for our project is an informal community in process of consolidation in the Monterrey Metropolitan Area (San Pedro municipality) in the North of Mexico, the third densest metropolitan area in the country (INEGI, 2015) and the one with the highest level of income inequality (CONAPRED, 2016). Our work with the community of Canteras and relevant state, municipal, and university actors aims to create locally driven solutions to connectivity issues, taking into account their social, economic, and physical dimensions. The participatory action approach will address deep-seated suspicion and divides between government and community actors.

With the above as a driving force for this research, we designed and initiated the process of building relationships with the community, government, and university actors, using network analysis, ecosystem mapping, and ‘deep dive’ interviewing. We consider it important to locate the community actors and stakeholders in the center of the discourse by hearing the problems and stories they consider important. We believe that by using a participatory approach and their stories which are central to planning practice and the knowledge it draws on from the social sciences and humanities, we will be able to foster new conversations on conflictive issues for the welfare of the community (Sandercock, 2011). In a historical and social context where the community lacks political representation, we are aiming ultimately to find a new way in which low-income communities can establish a determinant role in the decision-making together with the other actors for the benefit of the communities.

Our Methodology takes as a starting point a new partnership between researchers in the planning and architecture schools at the University of Texas and the Universidad de Nuevo Leon in Monterrey. The aim is to build collective knowledge about what happened in the past, and the multiple intentions and objectives for a relationship in the future. The stories in these conversations then help us create an ecosystem map of the current situation with which we can together define the construction of a relationship for the future.

Two findings from the initial phase stand out: 1. The challenge of gaining buy-in on the participatory action research methodology from the researchers at the university in Monterrey who were accustomed to a more expert-centric methodology, and how that impasse was addressed through reflective and generative dialogues between the researchers from both institutions, and 2. The learning curve in conducting deep dive interviews with local actors and stakeholders, in both the government and community.

It is important to note that participatory approaches are just appearing in northern Mexico. We are aiming to establish a methodology that supports both a theoretical and practical understanding of participatory processes. The findings from the initial phase will shed light on the practical application of dialogic and participatory approaches to community and stakeholder engagement, both in terms of the learning process for the action researchers themselves, and the effectiveness of the methods employed in building relationships and understanding across the ecosystem.

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Key Words: community relationship-building, local governance, civic engagement

RETHINKING INFORMALITY AND PLANNING FOR SECURE AND INCLUSIVE URBAN SPACES: EVIDENCE FROM SLUMS IN PATNA, INDIA

Abstract ID: 593

Individual Paper Submission

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Slums are often looked as breeding grounds for conflict, violence, and crime. However, a majority of slum dwellers are more often the victims but they are viewed as criminals. Unfortunately, this perception also hinders urban administrators from adopting and implementing inclusive and effective policies to overcome urban insecurity and poverty.

Patna is the capital of Bihar, the third most populous and one of the poorest state in India. Due to continuously declining agricultural productivity and increased natural disaster occurrences, Patna has witnessed a huge rural to urban migration in last 2 decades. However, without sustainable industries, urban planning, and public goods provisions, mass migration has led to an unsustainable, an unplanned, and a crowded city. The city has also not been able to attract investment and jobs which adds to already existing problems of poverty, crime, and growing slums.

This study identifies the origins of neighborhood insecurity by rethinking the relationships among slums, informality, and local governance. The study identifies the physical, social, economic, and institutional determinants of diverse neighborhood conflicts and disputes through a mixed method approach. The quantitative analysis is mainly based on the household survey under the aegis of a larger DFID funded project. We surveyed 225 households from 16 slums in Patna using multistage stratified random sampling. We also undertook 25 focus group discussions and 30 individual interviews of slum dwellers, civil society representatives, and policymakers to understand the perceptions of neighborhood insecurity and community governance.

We take housing and land tenure as a direct index of informality and further calculate a compound index of informality to cover the informal features of housing and land tenure, employment, and infrastructure. We adopt logit and bivariate probit models as baseline models and Bayesian estimations as robustness checks. The regression models suggest that the insufficiency of housing and land that slum dwellers perceived played a bigger role than that the informality of housing and land tenure played in origins of neighborhood conflicts/disputes and families' involving disputes; the perceived insufficiency of hard infrastructure including water system, sanitation, and energy rather than compound informality induced to neighborhood conflicts and disputes. However, the impact of perceived inadequate soft infrastructure including education and healthcare on neighborhood conflicts and disputes is less burdensome relatively. The findings suggest that even a small incremental change to infrastructure provisions can reduce conflicts in informal settlements.

Based on regression estimations, interviews, and focus group discussions, we also find that in organized slums, slum dwellers feel more secure and react less violently to neighborhood conflicts. There are three benefits of slum's self-governance. First, social connections reinforced in organized slums makes dwellers more cooperative under multiple scenarios. Second, the facilities provided by NGOs and governments in organized slums are also more likely maintained well than in unorganized slums. Third, slums' self-governance can mitigate the shortage of police patrolling and reduces police harassment.

These findings imply that formalizing slums through the small-scale provision and continuous maintenance of hard infrastructure could reduce neighborhood conflicts and violence. However, empowering slums through civic education and engagement is a more sustainable strategy in the long run in the context of slum upgrading and neighborhood security. The policy implications of this research are wide and could be implementable in other Indian cities and as well as under-developed regions globally.

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Key Words: inclusiveness, informal settlement, social capital, community development, perception

REGIONAL COMPETITION AND DISPARITIES, THE ROLE OF GOVERNMENT QUALITY: EVIDENCE FROM CHINA

Abstract ID: 639

Individual Paper Submission

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The theory of decentralization indicates strategic interactions among local jurisdictions. Compete for limited mobile capital and human resources and achieving development goals, local governments implement fiscal, environmental, labor regulatory, and trade policies partly depending on their rival jurisdictions. In the real world, these strategic policy interactions could lead to regional divergence due to competitive edge endowed by different regions. For instance, empirical evidence finds that fiscal decentralization tends to increase regional disparities in developing countries and reduces them in developed countries. In light of this, some scholars propose that the embedded quality of institutional settings might influence the effects of fiscal decentralization on regional disparities. The concerns for uneven regional development and urban stratification raise the research questions for this study: What factors influence the impact of inter-jurisdictional competitions on the degree of regional disparities? What is the role of government quality in altering the effects of inter-jurisdictional competitions on the degree of regional inequality? Will higher government quality mitigate the impact of inter-jurisdictional competitions on the degree of regional disparities?

Although the practice of decentralization in China does not feature with liberal democracy like most Western countries, it still grants local governments with a vast array of administrative autonomy and substantial fiscal independence. Achieving rapid development and be accountable for residents, local governments compete fiercely for fiscal revenue resources. The last two decades witness how inter-jurisdictional competitions for attracting manufacturing lead to a "race to the bottom" of land grabbing and environmental degradation in China. Existing studies conduct cross-country analysis looking into the relationship of government quality and regional inequality. The study conducted at sub-national level is rare due to data availability. This study will fill the gap by providing empirical evidence for how government quality affects regional disparities induced by inter-jurisdictional competition at the sub-national level in China. The evidence will shed light on how institution plays a role in shaping regional inequality in developing countries under decentralization.

This study assumes that inter-jurisdictional competitions are likely to aggravate regional disparities within provinces with worse government quality, and conversely, are likely to promote even development within provinces with better government quality. Based on the research questions, this study identifies three key variables that need to be defined and constructed. GDP per capita is used to measure the degree of regional disparities within provinces. The intensity of regional competitions for businesses is measured by the share of total output of Foreign Direct Investment to GDP. The quality of government is measured by using the share of public expenditure on health, education, innovation, and environmental protection. The study will employ panel data regression with fix effect. Preliminary results show that regional competition in provinces that have high

government quality leads to lower inequality over time. Conversely, regional competition leads to higher inequality in provinces that have low government quality. The results provide policy insights for how to achieve equity and efficiency under decentralization in developing countries like China.

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Key Words: regional competition, regional disparities, government quality, regional development

URBAN VIOLENCE AS THE REAL LEGACY OF THE 2016 SUMMER OLYMPIC GAMES IN RIO DE JANEIRO: THE DEBACLE OF A NEOLIBERAL PLANNING AGENDA.

Abstract ID: 657

Individual Paper Submission

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This paper intends to analyze the legacy of the 2016 Summer Olympic Games in Rio de Janeiro for the city, focusing on two fundamental aspects of the overall policies: the upgrading plans for squatter settlements and the public safety program. These policies supported the official legacy discourse of the games: to bring peace and development for the segregated communities and to promote social and economic inclusion. Rio's urban space underwent significant changes supposedly to foster social and economic development. A neoliberal urban planning agenda was put in motion with the excuse of preparing the city for the games. Now in 2018, almost ten years after the establishment of the first unit of the public safety program – the Pacifying Police Unit (UPP) -- and two years after the games, homicides rates and armed conflicts sharply increased in the city, culminating in a federal army intervention in the State of Rio de Janeiro in March 2018. The presence of the army in the city have stirred concerns from many human rights NGO's and activists. Police raids and abuses in favelas are being permitted for the sake of public safety. It has been seen as a desperate attempt of an illegitimate government to please higher income class demands for more security and to halt growing street protests and manifestations in the face of a deep economic recession and close to the October 2018 general elections. Our main findings show that, instead of the positive legacy of social inclusion and economic development presented in the official discourse, the real legacy of the games is the consolidation of inequality. The official positive legacy discourse clashes with the reality of increasing social exclusion, urban violence and violation of human rights. The paper will present the background of spatial segregation, social exclusion and urban violence in the city of Rio de Janeiro in order to explain the public policies devised for slums in the context of the planning for the 2016 Games. The main projects will be examined as well as real beneficiaries of public works: real estate investors, civil construction firms and financial ventures. Finally, I will present data about urban violence in the city as a whole, but particularly in the areas with UPPs, from 2008 to 2017. The data about violence comes from the Institute for Public Safety of Rio de Janeiro, complemented by information from a collaborative crowd mapping digital platform about shootings and armed conflicts as well as newspapers and social movements clippings. The data about the Olympic Games plan comes from the official published documents of the Olympic Agency. My theoretical departure point is anchored on three basic concepts: the right to the city (Lefebvre, 1974), dialectical utopia (Harvey, 2012) and autonomy (Freire, 1996). I hope that the lessons and consequences of the plan for the 2016 Olympic Games in Rio and the set of public policies put forward for squatter settlements will shed light on the ongoing debate about the neoliberal planning agenda, which is being proposed in many other cities that face increasing social problems and inequality.

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Key Words: Slum upgrading, Urban violence, Urban informality, Rio de Janeiro, Planning Theory

HIDDEN INFORMALITY IN URBAN CHINA: A MIXED METHOD APPROACH TO SHANGHAI'S MARKET FOR OVERCROWDED HOUSING

Abstract ID: 658

Individual Paper Submission

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The ongoing urbanization in China is the physical expression of millions of people wanting to be part of the country's flourishing urban economies. Yet, amidst the changing market and public policy dynamics, the housing needs of these migrants have remained largely unaddressed and in turn have given rise to informal housing arrangements. In China's planned and growing cities, however, this informality does not occur in the form of highly visible slum squatter settlements, but rather takes on less studied, hidden forms.

This paper presents evidence uncovering one such manifestation of hidden informality. Drawing on data from over 33,000 online advertisements, collected over the course of five months, as well as findings from qualitative and quantitative field work, we document the market for bed spaces or 群租房 (group rentals) in Shanghai; an informal housing sub-market in which some formal commercial and residential units are illegally converted into extremely crowded dormitories. Also drawing on our own survey data, we compare and contrast what is advertised online versus what is happening on the ground. This approach allows us to study (i) the targeted demographic of renters, (ii) their revealed preferences, and (iii) the veracity of remotely collected online advertisement data.

Through our mixed methods approach we are able to show that group rentals mainly occur in Shanghai's inner city, in high-amenity locations, and are catering to mostly young, educated migrants. Affordability is accrued by crowding on average 24 people into three-bedroom apartments. Drawing on the survey data, we find that the market prices crowding (i.e., beds in less crowded rooms and apartments are more expensive) and that additional bathrooms and the ability to cook are highly valued property-based amenities. Additionally, we find considerable differences between online advertisement data and real market data. In particular, rents are on average 24% higher than posted online rates and locations are accurately advertised in only 14% of the cases. Comparing hedonic regression results based on survey versus web-scraped data, we find that both data sets reveal the importance of location, the rational pricing of crowding, and the absence of gender-based rent discrimination. However, pricing mechanisms inferred from the hedonic estimations of web-scraped data are distorted in ways that could only be detected through groundtruthing.

The evidence presented is an illustration of the extreme housing shortage in China's urban centers. In particular, while surveys frequently report migrants living in self-rented, overcrowded spaces and throughout any major Chinese city, very little is known about how they secure residential spaces in the expensive urban core – given their documented institutionally and socially disadvantaged positions in urban job and housing markets. Our

findings also add to the discussion about the veracity of using web-scraped big data to analyze urban phenomena by underscoring the importance of groundtruthing when using remotely collected data.

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Key Words: Urban China, Migrant Housing, Informality, Extreme Crowding, Web-scraped Rental Data

THE ROLE OF MICRO-ENTREPRENEURSHIP IN EMERGING LAND MARKETS: A CASE STUDY OF RENTAL MARKETS IN HAVANA, CUBA

Abstract ID: 771

Individual Paper Submission

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In November 2, 2011, the Government of Cuba enacted a law allowing its citizens to buy, sell, and rent property. As part of these reforms, the Cuban Government has established distinct rental markets: (1) short term and long term rental markets for Cuban citizens; and (2) short term rental markets for foreigners. This has resulted in an increase in the number of microentrepreneurs (cuentapropistas) that rent units to Cuban nationals or foreign tourists. The combination of real estate market liberalization policies and the formalization of cuentapropistas is viewed by the Cuban government as a means to address the dual goals of creating more wealth and capital and increasing the housing stock for its citizens (Ritter & Henken, 2014). To gain further insight into how these goals could be working in tandem, it is important to discern how these changes in property rights affect both renters and new landlords in the form of cuentapropistas.

This research project will use Havana as a case study to answer the following questions:

1. How does the recent emergence of entrepreneurial activity hinder or foster access to affordable housing for its citizens?
2. How does the underlying institutional context foster or hinder individual landlords (microentrepreneurs) to enter the housing rental market?

Research on the housing markets in transitioning economies shows that clear but informal social rules allowed real-estate markets to behave rationally, even if it didn't have the Western-style property rights present (Kim, 2007). The benefits stemming from the formalization of tenure, however, does not reach everybody equally; access to information or financial resources remain important linkages. Research on the social capital of entrepreneurs in the Global South show that entries to newly created markets are hindered by "institutional voids", or absence of formal actors that link individuals to needed resources, and results in inequities across gender and income level (Mair & Marti, 2009). In these situations, actors depend on informal transactions with other actors that can provide the necessary "bridging" to access information or resources.

In Cuba's case, the consequence of imposing two distinct rental submarkets is that they can affect each other. Differential pricing between short-term rentals to foreigners and long-term rentals to Cuban nationals can lead to market segmentation (Wu & Sharma, 2012), which could result in short-term rentals crowding-out affordable long-term rentals for citizens. At the same time, informal social ties used to compensate for institutional voids can reproduce unequal opportunities for market entry. If so, this would imply that the recent housing policies in Cuba

inhibit the State from achieving more equitable outcomes for its citizens, for both its renters and potential microentrepreneurs.

The purpose of this research project is to provide some insight into how overlapping policies related to property regularization and the formalization of entrepreneurial activity affect each other. This will be achieved by:

1. Analyzing the association between the housing market and the emerging entrepreneurial activities in the form of short and long-term rentals; and
2. Identifying and analyzing the interactions between actors involved in the rental markets and the underlying social networks that are relevant for these dynamics.

Using data from multiple online ad sources, I developed hedonic pricing models using online rental ads to analyze the interactions between short- and long-term rental markets in Havana. I also interviewed property owners to analyze the dynamics of their social network, as well as state and non-government actors involved in the emerging land market, and review existing policies to assess barriers to market entry. The results showcase how spillover effects stem from competing rental markets after property regularization, as well as possible institutional barriers that hinder entry to housing rental markets in transitioning economies.

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Key Words: Cuba, Micro-entrepreneurship, Emerging land markets, Rental markets, Social capital

A BIG DATA PERSPECTIVE INTO THE DETERMINANTS OF RESIDENTIAL PROPERTY PRICES IN MEDIUM-SIZED INDONESIAN CITIES

Abstract ID: 819

Individual Paper Submission

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In light of the advent of big data, planning scholars and researchers have suggested its potential uses to facilitate evidence-based decision making and planning analysis (Batty, 2013; French, Barchers, & Zhang, 2017). Indeed, applications of big data designed to address planning-related problems have increased exponentially in the past years, especially in the developed world. However, much less is known about the potential for big data in the developing world where data is arguably not as abundant and accessible as in the developed countries (Hilbert, 2016). What insights related to planning can big data reveal in lesser developed world? How can it be used to inform planning and policymaking?

We address these research questions by showing the potential of big data for planning research in the Global South. Specifically, we provide insights into residential property prices from a big data perspective in medium-sized Indonesian cities: Yogyakarta, Bandung, and Semarang. Information about updated residential property prices is important as it may help planners and policymakers to identify and evaluate urban investment and regional growth trajectory. However, obtaining such information remain an arduous process in Indonesia since a comprehensive public information is largely non-existent. To obtain data on residential property prices, we web scrapped residential property listings on UrbanIndo(dot)com – a growing online residential property market

platform founded in 2011 that serves major Indonesian cities. Given the unstructured nature of the big data, the final dataset has understandably fewer observations than the initial raw dataset we obtained.

This dataset opens the door to a number of planning research and analyses. In this paper, we focus on exploring the determinants of residential property prices by incorporating a variety of factors, e.g., built environment, transportation infrastructure, socio-economic traits. Utilizing a series of statistical analyses, our preliminary analysis indicates the varying determinants of residential property prices across cities being studied.

As the digital footprint of developing world cities is expanding, prompting the proliferation of information stored on the Internet, non-traditional sources like big data might help fill the data gap and enable evidence-based planning and policy analyses. This notion is of profound importance considering having access to data with a considerable level of granularity remains a paramount challenge for Indonesian planners, an issue that is a bellwether for other lesser developed countries.

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Key Words: big data, housing prices, Indonesia

PERCEPTIONS OF CLIMATE-RELATED RISK AMONG WATER SECTOR PROFESSIONALS IN AFRICA - INSIGHTS FROM THE 2016 AFRICAN WATER ASSOCIATION CONGRESS

Abstract ID: 863

Individual Paper Submission

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The ability of water and wastewater utilities to provide safe and reliable water and sanitation services now and in the future will be determined, in part, by their resilience to climate change. Investment in infrastructure, planning, and operational practices that increase resilience are affected, in turn, by how water sector professionals perceive the risks posed to utilities by climate change and its related impacts. We surveyed water sector professionals at the 2016 African Water Association's Congress in Nairobi, Kenya to assess their perceptions of climate-specific and general risk that may disrupt utility service. We find that water sector professionals are most concerned about climate-specific and general risks that affect utility water supplies (quantity), followed by adequacy of utility infrastructure. We also find that professionals tend to rank climate-specific risks as less concerning than general risks facing utilities. Furthermore, non-utility professionals are more concerned about climate-specific risks and climate change in general than utility professionals. This paper presents the findings of this research, poses several hypotheses to explain our findings, and identifies areas for new research to promote planning for water and sanitation services that are resilient to the multiple, intersecting risks facing utilities. Overall, highlights the multiple, competing risks utilities face and the need for adaptation strategies that simultaneously address climate-specific and general concerns of utilities.

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Key Words: climate chang, water, sanitation, risk perception, Africa

THE SEARCH FOR SOCIAL JUSTICE IN TOURISM DEVELOPMENT: THE CASE OF FALMOUTH, JAMAICA

Abstract ID: 868

Individual Paper Submission

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Tourism development is a rapidly growing economic development strategy in developing areas due to the increased amount of tourism throughout the world (United Nations World Tourism, 2016). Beginning in the early 1900s, tourism in Jamaica has increasing grown as an economic sector. With the promotion of tourism as an economic development strategy by the UNWTO, tourism has increasingly grown in Jamaica. It is now the second largest economic sector in Jamaica, behind agriculture (Dennis, 2016). This rapid growth of the sector has provided many economic opportunities for Jamaica, especially in cruise tourism. According to the Jamaican Tourist Board, nearly half of the tourists in Jamaica are now cruise ship tourists (Jamaica Tourist Board, 2016). The rapid increase tourism has been very good for the Jamaican economy with the creation of numerous hotels, expansions and upgrades to current ports, and the creation of a new port that is dedicated to cruise ship passengers. This has required a significant rapid investment with little assessment as to the viability of the project or how the investments would benefit the local communities. This is especially true in Falmouth, Trelawney Parish, Jamaica where a new port, opened in 2011, in a partnership between Royal Caribbean Cruise Lines and the Port Authority of Jamaica, can now accommodate the largest cruise ships in the world (Davis, 2016). Since the opening of the port, the residents have been attempting to deal with both the benefits and disadvantages of hosting this large port. This paper will use grounded analysis, through interviews, observations, and secondary articles, to describe the experience of residents on a cruise ship day and how the port's creation has also altered the daily lives of those that live nearest to this port. Among the findings will be an assessment of the port project and the continuing port-related projects using Susan Fainstein's Social Justice Theory (Fainstein, 2008), so that the residents can also benefit more from the remaining projects and to help mitigate some of the issues that the residents are currently facing. With tourism development continuing to become an increasing portion of the economy in developing countries, it is important that both scholars and practitioners have tools to promote sustainable economic development and mitigate the social and environmental issues that will continue to arise in these projects.

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Key Words: Cruise Ship Tourism, Tourism Development, Social Justice, Jamaica

PRIORITIES AND CO-OCCURRENCES OF RISKS IN SMART CITY PROJECT IMPLEMENTATION: EVIDENCE FROM INDIA'S SMART CITY MISSION

Abstract ID: 887

Individual Paper Submission

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Recently, the concept of a smart city (SC) has been gaining attention across the globe. Communities ranging from small towns to megacities are leveraging the power of Information and Communication Technologies (ICT) and urban big data to enhance resource management and improve different aspects of cities ranging from health and safety to education and transportation (Bakıcı et al., 2013). A number of developing countries such as China, Egypt, India, and UAE have invested intensively in various projects to transform cities into smart cities. However, current understanding of the risks that may hamper successful implementation of smart city projects remains limited as these risks are less frequently addressed in the literature due to a lack of data, especially in developing nations. The recent Smart City Mission (SCM) launched in India provides a unique opportunity to examine the types of risks associated with Area based (small-scale) projects (ABD) and Pan-city (large-scale) projects submitted to SCM, along with their likelihood of occurring and their impacts on project implementation in a developing country setting. Through this research, we examined the risk landscape in implementing smart city projects by focusing on three research questions: (1) What are the various risks associated with smart city project implementation in developing countries? (2) How do risk priorities change for ABD and Pan-city projects? and (3) What are the possible co-occurrences of the various identified risks?

This research uses a four-step methodology to address these research questions. We first use topic modeling (quantitative) (Bakharia et al., 2016) and semantic analysis (qualitative) (Tavşancıl & Aslan, 2001) for risk classification, followed by risk likelihood-impact analysis for priority evaluation, then visualized risks using Geographical Information Systems to capture the spatial patterns of the risks, and lastly perform keyword-co-occurrence network (KCN) method for analyzing possible risk associations.

This study classifies the risks into eight categories, namely, a) Financial, b) Partnership and Resources, c) Social, d) Technology, e) Scheduling and Execution, f) Institutional, g) Environmental, and h) Political for both ABD and Pan-city projects. Although project across scales share similar categories of implementation risks, the results show that ABD and Pan-city projects face different management challenges regarding risks priorities and the co-occurrences of risks. The likelihood-impact analysis shows that the risk categories for ABD projects are evenly distributed among low, medium, and high priority categories while risks for Pan-city projects are skewed towards high priority. Furthermore, Social risk and Scheduling and Execution risk occur most frequently for ABD and Pan-city projects, respectively. Financial risks are a high priority for both ABD and Pan-city projects followed by Resources and Partnership risks. This finding indicates that the most frequently observed risks may not be the ones that need to be prioritized. This study also highlights a strong co-occurrence of Institutional risk with Financial, Social, and Partnership and Resource risks for ABD projects, whereas there is a strong co-occurrence of Scheduling and Execution risk with Institutional, Social, Technological, and Partnership and Resource risks for Pan-city projects. The risk categories and their co-occurrence may affect the implementation of SCM projects. Therefore, our results suggest that different mitigation measures may need to be developed to manage small and large-scale projects, respectively.

With a growing interest in smart city development and its implementation around the world, this research will cater to various audiences from researchers working in the area of smart cities to risk management. The results from this study may also benefit city leaders, managers, and other smart city implementers interested in

understanding the various risks that may hamper the successful implementation of smart city projects, risks priorities, and their co-occurrences, so that corresponding mitigation measures can be proactively developed.

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Key Words: Smart City Mission, India, Risk priorities, Risk Co-occurrence

THE ROLE OF INFORMAL INSTITUTIONS IN CHANGE: LAND REFORM IN URBAN AND PERI-URBAN GHANA

Abstract ID: 923

Individual Paper Submission

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Demographic shifts in Ghana, including rapid urbanization and urban expansion have led to rising land scarcity, land values and land-related conflict, necessitating institutional change. To address these challenges, Ghana developed the National Land Policy in 1999, followed by a program for land administration reform in partnership with the World Bank. The Land Administration Project (LAP), launched in 2003, is a state-led initiative that seeks to reduce poverty and enhance economic performance through improving clarity, transparency and efficiency in the land sector. Institutional reform constitutes a core pillar of the on-going project. The LAP recognizes the critical role played by customary authorities in land governance in Ghana and seeks to harmonize the customary and statutory sectors through the institutional innovation of customary land secretariats. In this context, the paper addresses the following questions: How do informal institutions and organizations influence institutional change in the land sector? Do variations within informal institutions matter for the implementation and outcomes of land reform?

To address these questions, the study employs an exploratory mixed-methods approach that examines customary authorities as informal organizations, while seeking to identify preliminary outcomes of institutional change. The selection of Ghana is purposive, given the prominence of the customary sector, highlighting the complex institutional arrangements around land and challenging the relatively low significance accorded to informal institutions in considering institutional change. The research design is multi-scalar focusing on the national level to understand the objectives of the reform, the local level in customary areas where reforms are being implemented and the community scale, where residents are concerned about their access to land and maintaining tenure security. The study focuses on the two largest metropolitan regions of Ghana: Ashanti and Greater Accra, and selects eight customary areas, with a balance of internal variation in types of customary organization and a mixture of urban and peri-urban land. Methodologically, the study begins with open-ended and semi-structured interviews with the project implementation unit, the statutory land sector agencies at the national and regional levels, as well as interviews with customary authorities and their selected representatives in the customary land secretariats. In addition, the study deploys a survey in the eight customary areas to discern the preliminary outcomes, as experienced by local residents, along three dimensions: access to land, tenure security and incidence of land conflict.

The LAP utilizes an integrative approach to institutional reform, whereby the government of Ghana seeks to incorporate customary authorities into a logic of the state, emphasizing its goals of clarity and efficiency in the land sector. However, the findings suggest that this integrative approach is flawed as it downplays the

heterogeneity of these informal organizations. Rather than resorting to collective action, customary authorities leverage institutional innovations through strategic behaviors according to their own interests and internal characteristics. The findings demonstrate that institutional change is mediated by informal organizations, requiring deeper understanding and more nuanced categorization of these actors and their behaviors as a necessary component of any theory of institutional change. This research is relevant to international development planning scholarship as institutional reform in the land sector necessarily calls into question the contested stability between state and society. These challenges are particularly evident in urban and peri-urban areas that are experiencing increasing pressure on land, instigating territorial competition between recently empowered local governments and entrenched customary organizations seeking to capture valuable land rents. In practice, the impacts of restructuring institutional arrangements in land have significant implications for access and tenure security, particularly for vulnerable and poor populations requiring a critical look at relevant policy and implementation.

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Key Words: Land reform, Institutional change, Informal institutions

ASSESSING NEIGHBORHOOD EFFECTS: RURAL-TO-URBAN MIGRANTS' TRUST IN LOCAL GOVERNMENT IN CONTEMPORARY CHINA

Abstract ID: 943

Individual Paper Submission

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Rural-to-urban migration is recognized as a driving force behind the rapid urbanization and economic boom in contemporary China. This study demonstrates that it is also consequential for political trust: migrants have lower trust in local government (mean= 4.63 out of 10) than their rural peers (mean= 6.54 out of 10). Declining trust is not only consequential for government legitimacy and efficacy. The coincidence of trends in trust and urbanization also implies that it is important to anticipate and work with spatial dynamics of trust in government.

One of the most striking features of the literature to date is that there has been no systematic, direct study of the effects of place on trust. Instead, most research has focused on the influence of individual traits --- such as gender, income, formal education level, and parents' political orientation--- on political trust. With rare exceptions, the literature has treated the spatial issue (i.e., where people live) as an assumed background, not as a constituent aspect of political trust that much be probed systematically. It seemed that spatial dynamics should matter: the built environment, transportation and communication infrastructure can enable or constrain people's social action of all kinds and thus their perspectives of government.

To address the absence in the literature and understand how migrants' trust is affected by the act of migration and by spatial features of the different contexts, this study integrates culturalist and institutionalist theories of trust to perform a multilevel analysis that supplements traditional individual-level explanations with a new focus on spatial factors, specially neighborhood-level effects. Utilizing hierarchical linear modeling of data from the Chinese Family Panel Survey (individual N=16,627, community N=332) in 2014, this study finds important

effects of neighborhood-level characteristics (especially levels of intergroup contact and segregation) as well as more traditionally studied individual-level social characteristics (especially gender, income, formal education level, and parents' political trust) on migrants' trust in local government.

The findings indicate that spatial factors go far toward explaining the bifurcation of Chinese rural and urban residents' trust in local government, and suggest that spatial factors merit more study in other rapidly urbanizing countries. Furthermore, various neighborhood-level characteristics have important effects on their residents' likelihood to trust local government officials. What I believe will be of particular value of this study for planning scholars is the integration of an analysis of causes and correlates of political trust with an examination of the neighborhood contexts where people develop their trust.

Keywords: political trust in local government officials, rural-to-urban migration and trust, institutional and cultural theories of trust, contemporary China, multilevel analysis, neighborhood-effects

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Key Words: Rural-to-urban migrants, Political trust in local government officials, Neighborhood-effects, Multilevel analysis, Hierarchical linear modeling

GOVERNANCE AND THE REMAKING OF A CITY: THE CASE OF MEDELLIN, COLOMBIA

Abstract ID: 990

Individual Paper Submission

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The City of Medellin in Colombia is considered an example of 'come back cities' due to its self-transformation from 'the murder capital of the world' in the late 1980s and early 1990 to the most innovative city in the world and, in fact, a model for other cities to imitate. This paper examines this transformation critically arguing that pacification was the result of forces other than the model and that the model rests on a series of symbolic developments that actually veiled the tremendous social problems of the city up to today. Because the transformation is attributed to changes in governance, the paper examines critically the process of governance involved. Analysis build on (1) review of documents, data and publications on the process and its results, (2) 30 in-depth interviews of members of the governance team, public functionaries, and representatives of local NGOs, activists and community actors. This paper belongs in the urban restructuring literature especially as it relates to the cities' search for competitiveness and the role of governance in this pursuit.

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Key Words: Competitiveness, urban governance, Medellin model

TITLE: THE LONG TERM IMPACT OF THE BELT AND ROAD INITIATIVE ON MANUFACTURING EXPORT COMPETITIVENESS FOR RUSSIA, BELARUS AND KAZAKHSTAN

Abstract ID: 1076

Individual Paper Submission

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The Belt and Road Initiative (BRI), first proposed by China in 2013, has become a major organizing principal for steering the development of Eurasia via transcontinental rail transportation corridors. Rail-oriented investments have the potential to substantially improve the economic performance of Central Asian states whose development has always been stymied by inaccessibility. At the same time, they provide China with new export markets and development opportunities for its impoverished western provinces. Far less discussion has occurred regarding the specific economic benefits to Russia, Belarus and Kazakhstan from participating in the initiative. Russia is expected to host many of the corridors though its territory, Belarus controls the only viable border crossing to Central Europe, while Kazakhstan is the bridge linking Eurasia to China’s west. If any of these countries conclude that the BRI corridors do not serve their national interests, they may choose to withdraw from the initiative. As these trade corridors mature, they will create new development opportunities for cities along the route(s), particularly for firms seeking improved access to export markets. The question is whether these development benefits are sufficient to offset the substantial construction and maintenance cost associated with corridor development for each involved country.

This study uses a comprehensive firm level data set (RUSLANA) of Russian, Belarussian and Kazakh manufacturing firms to evaluate how the proposed BRI corridors dovetail with these middle-income countries’ existing economic development strategies and priorities. Specifically, it evaluates how clusters of different industries (NACE 4-digit classification) are served by proximity to proposed BRI corridors and the extent to which certain industries would be favored depending on which corridors receive priority funding. It contributes to the literature on international economic development and freight corridor planning.

The study is grounded in economic development literature regarding “learning by exporting” effects. Research by Martins and Yang (2009) notes that exporting is positively correlated with increased competitiveness, particularly for developing economies. As firms compete in international exports, they are compelled to improve product quality and supply chain efficiency. In addition, research by Aiyar (2013) finds that a diversified export base along with a robust freight infrastructure is essential for middle-income countries seeking to avoid growth slowdowns. Furthermore, Felipe (2012) notes that development depends not only on boosting total exports but also on exports of more technologically sophisticated products, i.e products for which fast delivery times are key.

Golikova (2011) notes that the potential for “learning by exporting” is particularly strong in Russia given the small percentage of Russian firms that export. This modest export profile is identified as a key factor holding back innovation by Russian manufacturing firms and consequently the manufacturing sector. Improved freight transport accessibility through the BRI is important for firms entering export markets given that the distance of many firms from external markets makes transportation cost and time to delivery a significant hindrance. (Ivanova; 2013)

Special attention is paid to the opportunities for boosting the economic performance of priority development regions such as the Russian Far East or single-industry towns (monogoroda). It concludes by offering insight on whether these development advantages will be sufficient for Russia, Belarus and Kazakhstan to commit to the BRI over the long term.

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Key Words: International Development Planning, Freight Rail, Eurasia, Industrial Clustering, Corridor Planning

RETHINKING NGO INVOLVEMENT IN FEDERALLY SPONSORED SLUM HOUSING PROJECTS: THE CASE OF MADURAI, INDIA.

Abstract ID: 1133

Individual Paper Submission

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Non-governmental organizations (NGOs) are performing the work that previously pertained to the state (Coston, 1998). This trend is prominent especially in grassroots planning since the rolling back of government in the neoliberal era (Dodson, 2006; Chattopadhyay, 2015). Appadurai (2001) through his seminal article proposes this as a new conception of Foucault’s (1979) ‘governmentality’ where NGOs engage in the successful dispersal of traditional government functions. Researchers and international organizations widely celebrate this approach and evaluate government-performance based on its ability to collaborate with NGOs in participatory planning processes (Chattopadhyay, 2015). This paper examines how a successful model of NGO involvement at the grassroots level is replicated through a federally funded slum redevelopment project in Madurai, India. Through this case, I argue that fetishizing the NGO-driven slum redevelopment model often leads to failed policies in practice because of its inherent assumption that participatory processes through NGOs are more successful than other traditional government channels.

Appadurai’s (2001) paper discusses the fundamental role of NGOs in Mumbai slum-upgrading and redevelopment as examples of the successful practice of ‘deep democracy’ and ‘governmentality’ from below. This Mumbai model relies on community organizers and a network of NGOs led by SPARC (Society For the Promotion of Area Resource Centers) in slum redevelopment projects starting from the determination of ‘beneficiaries,’ to negotiation with the government machinery. The success of this model influenced the policy design of India’s ambitious national level “Slum-free city” program called Rajiv Awas Yojana (RAY). Nonetheless, the initial success faced challenges when replicated in Madurai, a major city in Tamil Nadu, India.

RAY was introduced in 2009 with an objective to ‘eradicate’ slums in India by 2022. It was rolled out in 100 pilot cities based on conditional grants that required certain monetary and institutional inputs by the local and state governments. The federal government modeled a key component of RAY on SPARC’s work in Mumbai requiring the involvement of NGOs in slum surveys. I was involved in RAY’s implementation since its conception through 2013. During this period, I conducted evaluation research and several training programs for urban practitioners on RAY guidelines. This paper is based on an evaluation study of the community participation processes in Madurai during RAY’s implementation. I conducted several field level interviews, focus group meetings, and participant observation with city officials, state program units, consultants, the contracted NGO, and slum residents in 10 slum locations in Madurai in 2012.

My fieldwork revealed that Madurai municipal authority has a strong presence of community organization networks and societies. However, these extensive municipal networks were not leveraged appropriately in slum surveys in Madurai as RAY assigned the survey role to the NGOs. The NGOs contracted for slum surveys in Madurai had a minimal grassroots presence in the city and couldn't build trust in the community - a key to SPARC's success in Mumbai. Flagging project deadlines led the state government to contract a technical consultancy that was already involved in other RAY-related projects, to undertake the slum surveys in Madurai. This move not only diluted the local government's power and ignored the strength of its grassroots networks, it also robbed the slum communities of a representative voice. In addition to pointing to the failure of the decentralization process in India, Madurai's case reveals that the success of the governmentality of participatory planning processes is deeply subject to its specific practice and context.

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Key Words: Slum redevelopment, Participatory planning, NGOs, Governmentality, Housing

LEGAL ACTORS AND THE COMPETING FUNCTIONS OF URBAN LAND: THE CASE OF AN INFORMAL OCCUPATION IN SÃO PAULO'S PERIPHERY

Abstract ID: 1146

Individual Paper Submission

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The production of urban land through occupations of environmentally protected areas at the peripheries of mega cities is one of the major wicked problems of the Global South. Given that impoverished families struggle to secure housing in central locations, they occupy available land in the city periphery. The fast pace and intensity of this urban dynamics puts pressure on the environment and compromises residents' access to infrastructure and urban services (Torres and Oliveira 2007). Ocupação Anchieta, a five-year old land occupation in the Grajaú District, 17 miles southwest of downtown São Paulo, illustrates these patterns of urbanization. Located in a water-rich region between the Billings and Guarapiranga Reservoirs, and important Atlantic Forest reserves, the Occupation is home to more than 800 families living well below the poverty line. The property, owned by a local non-profit, is now heavily disturbed.

Many Latin American constitutions establish the social function of private property and recognize housing as a basic right (Garcia 2017). Besides enacting enabling legislation to implement the social function of urban property, Brazil has also established strong environmental enforcement capacity in the courts. (McAllister 2008) The Ocupação Anchieta case study is part of a larger research project that examines the role of legal institutions in mediating the urban land conflicts involving environmental protection and informal settlements. Two out of the three co-authors investigate how conflicts between the fundamental right to housing and the fundamental right to a sustainable environment unfold in the court system. Research methods include interview with key informants, including the Ocupação Anchieta association coordinators, Instituto Anchieta Grajaú representatives, and legal actors involved in the court case. An analysis of the legal framework, which regulates urban environmental protection, social housing, property rights, and land use law also informs our work. Field work entailed data

collection through teaching and applied research. The specific field methods consisted of household surveys, participatory planning meetings, direct observation and mapping of existing conditions. This data has been collected in collaboration with the Ocupação Anchieta association.

Findings from Ocupação Anchieta demonstrate that even if private property under Brazilian Law must fulfill a social function (Dos Santos Cunha 2011) and squatters acquire many adverse possession and other tenure security guaranties, it is still very difficult for young land occupations to secure shelter (Macedo 2008). Legal actors such as judges and public defenders attempt to manage and mediate conflicts between land occupiers, property owners and diffuse environmental rights yet private property rights still prevail in the early years of land occupation and deforestation. Planners currently do not engage with these younger occupations fearing legal repercussions due to their uncertain tenure status. We suggest this is a missed opportunity to learn from these lawsuits and court driven conflict resolution meetings to act.

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Key Words: Social function of of urban property, Young occupations, Legal actors, Diffuse environmental rights

CONSTRUCTING MARGINALITY: LONG-TERM SHELTER IMPACTS OF DISPLACEMENT IN POST-DISASTER MONTSERRAT

Abstract ID: 1147

Individual Paper Submission

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This paper investigates the long-term shelter impacts of post-disaster displacement, particularly examining the factors that influence differences in housing satisfaction. Relatively little has been written on the displacement of sizable populations following natural disasters and their housing implications (Levine et al., 2007). For example, the Internal Displacement Monitoring Centre (2015: 17) states that, “Knowledge about the duration of displacement following disasters is ad hoc and unconsolidated, as is more detailed identification and analysis of cases of particular concern.” Recent reviews have also highlighted the relative lack of research on long-term housing recovery following disasters (Peacock et al., 2014). This paper seeks to address this gap in the literature. The paper focuses on Montserrat, a British Overseas Territory, located in the Leeward Islands of the Eastern Caribbean. Montserrat is a little researched setting, despite being a unique laboratory for the study of disaster-induced displacement and resettlement. The island’s unique context stems from the eruption, between 1995 and 2010, of the Soufrière Hills volcano. The eruption destroyed Montserrat’s capital, Plymouth, and permanently displaced at least two-thirds of the island’s population. The complete destruction of Plymouth makes Montserrat relatively unique, as only a small number of cities have not been rebuilt on site following disaster or war (Vale and Campanella, 2005).

The paper draws on detailed interviews with 90 randomly selected households, including displaced and non-displaced residents as well as different at-risk sub-groups, including poorer residents and recent migrants from elsewhere in the Caribbean. The interview data was analyzed using quantitative and qualitative methods. The results show a number of findings that can help inform future disaster planning efforts in Montserrat, as well as in other post-disaster contexts. Interviewees housed in the first generation of post-disaster houses - prefabricated

units imported from Australia – reported the lowest housing satisfaction. Later housing interventions, focused on self-built homes, enabled through financing programs, were associated with higher levels of satisfaction. All residents housed in the first generation prefabricated homes were Montserratian citizens, while many who took advantage of later programs were not. In particular, it was the poorest Montserratians were most likely to reside in the early prefabricated homes and who now report the lowest housing satisfaction. These residents report lower satisfaction than more recent economic migrants to the island, a group also considered to be economically at-risk. The primary complaints with the first generation houses relate to their design and materials, which many argue are not appropriate for local conditions. In debates over which form of housing should be deployed for displaced, it was representatives of the United Kingdom (UK) who advocated most strongly for the adopted prefabricated design. The case shows how efforts to house displaced, led by UK officials, created the physical conditions that now leave many Montserratian residents with considerably lower housing satisfaction than others on the island, including both foreign retirees and poorer economic migrants. The case argues for both deep consideration of any housing designs that are deployed in post-disaster contexts, with particular attention given to unique local needs and conditions, and for closer attention to the input and perspectives of local populations.

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Key Words: Disaster, Shelter, Housing, Montserrat, Caribbean

LESSONS FROM CHILE'S DISASTER RECONSTRUCTION EXPERIENCE: TOWARDS MIXED RECONSTRUCTION MODELS

Abstract ID: 1160

Individual Paper Submission

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In the last two decades Chile has grown wealthier each year and lowered its poverty rate. Economic growth has also led to the modernization of the built environment. Simply put, there is more to lose from natural disaster's today than in previous years. From 2005 to 2017, Chile experienced 18 major disaster events, and in 2016, in 12 of 15 regions of Chile teams from Chile's Ministry of Housing (MINVU) operated projects related to natural hazard disasters. The majority of the country's people were involved in some form of disaster recovery projects. The scope, type, and location of these events result in multiple approaches to recovery (Comerio 2014, Moris 2018).

The planning question explored is: in what ways does a country known for centralized planning and operations adapt to multiple disaster events and move towards decentralized recovery governance model? Or, put another way, is there policy space for a mixed model that requires greater local responsibility for disaster risk reduction to natural hazards (Shi 2013). The main actors in the process at the national government level are the Ministries of Housing, Public Works, and Interior. The main actors at the local level are mayor's and provincial governors, who have influence over the type of land use plans adopted and enforced. The community actors are local groups who advocate for specialized interests of their members.

The planning question is answered by examining three cases: the 2010 earthquake and tsunami of February 27, 2010 (F27), the 2014 wildland urban interface fires in Valparaiso, and the 2016 flashfloods in the Atacama desert region. The F27 event affected six regions, more than 900 small towns and villages, leaving over 370,000

housing units damaged or destroyed. The Valparaiso event destroyed seven ravines in the city and left 11,000 households homeless. The Atacama flash floods and contaminated mudslides occurred in an arid region and had major impacts on three cities. Information on the cases was obtained from field visits, government reports, and interviews with local officials and recovery workers.

In each case the recovery and reconstruction response take a different form in terms of stakeholder involvement, government assistance, and recovery outcomes. An analysis of the recovery planning and the funding system is provided. The analysis finds that variation in the recovery models represents some movement away from the centralized model, but requires an organized community based effort to sustain any variation in practice over time

Relevance to planning scholarship and practice. This paper demonstrates the need for flexible planning systems that encourage local control of land use decisions but adequate national funding for the recovery process.

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Key Words: Disaster, Risk Governance, community participation, centralized planning, disaster risk reduction

PLANNING AND THE PLATFORM ECONOMY: PROBING POTENTIALS AND PERILS FROM THE EXPERIENCES OF GO-JEK DRIVERS

Abstract ID: 1199

Individual Paper Submission

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This paper investigates the broader planning implications of the burgeoning platform economy (also called digital/app-based/on-demand) in Indonesia's urban transportation sector by focusing on its biggest ride-sharing operator, GO-JEK. Within the last decade, in developing countries, both domestic and global ride-sharing operators have exploded onto the scene by offering near-instantaneous, affordable, and personalized service to fill the hugely unmet need of affordable, efficient, and convenient mobility in expanding urban centers. Not only have leading operators ballooned rapidly but some have even greatly diversified—GO-JEK aspires to soon be recognized as a financial services provider to the vast multitudes with poor access to formal financial services. The biggest, most direct impact yet of GO-JEK and its competitors has been in increasing employment, albeit of a kind that critics decry as precarious work (Kalleberg, 2009; Nastiti, 2017), even as mathematical models propounded by scientific investigations into the phenomenon sound strongly optimistic (Tachet et al., 2017). In fast-expanding Asian cities, marked by increasing inequality (Kanbur & Zhuang, 2013), this dialectic is salient. Nascent inquiries to map some contours of Indonesian ride-sharing services suggest that their dynamics in developing country contexts are complex and their understanding demands richer data (Fangiddae et al., 2016; Randolph & Dewan, 2017). Based on analyzing the results of a recently concluded survey (N=100) of drivers of GO-JEK and independent motorcycle taxis (ojek) in Surabaya—where extant policies of discrimination against migrants threaten the city's progressive legacy (Das, 2017)—this paper illuminates: a) the demographic profiles

of the drivers; and b) the social and economic impacts (real and perceived) on their lives. Observations and unstructured conversations on the field as well as interviews with key informants augment the survey. The findings, which pertain to human development, gender, economic security, and access to shelter of lower- and lower-middle income workers, indicate that while traditional patterns of exclusion are waning, new and potential forms maybe emerging. The paper also suggests ways for the city to leverage the platform economy's potential towards expanding the social safety net and becoming more inclusive.

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Key Words: Platform economy, GO-JEK, Indonesia, inclusivity, social safety net

WHAT IS CRITICAL ABOUT BRAZIL'S URBAN REFORM MOVEMENT? A CASE FOR METROPOLITAN PLANNING IN SÃO PAULO'S INDUSTRIAL CORE

Abstract ID: 1225

Individual Paper Submission

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The Brazilian urban reform movement established a progressive evolutionary trajectory whose sustenance faces an uncertain future (Klink & Denaldi, 2016). Despite what Brazilian scholars have referred to as a policy dilution (Maricato, 2011), planning in the spirit of a right to the city remains prolific, yet in areas and among disciplines unanticipated by its early legacy. One of these areas is corridor planning, which emerged in the past two decades to assimilate expansive territorial growth with the interests of local community organizations (Sakata, 2009). The interface between corridor planning and the reform movement's vision for social transformation is remarkable for several reasons. First, corridor planning evolved during a time when one might expect planning to have become more site specific, following successive waves of in-situ and infill development of peripheral regions, many within established, low-income neighborhoods called favelas or loteamentos. Second, growth corridors identified within the city's inner industrial core are slated to occupy space that promotes private enterprise though PPPs, even though the reform movement has long eschewed such arrangements for triggering gentrification among favelas and loteamentos. Third, the most provocative corridor proposals stem from bipartisan funding and merge landscape, urban design, and architectural elements, including social housing and watershed management. Taken together, these dynamics are catalyzing emergent forms of regional and metropolitan planning that challenge the reform movement's initial goals with strategies to preserve social housing, address environmental degradation, and enhance economic development. Elsewhere, we argued that the shift from community to regional planning reflects, in part, the extent to which the reform movement has generated new forms of contemporary autogestão in the area of urban development (Friendly and Stiphany, forthcoming). Here, we use this theme as a departure for examining the role of municipal governance within metropolitan scale planning projects, and its impact on urban form and social experience.

Drawing upon a case study of São Paulo's recently launched "PPP dos Trilhos," a corridor revitalization project for the Tamanduatei district in the city's inner industrial core, we undertake a review of the literature, key informant interviews, and geospatial analysis to demonstrate that corridor planning is catalyzing new opportunities to realize multi-scalar planning that promotes the social function of space. However, this achievement is also marked by the potential for displacement that bolsters private investment while diminishing meaningful citizen participation in urban transformation (Mueller et. al. 2018). We conclude with insights for structuring the future of corridor planning for equitable metropolitan development in the Latin Global South.

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Key Words: International Development , Right to the City, Metropolitan Planning, Urban Design, Case Study

RECONCILING HOUSING WITH HISTORIC PRESERVATION: THE CASE OF CUENCA, ECUADOR

Abstract ID: 1236

Individual Paper Submission

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In Latin America, the practice of historic preservation is at a crossroads. Over the last three decades, cities throughout the region have invested in the restoration of historic buildings and streetscapes in central-city neighborhoods. While these efforts have helped preserve important cultural assets and sustain service-based economic development, many of these neighborhoods persistently experience population decline and vacancy, leading to a decrease in the quality of the built environment. Sprawling, low-density growth patterns in the region's cities, coupled with reduced state and municipal capacity to invest in integrated urban development, make this decline in habitability all the more alarming.

Can traditional approaches to preservation reverse this decline? Starting in the 1950s, riding on a wave of conservation decrees, municipal ordinances, district-level plans, and international declarations, cities throughout the region launched important preservation programs for its historic areas. From San Juan to Cuzco, the primary focus of these early efforts was on the physical restoration of 'monumental' architecture. Critically, these assets were within the spatial and historical center of the city—thus the Latin American emphasis on historic centers (centros históricos). In parallel to these early efforts, international entities such as UNESCO would support the creation of regional networks of professionals devoted to the practice of historic preservation. By the late 1970s, particularly with the 1977 Quito Colloquium, these experts and their government partners came to recognize the social dimension in historic areas, i.e., preservation should seek to revitalize buildings and sites as much as help improve living conditions for local communities. The deep economic crisis of the 1980s—the so-called "lost decade"—would limit these efforts. By the 1990s and the early 2000s, master planning in cities like Quito overcame the monumental approach to include targeted, if limited, support for inclusive housing, financed through stand-alone funds. Other cities followed and established specialized public entities to manage historic centers, often with financial and technical support from multilateral organizations. However, over the last few years, the gradual decline in population and habitability have exposed the limits to current historic center preservation models. Authorities lack sufficient financial autonomy and coordination powers to implement plans and cannot invest in housing and habitability at scale.

Cuenca, Ecuador's third largest city and a UNESCO World Heritage site, is emblematic of this dynamic. While the city has successfully restored religious sites and converted a few decayed structures into cultural spaces, the historic center nevertheless lost a third of its population between 1980 and 2010; communities in the area are among the poorest in the city. Since 2016, shortly after the Municipality began construction of a new tramway that runs through the historic center, the city launched a participatory urban development program to identify underused civic spaces, and, in collaboration with international agencies and designers, developed a proposal to redevelop one of its most iconic, and currently abandoned, building: the Febres Cordero school. The proposal, innovative in terms of design and finance, seeks to fund the school's restoration by leasing the underlying land and co-developing a new mixed-used and mixed-income housing building on-site. This approach requires normative changes to existing preservation ordinances, calls for direct involvement from the city's affordable housing corporation, and, critically, addresses the displacement of low-income communities to peripheral areas.

This paper seeks to explore the role of historic preservation in inclusive and housing and urban development, an urgent yet understudied topic in the context of Latin American cities. Through a case study analysis of Cuenca's recent historic preservation initiatives, the paper presents an alternative approach to historic preservation—one that successfully combines housing and preservation through participatory design and public-private development.

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Key Words: historic preservation, affordable housing, built environment, urban decline, Latin America

ENVIRONMENTAL REGULATIONS AS INDUSTRIAL POLICY: EVIDENCE FROM THE GLOBAL AUTOMOTIVE INDUSTRY

Abstract ID: 1253

Individual Paper Submission

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Can environmental regulations also enhance local industrial performance, overachieving their primary goal of protecting the environment? In this paper, I examine this highly plausible but understudied causal link, focusing on the global automotive industry.

My conceptual lens consists of two main hypotheses. The first is that the strong presence of foreign direct investment in the local automotive sector tends to increase the chance of implementing vehicle emissions standards, even when local air quality and development stage are controlled for. The second hypothesis is that vehicle emissions standards may encourage multinationals to introduce advanced technologies to local markets and thus promote a technological catch-up process. For empirical analysis, I construct a 47-country panel data set, covering 2000-2014, and test the hypotheses based on a fixed effects logit model and a Granger causality test.

My preliminary results show that those countries whose local automotive sector is dominated by foreign multinationals tend to show a higher chance of implementing relatively strict vehicle emission standards comparable to EURO3 or higher. This suggests that the primary aims of such regulations may go beyond purely environmental motivations, given that local air quality and income levels are controlled for. In addition, the Granger test results demonstrate that implementation of emission standards is at least a partial contributor to technological catch-up in the local automotive sector. The sign of the parameter with the first-order time lag is positive and significant at the 5% level, suggesting that the direction of the contribution is positive.

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Key Words: environmental regulations, industrial policy, automotive industry, vehicle emission standards

A SUCCESS STORY IN URBAN SANITATION: THE CASE OF TRICHY IN SOUTH INDIA

Abstract ID: 1257

Individual Paper Submission

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Poor sanitation remains a “wicked” problem for cities in the global South, despite significant advancements in technology and medicine. India bears one of the biggest sanitation burdens; 60 million city dwellers lack access to improved sanitation, and at least two-thirds of wastewater is discharged untreated, exacerbating environmental pollution (Wankhade 2015). The literature broadly sketches out two categories of obstacles impacting service delivery in sanitation: supply- and demand-side factors. Supply-side determinants include weak institutions and poorly designed policies, while demand-side factors point to low usage rates of public infrastructure and anemic demand from citizens (Winters et al. 2014).

I situate my paper at the intersection of these supply- and demand-side explanations. I explore how state-citizen interactions mediated by bureaucratic institutions shape the implementation trajectory of sanitation policies in Trichy, an Indian city (Zacka 2017; Davis 2004). In 2014, the Indian government launched the Swachh Bharat (Clean India) Mission to make the country open-defecation-free by late 2019 through the construction of household and community toilets in urban and rural areas, and through improvements in solid waste disposal practices in households and government offices. The Mission relies on the labyrinthine political and administrative infrastructure of state and local governments to implement this vision.

The city of Trichy in the southern Indian state of Tamil Nadu has been heralded as a success story in the media and in Indian policy circles. In my paper, I probe the socioeconomic, political, historical, and spatial roots and facets of the city’s success. I ask: Under what conditions did Trichy achieve successful sanitation outcomes? I use interviews with community leaders and key stakeholders in the sanitation sector, and insights from participant observation in the Trichy and Chennai Municipal Corporations and related NGOs. I also analyze policy documents and newspaper articles to examine the history of sanitation in the city. I find that the political history of Trichy, particularly the close relationship it shares with the state capital of Chennai, is crucial in explaining the Mission’s success. This positive relationship has helped empower bureaucrats in Trichy, who have had a strong track record of efficiently implementing public infrastructure projects in the past. As a result, citizens generally

hold a favorable view of bureaucrats and public services, leading to successful implementation and adoption of sanitation facilities.

My paper presents three main contributions to thinking about urban sanitation provision in the global South. First, it traces the variegated meanings of “sanitation” and “success” across levels of government and stakeholder groups. This reveals the often-contradictory goals involved in implementation and a lack of clarity about the definition of sanitation. Second, the focus on bureaucracies provides a foundation to outline the contours of urban sanitation governance, a topic that is either ignored or conflated with water governance. Third, in the spirit of Tendler’s (1997) approach to examining “Good Government in the Tropics,” the case of Trichy offers lessons to other cities, in India and beyond, struggling with sanitation provision.

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Key Words: Urban Sanitation, Bureaucracy, India, Development, Global South

URBAN INFORMALITY AND THE ROLE OF PUBLIC SPACES: A TALE OF FOUR CITIES IN BIHAR, INDIA

Abstract ID: 1296

Individual Paper Submission

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Urban slums are often caused by unplanned and unchecked urban growth. Most of the 53 urban agglomeration in India with a population of a million or more are experiencing a rapid growth of slums due to a massive influx of rural population in cities. This large-scale rural to urban migration has created several problems such as housing shortage, congestion, and poor sanitation. The expansion of informal settlements in cities is directly related to affordability and the shortage of housing stock.

Slum population in India has risen between 2001 and 2011 and is expected to further rise in near future. According to some estimates, slum population in 2025 may cross 100 million compounding the already complex set of problems. The Government of India and almost every State government have tried to address most of the problems associated with unplanned urbanization and particularly targeting slum dwellers and poor population in urban areas in general. Jawaharlal Nehru National Urban Renewal Mission (JNNURM) (2005-2014) was the largest city focused project in India with a price tag of \$20 billion. In 2014, the Government of India launched Swachh Bharat Abhiyan or Clean India Mission at a projected cost of \$30 billion. There are at least 5 more urban poor centric projects which were launched by the Government in last 4 years at a projected cost of upward of \$200 billion. However, governments at every level have been struggling in disseminating the information to the intended population.

This research aims to understand the information network in slums. This paper also attempts to evaluate the importance and the role of having public spaces within slums on the extent and the effectiveness of information flow regarding public policies among slum dwellers. This research utilizes primary data of 700 households (3800 individuals) from 58 slums in 4 cities of Bihar, the third most populous and one of the poorest state in India. The four cities are the largest 4 cities in the state and are growing at an alarming rate. Apart from the household data, I utilize slum profile of all 58 slums to identify public spaces within slums. This paper utilizes regression analysis.

Preliminary findings suggest that households are more likely to know about the government schemes if they have identified the existence of public space within their settlement. Factors such as higher educational attainment of women, formal employment, and the presence of NGO's positively affect the information flow. On the other hand, excessive policing, corruption, high instances of conflicts, and lack of public space negatively affects the information flow. This research has a huge policy implication and it establishes the importance of public open spaces in information dissemination. This understanding will help policymakers to increase the effectiveness of policies aimed at informal settlements. Public spaces should be an integral part of urban planning and the findings may inspire planners, policy makers, and civil society to formulate and implement measures to protect, create, and grow public open spaces for all sections of the society to achieve more inclusive and sustainable cities.

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Key Words: Urban Slums, Public Spaces, Informal Settlement, Urban Poor, Inclusive Cities

THE EXCLUSION OF THE INFORMAL- THE CASE OF DELHI'S DRAIN-ADJACENT 'SLUMS'

Abstract ID: 1298

Individual Paper Submission

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Several slum evictions have been based on the grounds that their open defecation and improper waste disposal into public spaces and drains causes "public nuisance"- a legal term defined on aesthetic cues (Ghertner 2015), not spatial or biophysical parameters. My research is a spatial and biophysical analysis of the contribution of Delhi's ~250 informal settlements (JJs or jhuggi jhopdi clusters) located along uncovered, open-access stormwater drains (nullahs). The first part involves city and basin-scale plan analyses to understand the potential to cause nullah pollution, while the second part involves site-scale biophysical testing and land use analyses at a subset of JJs. This paper presents the first half of that story.

RESEARCH QUESTION & METHODOLOGY

The 11,000 km of nullahs in Delhi flow unimpeded into the river Yamuna, that is severely polluted by improper sewage discharge over several decades. Thus, the city is the scale of analysis. First, I review the Yamuna Action Plan to understand the contributions of nullah pollution to river pollution, thereby establishing why mitigating nullah pollution is critical. Next, I review various plans- Interceptor Drain Project, Sewerage Master Plan 2031, and Drainage Master Plan 2031- to understand how existing and proposed infrastructure can reduce improper sewage discharge, mitigating nullah pollution. Then, I investigate if JJs could cause nullah pollution by first mapping the infrastructure accessible to the JJs for waste disposal- nullah-adjacent JJs, nullahs, existing and proposed sewers and treatment plants in one of three drainage basins in Delhi- and then interviewing 41 residents of 8 nullah-adjacent JJs in this basin to understand their sewage and solid waste generation and disposal habits. Finally, I map nullah-adjacent JJs in Delhi to gauge the repercussions of excluding them all from these master plans.

FINDINGS

The Delhi stretch of river Yamuna is critical because all freshwater supply gets diverted into the city, and the river hereafter is comprised entirely of wastewater. Treated and untreated effluent is discharged into nullahs to leverage

the natural drainage channels to send water into a river that otherwise has from the point it enters Delhi, because for nine months annually, Yamuna has no source of freshwater.

An exclusion of the informal built environment from city-scale environmental planning for Delhi's nullahs, sewers, and the river they empty into, will result in continued non-point source pollution (in the form of improper waste disposal or open defecation) from the residents of nullah-adjacent JJs. The conclusion is based on (1) geospatial evidence of lack of access to formal waste disposal infrastructure, and at the same time, adjacency to the open-access nullahs, (2) interviews documenting improper disposal into nullahs by JJ residents, and (3) clustering of JJs along the most-polluting nullahs across the city.

Since it is crucial that nullah water not be diverted elsewhere and be released into the Yamuna, it is crucial that nullah water be treated, which in turn requires that nullah-adjacent JJs be part of the city's plans for sewerage and drainage.

RELEVANCE

Informality in megacities is a product of State exceptionalism (a "calculated" action), that benefits from leaving a large cohort of people in the "gray space" between legality/formality and illegality/informality (Roy 2009, Yiftachel 2009, Datta 2012). If informal settlements are considered critical non-point source polluters- evidenced by the "nuisance rhetoric" (Ghertner 2015)- then they must be addressed in master plans on waste management. I demonstrate that State exceptionalism can actually be problematic to the 'formal' city itself- when the slums near Delhi's nullahs are ignored in plans critical to the city environment, despite their potential to impact these systems due to their adjacency, the environmental remediation of the river depends on planning for the 'informal'.

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Key Words: environmental planning, infrastructure, urban informality, plan analysis

LINKING URBAN TRANSPORT, LAND USE AND POVERTY REDUCTION IN FOUR CITIES IN EAST AFRICA

Abstract ID: 1300

Individual Paper Submission

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How can the coordination of transport and land use in rapidly developing African cities be improved? Rapidly growing African cities face particular challenges to the coordination of transportation and land use to improve mobility. The poor tend to be on the fringes in African cities, isolated from job opportunities in the urban core, and they tend to trade off high transport costs for cheap (informal) housing costs. Weak urban planning controls, including zoning, and institutional fragmentation undermine the coordination of urban services within and across sectors: strategic planning and coordination of transportation and land-use across transport modes are rare, as institutions are often preoccupied with reacting to rural-to-urban migration pressures (Dimitriou & Gakenheimer 2011). As a result, high transport and congestion costs, low mobility, spatial mismatches between the locations of jobs and work, insufficient transit and underdeveloped road infrastructure, and insufficient organization of land use activities to facilitate effective linkages between transport and housing-to-work mobility are typical (Cervero 2013).

In African cities road investment is often the only feasible transport investment option, and whether or not to use transport investment as a means to achieve economic growth becomes a strategic public policy question, because in African cities it is mainly provided by the public sector (Srinivasan 2005). Road investments have the potential to address spatial mismatch problems, reduce commuting costs, improve intra-city mobility, and spur poverty reduction and economic growth. But how should such road investments be strategized and coordinated, and how effective are they? In Africa, when it comes to specific guidance for road investment decision-making, particularly at the strategic level, empirical knowledge on the linkages of transport with poverty reduction, economic growth and land use is not adequate (Liu, 2005). Empirical studies can help inform policy prescriptions for influencing growth of certain land uses, for poverty alleviation or economic productivity, for development control mechanisms or efficient implementation of urban master plans (Cervero 2013).

In this study, we present an innovative approach that can be used to address these questions. We examine the extent to which the timing and spatial incidence of public investment in roads in four cities in East Africa in the first decade of the 21st Century was synchronized with land use and private investment in 1) formal and informal housing, in 2) commercial and industrial structures, 3) with economic productivity and 4) with population density changes. The cities studied are Dar Es Salaam in Tanzania, Nairobi in Kenya, Addis Ababa in Ethiopia and Kigali in Rwanda for the 2003-2013 time period.

Using data derived from very high resolution satellite images we quantify urban and peri-urban road investment at a very high spatial resolution (0.5 m), and we examine the dynamics of synchronization of this road investment with land use changes by analyzing the spatial location of different types and magnitudes of road investment and land use change. We use econometric techniques, including differences-in-differences with Propensity Score Matching (PSM) to estimate the quantitative associations between road investment, land use changes, economic productivity and population density. The results not only provide a highly quantitative record – in high geographic resolution - of how road investment in these cities impacted land use changes, economic productivity and population density changes, but also indicate some intriguing departures from theoretical expectations that provide insight that can inform African metropolitan planning policies. This research was funded by The World Bank.

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Key Words: land use, transportation, Africa, poverty, roads

LAND USE REGULATIONS INTERVENTION IN TOD ZONES IN NATIONAL CAPITAL REGION, INDIA -- ADDRESSING HOUSING AFFORDABILITY VIA INCREASING SUPPLY

Abstract ID: 1310

Individual Paper Submission

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This paper is about TOD corridors in the National Capital region of Delhi, India and aims to measure effects of change in the land use regulations on the property supply, prices and affordability. TODs are pedestrian-friendly dense property developments, organized within a half-mile of quality public transportation nodes or stations. Being close to transit, TODs provide greater access to jobs, housing and several recreational land uses to all including opportunity for people of all ages and incomes (Calthorpe 2001; Cervero and Dai 2013; Kamruzzaman

et al. 2014; Reconnecting America 2015). TOD also means developing new housing mixed-income housing near rail stations (Chatman 2013), developing other desirable uses such as hotel, retail or commercial offices as mixed type developments (Lund 2006; ULI) promoting walkability and healthy urban environment. TOD although gaining popularity, is still relatively a new concept in the developing world, and has only received a limited attention from the land use and planning scholars.

Extreme high housing prices in Delhi, makes nearly unaffordable for majority of middle and low income groups. This paper presents six TOD corridors in the NCR of SW Delhi, India after new land use regulations within the TOD zones and measures the effects of changes in real estate market — on size, price and supply of properties along the TOD corridors. The Town Country Planning department introduced TOD policy that proposed increased FAR of 3.00 from the current FAR of 1.75 along the six TOD corridors (BOV 2015). This modification is expected to have a significant impact on the supply of denser, smaller units, and lower the per unit house price. TOD policy covers about 53 linear Kms. covering 13,000 acres. It's been hypothesized that the landowners will respond to the policy change (Bartholomew 2011; Bertaud, 2010; CTOD 2008). To analyze this, approximately 955 acres of land within TOD zone for multi family housing have been studied and land development scenarios were developed based on the land's ability to adapt to the change of land use regulation, and supply of property was estimated.

This paper provides a review of TOD worldwide and their effect on the property markets and then empirically measures the effect of land use regulatory changes on the new real estate supply, price, and affordability in the NCR case. The paper is a useful contribution to the literature on land use regulations within the context of TOD, especially, in developing world context, and it also highlights the effect that land use regulations have on the property markets.

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Key Words: Housing Affordability, Land Use Regulations, Real estate development, Transit Oriented Development, High Density

MANUFACTURING-DRIVEN PERI-URBANIZATION IN CENTRAL CHINA: A CASE STUDY OF DONGXIHU DISTRICT IN WUHAN CITY

Abstract ID: 195

Poster

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Peri-urbanisation refers to a process in which rural areas located on the outskirts of established cities become more urban in character (Webster, 2002). Manufacturing investment is the primary driver of peri-urbanization in China. Given the fact that existing literature studying manufacturing-led peri-urbanization in China mostly focus on East Coast, there is lack of research on emerging industrial peri-urban zones in Interior China, especially surprising in the case of the Central Region of China, whose industrial development is clearly endorsed by national policies and industrial transfer trend. This study fills this gap by exemplifying characteristics of manufacturing-led peri-urbanization in Central China based on a case study of Dongxihu — a peri-urban district

in Wuhan Municipality. The main research question is what are the characteristics of Dongxihu's peri-urbanization and its differences from the well-studied manufacturing-led peri-urbanization in East Coast.

To answer this question, this study attempts to analyze and explain the changes in Dongxihu in terms of spatial form, economic activity, and demography. Land use data and firm distribution data provided by local planning bureau are used to identify the spatial change pattern. Socio-economic data from local almanacs and annual statistics bulletins are utilized to explore economic and social changes. Meanwhile, field trip observation helps to supplement the foregoing analysis. Overall, this study finds that:

Spatially, manufacturing development is less dispersed in Dongxihu, different from the landscape of sprawling factories in the East Coast such as the 100 km-long peri-urban corridor between Hangzhou and Ningbo (Webster and Muller, 2002). This is because of the centralized power and stronger role of the core city in Interior China (Webster et al, 2004). So, Wuhan's centripetal force on the Industrial Corridor is too overwhelming, while there is not a strong enough force to pull the Corridor away from the city. Firms located further north-west along the Corridor experience a locational disadvantage, being relatively remote from Wuhan's urban core. In addition, the less dispersed spatial form may be also caused by Interior China's latecomer advantage by which physical development/land use is better managed.

Economically, Dongxihu's peri-urbanization relies more on domestic investment while foreign investment was the main capital source for coastal region manufacturing drive peri-urbanization. This is partly explained by the fact that manufacturing in the Coast Region is mainly export-oriented while Central China's manufacturing is more targeted to domestic demand, consistent with changes over the last 15 years in China's macro economy. Manufacturing development in Dongxihu was first triggered by foreign direct investment, especially from Taiwan. Then domestic investment gradually caught up and became the dominant mode of investment. However, in the Dongxihu case, foreign investment, in general, results in a higher quality, i.e., higher value-added manufacturing mix; domestic investment is more associated with the quantity of firms.

Demographically, manufacturing industry, together with the construction industry in Dongxihu, mainly makes use of nearby rural labor surplus (dominantly from within the Province) instead of attracting migrant workers from all over the country, as in the Coastal Region, thus there is less of a cultural mix and conflict than in the Coastal peri-urban areas such as around Guangzhou, Shenzhen, and Shanghai. This finding is consistent with a trend in China this century toward shorter migration which starts to benefit peri-urbanization in interior cities such as Wuhan and Chengdu (Webster et al, 2014).

Beyond filling the gap that there is no research on peri-urbanization in Central China yet, this study also contributes to the planning practice by yielding policy implementations for local planning agencies, e.g., more compact spatial layout; better transportation connection to migrant source areas within the province.

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Key Words: Peri-urbanization, Interior China, Wuhan

**RESEARCH ON THE DEVELOPMENT OF TRADITIONAL TOWNS IN SUBURBS OF METROPOLIS
BASED ON THE LOCATION-RESOURCES MODEL—A CASE STUDY ON SURROUNDING
TRADITIONAL TOWNS OF SHANGHAI**

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Traditional towns are an important part of metropolitan areas. Their development is closely related to hot topics of Chinese cities such as heritage conservation, small town construction and regional coordinated development. This paper studies the basic features, current types, formation mechanisms, development problems and strategies of traditional towns in the suburbs of large cities. Taking the surrounding traditional towns of Shanghai as a case, the study found that having similar historical townscape and being susceptible to downtown area are essential features of these traditional towns in suburbs of large cities. Based on analysis of their current major functions, they can be classified into four types: tourism-oriented type, leisure and service-oriented type, residential-oriented type, and declining type. This paper starts with the external and internal factors that affect the development of traditional towns, namely location conditions and resource endowments, to construct an analysis model and analyze the formation mechanism of different types of traditional towns. Among them, locational conditions include distance location, traffic location, and policy location, while resources endowments include heritage resources, environmental resources, landscape resources, and cultural resources. Taking the surrounding traditional towns in Shanghai as a case, the development conditions of various towns are clarified by analyzing and ranking the various research indexes above. The study found that: (1) Resource is the basis for the development of traditional towns as a tourism-oriented type, in which heritage resources are the core; (2) Location is the basis for the development of traditional towns as leisure and service-oriented towns, among which traffic location plays a significant role; (3) Strong external influences is the root cause of the declining towns. This paper also reviews and studies the current situation and development path of the traditional towns around Shanghai. General development problems such as constructive destruction, homogenization development, loss of aboriginal residents, and dislocation of traditional and new towns have been summarized, while the characteristic development problems of different types also have been noticed. This paper summarizes development strategies and experiences that have certain universal significance for the four types of traditional towns, including: (1) Towns with rich resources should strengthen cultural characteristics and increase their attractiveness; (2) Towns with poor resources should focus on the conservation of traditional scape and the continuation of traditional life; (3) Towns with superior location should pay attention to meeting the supporting service needs of the downtown area; (4) Towns with poor location should built as a development node based on rural areas.

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Key Words: Location-Resources Model, Suburbs of Metropolis, Traditional Towns, Types, Formation mechanism

TRACK 7 - LAND USE POLICY AND GOVERNANCE

ROUNDTABLE: INDUSTRIAL URBANISM: CONTEMPORARY DYNAMICS BETWEEN PRODUCTION AND CITY DEVELOPMENT

Abstract ID: 53

Roundtable

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Since the Industrial Revolution, cities and industry have evolved together; towns and metropolitan regions have grown around factories and expanding industries. Despite this shared past, however, popular notions of manufacturing tend to highlight its negative aspects: pollution, environmental degradation, and the exploitation of labour caused by growing industry, on the one hand, and – almost paradoxically – on the other, the blight, abandonment, and ‘shrinkage’ resulting from the more recent decline of manufacturing in cities in the developed world. In recent years, with the digitization of manufacturing, technological developments and environmental challenges, there is a growing recognition of the need to re-examine the interface between manufacturing and cities (Berger and Sharp, 2013; Helper et al., 2012; Leigh and Hoelzel, 2012).

Supporters of such a re-examination, warn of self-destruction in countries that promote post-industrial policy. Relocating plants to countries where labour is less expensive, as a means of reducing production costs is not a viable strategy for the long term, and severing the connection between production and development impairs the ability to innovate in source countries (De Backer et al., 2015; Manyika et al., 2012; Pisano and Shih, 2009). This trend is also backed by research which, after neglecting the subject for a period, is investing resources in it, and especially in the topic of the relationship between manufacturing and regional development. Most studies emphasize different aspects of manufacturing of critical significance to the local economy, a paradigm that also receives support from political leaders who seek to rethink the geography of manufacturing as a path that might be used to promote job opportunities.

This roundtable is addressing some of the key questions presented in a special issue published by the Built Environment Journal, 2017 (Guest editor Tali Hatuka). It suggests that economists’ quantitative abstract framework be extended into a concrete comparative, multi-level analysis that includes the physical environment and addresses the future possible relationships between cities and industry and between current urban planning practices and the places that are being designed for and dedicated to the production of goods. More specifically, this issue focuses on the spatial implications and physical manifestation of contemporary manufacturing in the city:

- ® What are the contemporary relationships between city and industry?
- ® Should contemporary manufacturing be subjected to the same rules and zoning regulations as its predecessors?
- ® What physical planning and design strategies should cities pursue to retain, attract, and increase manufacturing activity?
- ® What to be done with vacant factories, neglected industrial sites?

These questions point to the limitations of the current planning and architectural paradigm in addressing manufacturing, and the need to conceptualize new planning strategies that would respond to and help cities adapt to current trends in manufacturing. Spatial adaptation to manufacturing is required at the regional, city and local

scales, in both existing and new settings, and taking into account, not merely the physicality of space, but also its social and political characteristics. At the end of the day, people spend most of their day in their work environment. And though we tend to discuss work and the industry as a means to achieve particular goals, seeing it as the source of all productivity, property or wealth, work, for most of us, profoundly contributes to our identity – who we are, our way of life, and what we are able to achieve in our lifetimes.

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Key Words: city and industry, manufacturing, design strategies , vacant factories, post-industrial policy

ROUNDTABLE: "FINDING THE SWEET SPOT" - THE IMPACT OF THE LATE-DAVID GODSCHALK'S CONTRIBUTION TO SCHOLARSHIP IN THE PLANNING FIELD

Abstract ID: 430

Roundtable

BERKE, Phillip [Texas A&M University] pberke@arch.tamu.edu, moderator

BENDOR, Todd [University of North Carolina] bendor@unc.edu

NEDOVIC-BUDIC, Zorica [University of Illinois at Chicago] znb.ucd@gmail.com

MALIZIA, Emil [University of North Carolina]

This roundtable will include discussions from former students and colleagues of the late-David Godschalk, addressing the major contributions presented over six decades of his career. Panelists will discuss the impacts that his pathbreaking work has had on their scholarship and the broader scholarship in planning and other fields related to Prof. Godschalk's work in land use and environmental planning, hazard mitigation, and urban resilience.

[due to the recent death of Dr. Godschalk, panelists are still in the process of being confirmed]

Panelists (3 + moderator) will include Phil Berke (moderator), Emil Malizia, Zorica Nedovic-Budic (to be confirmed), and Ann Forsyth (to be confirmed). Alternatives may include Steve French, Bruce Stiftel, John Cooper, Scott Bollens, Dick Norton, and Daniel Rodriguez. We are hoping that Marlon Boarnet can introduce the panel.

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Key Words: Land use, Hazard mitigation, Urban resilience

ROUNDTABLE: WHAT IS LAND? NEW PERSPECTIVES THROUGH REGULATION AND FINANCIALIZATION

Abstract ID: 460

Roundtable

VAN MAASAKKERS, Mattijs [Ohio State University] vanmaasakkers.1@osu.edu, moderator
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MARANTZ, Nicholas [University of California Irvine] nmarantz@uci.edu
POPPER, Frank [Rutgers, The State University of New Jersey] fpopper@rutgers.edu

At the end of the 1980s, Popper (1988, pp. 298-299) perceived a "laissez faire bureaucratic democracy" in the United States, where "each level of government and each individual government goes its own way, develops and manages and finances its own programs that spring from its own circumstances." At the national level, market-based approaches to environmental regulation had ascended during the Reagan Administration, when the Environmental Protection Agency undertook air-quality trading programs, and air-quality trading was enshrined in various provisions of 1990 Clean Air Act amendments. At the state and local level, land-use planning intersected with market-based approaches to environmental regulation in realms ranging from transferable development rights to wetlands mitigation banks.

The tools of contemporary land-use planning continue to blur the boundaries between states and markets, in the United States and internationally. In "the past 30 years ... privatization and private sector participation in urban planning ... have raised new challenges, such as who is ultimately accountable for plans and designs produced by private, for-profit firms in collaboration with the public on behalf of public agencies governed by elected officials" (Schweitzer, 2017, p. 159; see also Balakrishnan, 2017; Marantz, 2015; van Maasakkers, forthcoming).

This roundtable addresses the role of land-use planning in defining and regulating market-oriented governance mechanisms. Specifically, we ask:

- How do market-oriented regulatory regimes affect public participation in the planning process?
- What roles do (and what roles should) planners play in defining (and distinguishing) the use values and exchange values of land? How do planners mediate between these sets of values?
- How does the discourse of markets affect planning practice?
- How has the turn to market-like regulatory regimes affected the formulation and implementation of land-use regulation?

Citations

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Key Words: Markets, Regulation, Governance, Land Use, Participation

ROUNDTABLE: ZONING PRACTICE FOR 21ST CENTURY CITIES

Abstract ID: 682

Roundtable

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MELTZER, Rachel [The New School] meltzerr@newschool.edu

WATSON, Siobhan [Columbia University] sw2850@columbia.edu

WHITTEMORE, Andrew [University of North Carolina - Chapel Hill] awhitem@ad.unc.edu

BAIRD-ZARS, Bernadette [Columbia University + Alarife Urban Associates] bvb2108@columbia.edu

Zoning is at once a key technical competency of urban planning practice and a highly politicized regulatory institution (Fischler 1998). Planning scholarship increasingly frames zoning as a context-dependent tool and firmly locates zoning as a central mechanism for political, social and economic forces to influence the distribution of access in urban space, often with exclusionary outcomes (Angotti et al. 2016, Hirt 2014, Whittemore 2012). Yet planning textbooks and pedagogies often focus on the legal or economic dimensions of land-use regulation, with scant ability to explain the institutional nuances of zoning practice. Teaching zoning to planners using materials solely from a legal or economic perspective misses a significant opportunity to map the historic-institutional settings in which zoning and planning are embedded, and to establish zoning more firmly as part of planning.

To position zoning as a core part of the politics of planning, scholars must study zoning practice through normative, critical and institutional lenses. Acting on this mandate, we propose to convene several authors of a forthcoming book, *Zoning: A Guide for 21st Century Planning* (Sclar et al. 2019), to sketch out a research and teaching agenda. The panelists will approach zoning from social-science and planning perspectives and probe a set of questions in zoning and planning practice. How has zoning persisted as a relatively ‘obdurate’ institution amid the decline of other land planning tools? How have the (many) changes in zoning practice intersected with shifts in other social and economic institutions? How does zoning relate, in theory and in practice, to the other competencies of planning, like housing policy and transportation planning?

By re-forging the important links between zoning practice and the concerns of the urban planning profession, this roundtable (like the book-in-preparation) offers a new framework for thinking about zoning, moving from the history of zoning to the role of zoning in contemporary planning practice, and, hence, its role—and the role of planning in general—in the 21st century. Themes to be addressed include the financialization of zoning, institutional analysis as a method for evaluating zoning, the ad hoc nature of zoning and the dilemmas inherent in zoning practice. Roundtable participants will highlight domestic and international cases from their chapters to show how zoning affects social, political, and economic relationships in cities in the US and abroad. They will also reflect on pedagogical tools to encourage planning students to confront the politics of zoning, both in decision-making processes and in socio-economic impacts, in their future professional work.

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Key Words: zoning, land use, planning institutions, planning pedagogy, land regulation

PRE-ORGANIZED SESSION SUMMARY

GIVINGS AND TAKINGS: FINANCING URBAN PUBLIC GOODS IN DIFFERENT PLANNING CULTURES

Summary ID 12

Abstract ID: 332

Abstract ID: 333

Abstract ID: 334

Abstract ID: 335

Abstract ID: 340

In recent years, the global trend of neoliberal ideology and shrinking government funding has led planners to explore new regulatory mechanisms to finance public goods in the city. To achieve certain public goods, governments in market economies compensate for the loss of property rights, and conversely, recapture land value increases. Some examples of these land finance tools include transfer of development rights (TDR), density bonus, and special assessments. If property rights and planning cultures are embedded social institutions, how property rights are defined and how giving and taking are justified become crucial questions for planners. In the existing literature, local practices of zoning- and land-based finance tend to be analyzed either in light of the idiosyncrasy of a particular planning culture or of the universal transferability of market-based mechanisms. In this panel, we examine the role of planning and the use of land-based public good financing through case studies of different mechanisms being utilized in different planning cultures.

Objectives:

- Examine how giving and taking are conceptualized in a particular planning culture
- Understand the mechanism of land-based finance
- Examine the social actors and processes involved in land-based finance

MOBILITY FEES: ASSESSING FLORIDA'S LOCATION-BASED APPROACH TO MULTIMODAL TRANSPORTATION PLANNING AND FINANCE

Abstract ID: 332

Group Submission: Givings and Takings: Financing Urban Public Goods in Different Planning Cultures

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Florida has long grappled with the issue of funding and providing adequate public facilities, most notably through its concurrency system—a critical innovation in U.S. growth management policy. Since the 2011 Community Planning Act, which made concurrency optional and required multimodal planning, Florida local governments have been planning and funding infrastructure in innovative ways. While making concurrency optional, the Florida legislature signaled local governments to shift to a mobility fee system, following the development of a mobility fee concept by the state agencies. The mobility fee concept that was ultimately endorsed is an impact fee on new development that is sensitive to vehicle miles traveled (VMT), and ties mitigation to transportation and land use (mobility) planning outcomes. A location-based and price-tiered approach to impact fees, mobility fees reward development that is located in or near existing or future urban centers with a lower impact fee (Seggerman, Williams, Lin, Fabregas, Nelson, and Nicholas, 2009). Although a traditional land value capture model might envision developers paying a premium for property in high-density, mixed-use, transit-accessible areas, the mobility fee strategy rewards such development with lower fees, and increases fees for single use development in rural and exurban areas due to its greater impact on VMT and transportation system costs.

In Florida, impact fees represent a larger and growing share of the public budget than that of most other states, making it a critical area for investigation. Mobility fees also provide a more flexible revenue source for funding

transportation projects other than just roadway capacity. Mobility plans involve cooperation between the private and public sectors to provide a variety of modal options and a high quality of life in a fiscally-constrained environment (Paul and Hays, 2011).

At least 21 Florida local governments have adopted mobility fees as a way to fund local transportation system costs (Renaissance Planning, 2016). In 2010, Alachua County became the first county to adopt a mobility plan following three years of planning and engagement processes. The plan rewards development that meets the community's vision for a denser, mixed-used, transit-supportive land use pattern with streamlined approval and lower transportation mitigation requirements (Paul and Hays, 2011). Alachua County's program is one of the few in the state designed to support transit operations in addition to transit-supportive land uses and transit capital (Renaissance Planning, 2016). In 2011, Pasco County adopted an award-winning mobility fee program that is innovative and important for several reasons (Renaissance Planning, 2016). First, the mobility fee is designed to support a countywide land use vision that supports growth in areas of the County where transit exists or is planned, and encourages compact, transit-ready development. Second, the fee provides flexibility to fund four modes of transportation: roads, transit, bicycle, and pedestrian capital facilities. Third, it is supplemented by a countywide tax increment financing (TIF) fund that may be used to fund related capital and operating costs and debt.

This session will present initial research from a year-long study that provides an empirical analysis of Florida's mobility fee framework and will assess: 1) the scope of mobility fee programs and policy approaches; 2) the fiscal impacts of mobility fees, including the share of total own-source revenues and ad valorem property taxes from mobility fees, as well as the direct and indirect impact of mobility fees on land and housing prices; 3) the land use impacts of mobility fees, including impacts on residential and commercial development and their effectiveness in reinforcing compact urban form; 4) case studies from Alachua and Pasco counties, Florida's first county-level, location-based mobility fee programs; and 5) policy implications.

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Key Words: Impact Fees, Growth Management, Mobility Fees, Transportation Finance

NEGOTIATING DENSITY TO FINANCE PUBLIC GOOD IN VANCOUVER AND NEW TAIPEI CITY: A COMPARATIVE FRAMEWORK

Abstract ID: 333

Group Submission: Givings and Takings: Financing Urban Public Goods in Different Planning Cultures

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The planning discussion over development rights has shifted from managing growth to financing growth. For many cities, particularly those with escalating land prices, land-based finance has become an important mechanism to fund public infrastructure and amenities. This paper aims to develop a comparative framework that connects empirical details of how public goods are financed locally to a broader conceptual inquiry of how

development rights are treated in a planning culture. It seeks to contribute to the growing comparative planning research concerning development rights.

Development rights, and the related regulatory takings and givings, are a useful lens through which to make sense how and why land-based finance is designed and practiced in a particular way. We have thus chosen two considerably different planning cultures – Vancouver, Canada and New Taipei City, Taiwan. In both cases, compensation is achieved through the creation and granting of density. What differs in the two cases is how that density or land lift is determined, who benefits, and what is the impact on land use planning.

New Taipei City is a case where takings in the past are intricately linked to givings in the present. Planners rezoned and reduced the land values for certain property owners who have been demanding compensation. To respond, planners have designed a highly deregulated form of transfer of development rights, resulting a treatment of development rights as a commodity. In contrast, the Vancouver case is one of giving, where planners rezone to award density so that developers may pay for public goods (e.g. historic preservation, social housing, community centers, schools, parks). Vancouver treats development rights as a semi-public asset and this helps explain a more community-oriented approach to density bonus.

The paper is divided into four sections. The first is a literature review that brings together the research on development rights and planning culture, which have primarily been separate discourses. The second section lays out the comparative framework, followed by the empirical case studies of Vancouver and New Taipei City. The comparison draws attention to innovation as well as caution. The paper concludes with implications for planning as land-based finance will continue to be an important mechanism for cities to finance public goods.

Citations

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Key Words: Land-based finance, Density, Public good , Comparative research

SKYLINES AND SHADOWS: POLITICAL ECONOMY OF LAND-BASED FINANCING IN BOSTON

Abstract ID: 334

Group Submission: Givings and Takings: Financing Urban Public Goods in Different Planning Cultures

BALAKRISHNAN, Sai [Harvard University] sbalakrishnan@gsd.harvard.edu, presenting author

When land is used as an instrument of finance, what are the trade-offs and contradictions that emerge, and how should planners deal with these contested meanings of land? This is the question that underpins this paper, which takes as its focus the reconfiguration of the Boston skyline with the building of eleven new skyscrapers in and immediately around downtown Boston. These vertiginous towers provide much needed sources of revenue for a city whose traditional sources of public finance, including property taxes, are constrained by conservative-era policies like Prop 2 ½.

As cities trapped within fiscal austerity programs increasingly turn towards land-based financing as a key source of funding public goods and services (Peterson, 2009), this paper uses the case of Boston to gain insights into how

market-based land-use planning changes the priorities and politics of local governments. It also asks what new forms of social contracts emerge when land-based financing, and not property taxes, emerge as the main source of municipal finance.

Within the context of the new skyline, this paper zooms into the redevelopment politics of the proposed Winthrop Square Garage towers. The last city-owned garages to be disposed to the private sector, the building of these towers will cast shadows on Boston Commons, in violation of the state of Massachusetts' shadow laws. As part of the land disposition deal, the highest bidder, Millennium Partners, has negotiated with the mayor to pay \$153 million into the public coffers, revenues that the mayor argues can be invested in developing parks in poorer neighborhoods of the city. Should the city incentivize the building of tall towers that cast a shadow on public amenities in a rich neighborhood to pay for public amenities in poorer neighborhoods? I argue that land-based financing not only affects allocation politics in new ways but it also reframes contested planning choices into new Faustian bargains. Of particular interest to this paper is the timing of both the land-based financing and the shadow laws, which are at the heart of the Winthrop conflict. Both these laws were passed in the early 1980s under the mayoral tenure of Ray Flynn, whom urban historians have praised as "activists in city hall" (Clavel, 2013). More surprisingly, the mayoral opponent to Flynn, Mel King, who was part of a radical black politics in Roxbury, also supported land-based financing. These urban historical junctures are also of key interest to this paper.

Citations

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Key Words: development rights, market-based land-use instruments, fiscal politics

GIVING IT AWAY: EXPERIENCES WITH LAND DISPOSITION IN SHRINKING CITIES IN THE NETHERLANDS, GERMANY AND THE UNITED STATES

Abstract ID: 335

Group Submission: Givings and Takings: Financing Urban Public Goods in Different Planning Cultures

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Vacant land disposition is a challenge in many shrinking cities. The demolition of (largely) abandoned structures is frequently funded by public entities, in efforts to stabilize real estate markets or reduce blight. This paper analyzes how cities then seek to dispose of those vacant sites in order to become "green," an ambition expressed regarding many shrinking cities. The goal of this research is to uncover how (more) sustainable future are imagined, planned for and enacted, based on a comparison of three shrinking cities, namely Delfzijl in the Netherlands, Schwedt in Germany and Youngstown in the United States. The central finding of this analysis is that the visions of sustainability differ dramatically across these countries, placing limits on the usefulness of sharing best practices regarding common challenges. While the rapidly expanding comparative literature on shrinking cities has generated general insights and recommendations on dealing with decline (Neill 2016; Pallagst, Fleschurz, and Said 2017; Pallagst, Wiechmann, and Martinez-Fernandez 2014; Richardson and Nam 2014) there has been little explicit attention to the role planning cultures (Sanyal 2005; Knieling and Othengrafen 2009) have played in the approaches to urban population decline and resulting land management strategies. This paper uses policy- and plan analysis, site visits and semi-structured interviews with key officials and stakeholders to compare vacant land disposition and activation strategies. This analysis focuses on the planning, implementation and maintenance of prominent "greening" projects in the three cities. Delfzijl, Schwedt, and Youngstown are all known as "early adopters" of planning approaches for dealing with severe population decline within the Netherlands, Germany and the United States, respectively. As a result, all three cities have supported

large-scale demolition of residential structures and facilitated green forms of reuse for some of the newly vacant land. In each city, one central greening project and one more peripheral is analyzed. In Delfzijl, the community-designed “Green for Red” project, in which a vegetable garden and outdoor theatre are combined, is contrasted with the government funded and designed “Project Marconi,” which includes rearranging flood-prevention infrastructure and reestablishing visual connections between the historic downtown and the Waddensea. In Schwedt, the “re-forestation” of the Waldrand neighborhood is contrasted with the expansion of the riverine port on the Oder river. In Youngstown, the corporate-sponsored planting and ultimate removal of wildflower meadows on vacant land is contrasted with community agriculture projects. Each of the intra-national comparison is intended to highlight the range of approaches within a planning culture. The international comparison yields broader insights about the comparability of planning cultures using a nested case-study approach.

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Key Words: Ecosystem services, Shrinking cities, Planning cultures, Land use

THE ALCHEMY OF AIR RIGHTS: TRANSFER DEVELOPMENT RIGHTS AND INCENTIVE ZONING AS MODERN FISCAL POLICY

Abstract ID: 340

Group Submission: Givings and Takings: Financing Urban Public Goods in Different Planning Cultures

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Zoning as an institution of local land use decision making has proven durable and adaptive. It has evolved in line with the changing conditions of contemporary cities. In the present era of public sector austerity, tax cuts and budget cuts are considered desirable policy goals. This has caused a crisis for local planners and policy makers charged with providing the public goods and services that viable contemporary cities demand. In response to the opposing pressures of shrinking revenues and expanded service demand zoning has been adapted to leverage rising real estate values to close the fiscal gap between budgetary austerity and expanding pressures for high quality public services.

Two tools in particular are considered here, incentive zoning and transferable development rights or TDRs. They address related but separate issues yet share the same attempt to exploit the implicit rise in urban land rent to deliver public service. In the case of the former, incentive zoning, the public sector creates new development rights in exchange for the private provision of a public good. In the case of the latter the private transfer of an existing right, typically done in exchange for a public benefit is permitted between geographically separate locations. Although different in terms of explicit policy target, both share two common powerful underlying assumptions, that zoning policy can align the demands for urban space manifest in the private market with the accomplishment of larger public policy goals and that the locational rents inherent in the demand for urban space can be successfully leveraged to satisfy those goals.

In this paper the evolution and potential effectiveness of these uses of zoning regulation is explored. The paper uses urban rent theory as a basis for explicitly analyzing the value capture mechanisms embedded in these policy approaches. The value of created development rights via incentive zoning and the market prices at which TDRs are exchanged are presumed to effectively capitalize the social created value of urban locations resulting from the publicly supplied goods and services. That is to say the creation of value in expanded or movable development rights is largely a matter of the investments society makes in public infrastructure and services. This concept of

land rent as created social value is not new. It has always been part of the political economics of public policy from Adam Smith through Henry George. However, in recent years it has not been explicitly used by planners in the analysis of zoning policy. Using historic case study for data, this paper considers the adequacy of these approaches as a means to fill the gap between the supply and demand for public goods and services that create urban value. The paper further considers the distributional equity issues of who pays and who benefits from these approaches to urban policy.

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Key Words: Zoning, Air Rights, Transferable Development Rights, Incentive Zoning, Land Rent

PRE-ORGANIZED SESSION SUMMARY COMMUNITY RELOCATION DUE TO NATURAL HAZARDS ID: 7

Abstract ID: 68
Abstract ID: 69
Abstract ID: 70
Abstract ID: 71

Following a disaster, the question of permanent community relocation often arises: Why expend reconstruction resources to rebuild in the same risky location? Sometimes relocation also arises because of the threat of a future disaster. These questions have current significance because of climate change. Planners are the ones who will be in the positions of helping communities decide whether and how to relocate, but it is inherently complex, requiring large sums of money, available land, rearrangement of property rights, political consensus, and the ability of a community to survive the effects to its social and economic networks. Existing cases provide the opportunity to develop systematic understanding of the issues, challenges, and opportunities of community relocation. This pre-organized session will include: an overview of a range of international cases, detailed examination of ongoing relocations in East Asia and the U.S., and current efforts to anticipate coastal retreat in the Northeastern U.S. and southern Louisiana.

Objectives:

- Understand the interrelated issues involved in relocating communities due to natural hazards.
- Draw lessons from recent and ongoing cases of post-disaster community relocations.

THE POLITICAL, ECONOMIC AND SOCIAL DYNAMICS OF ENVIRONMENTALLY FORCED RELOCATION

Abstract ID: 68
Group Submission: Community Relocation Due to Natural Hazards

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Disasters displace people. In 2016 alone, according to the Global Report on Internal Displacement, 24.2 million people (the average for 2008 to 2016 was 25.3 million) were displaced by disasters worldwide, with China, Philippines and India accounting for well over half the displaced population. In the United States alone, over a million people were displaced. For the people displaced by disaster, the question soon comes up, out of fear or circumstances, of whether or not to stay in the original location. This decision is usually treated as a binary – onsite reconstruction or relocation. It is also treated as the primary decision, which determines the approach to other recovery processes such as reconstruction of shelter and infrastructure, restoration of livelihoods, identity and social networks. This binary and its implications arise from a narrowly focused rationalist perspective that an anticipated, ongoing or recently concluded disaster event makes reduction of the hazard risk the highest priority. Therefore, the typical response of planners and decision-makers is to carry out, as reliably as possible, a hazard risk assessment or fall back on an existing one and base the relocation decision on that. However, irrespective of how rational and technically justified the decision to relocate may appear to be, the actual process of relocation is fraught with uncertainties and complexities, and invariably becomes the subject of criticism from a social and economic perspective. Planners often find themselves in the unenviable position of needing to design such relocation processes, but with few sources of guidance.

The research presented in this paper starts with these broad questions: (1) How is the relocation decision taken, by whom, and how is it communicated; and (2) What is the relocation process and what are its consequences, mainly for those directly affected, but also for other stakeholders? To elaborate these questions and answer them, the authors analyze studies of about 50 cases of environmentally forced relocations from across the world. Several of these cases including those from India, China, Japan, New Zealand and the USA, have been studied and written about by the authors themselves over several years. (Balachandran 2010) (Olshansky and Johnson 2017) Other cases have been analyzed from peer reviewed journal papers and other reliable sources of information. While case studies have so far looked at each case as an individual moment of discovery, this paper presents a comparative analysis and inductively identifies generic aspects of environmentally forced relocation and the relationships and interactions between them.

The paper also engages three other streams of literature on the subject. The first is literature on disaster recovery, which examines the characteristics of the post-disaster situation and their effect on processes and outcomes. (Olshansky et al, 2012) The social and economic disruptions of relocation are explored using the literature on development-induced resettlement, which expands on the traditional cost-benefit analysis of projects and analyzes risks at the level of families – landlessness, joblessness, homelessness, marginalization, food insecurity, increased morbidity and mortality, loss of access to common property and social disarticulation. (Cerneja 1999) A third stream of literature, primarily from applied anthropology and sociology, examines post-disaster relocation from a social perspective, uncovering linkages between recovery processes and concepts like social stratification and identity. (Oliver-Smith 1990)

The paper lays out a theoretical framework to understand this complex process in a manner that is useful both to researchers and practitioners. It includes consideration of natural science, the decision process, the community's relationship to place, property rights and finance, and historical context.. In most cases, historical and structural factors play a more decisive role than scientific and technical considerations.

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Key Words: Community relocation, Disaster recovery, Natural hazards

WE CANNOT AND WILL NOT ABANDON OUR WATERFRONT: THE CHALLENGE OF PLANNING FOR COASTAL RETREAT IN THE NORTHEASTERN UNITED STATES

Abstract ID: 69

Group Submission: Community Relocation Due to Natural Hazards

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It is increasingly likely that communities located in hazard-prone areas will soon need to consider when and how to relocate because current development patterns are untenable in the face of risks including sea level rise and other hazards. Yet, for the most part the idea of community relocation is still an anathema among policymakers, as NYC mayor Michael Bloomberg proclaimed in June of 2013 when he announced the city's ambitious \$20 billion post-Sandy resilience plan, stating "We cannot and will not abandon our waterfront. It's one of our greatest assets. We must protect it, not retreat from it." Despite (or perhaps because of) this kind of entrenched opposition, it is important that planners, who will be central to these discussions, develop a better understanding of the dynamics of community relocation. It is all the more important because the political will to consider relocation is most likely to occur in the brief and chaotic period after a large disaster (e.g. Green and Olshansky 2012) when there will be a limited amount of time to develop policies and programs before interest in relocation recedes.

Scattered-site buyout programs have existed for some time and have received some attention in the planning literature (Freudenberg et al 2016). The complexity and challenge of whole-community relocation, however, is of a completely different magnitude. While it may better mitigate some of the deleterious social and economic effects of scattered relocation, wholesale relocation is under-studied, with some exceptions (e.g. Iuchi 2014), and particularly in the US. Additionally, while local governments will play a key role in facilitating whole-community relocation, state governments – with or without Federal assistance – will be crucial because states have financial and technical resources, legislative power and some degree of cross-jurisdictional authority (Siders 2013).

This project asks three inter-related questions about community relocation: What are US states doing to prepare for the likelihood that community relocation will increasingly become necessary? What elements of existing state recovery and development policy are suited to whole community relocation, and which fail to address its advanced complexities, including local opposition among many other challenges (Perry and Lindell 1997)? What lessons does this provide for planners about existing policy gaps and the efficacy of various possible relocation strategies?

The northeastern United States is an excellent place to begin asking these questions. This densely populated region is home to millions at risk from flooding induced by slow-onset climate change as well as increasingly devastating disasters. The region's coast is heavily developed, with billions of dollars of housing, businesses and public infrastructure at risk and an economy heavily tied to the coast. In the aftermath of Sandy, the states of New York, New Jersey and Connecticut have begun to refine their coastal development policy, which has included limited scattered-site buyouts but not relocation.

Using semi-structured interviews with local and state planners, floodplain managers, policymakers and other stakeholders, we assess the how these three states have begun to address the challenges of community relocation. We highlight existing state strategies that may prove useful to addressing relocation-related issues and highlight the political, legal and other challenges that will need to be addressed. Findings will illuminate the challenges and barriers to community relocation and highlight how existing state programs do or do not already address these expected challenges. This project contributes to a better understanding of how jurisdictions can plan for community relocation with the aim of facilitating more effective, efficient and equitable programs as this nascent policy objective matures and becomes increasingly pertinent for communities facing a range of natural hazards.

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Key Words: Managed retreat, Recovery, Relocation, Coastal planning, State-led planning

MOVING ON UP: OBSERVATIONS ON ADAPTIVE MIGRATION IN SOUTH LOUISIANA

Abstract ID: 70

Group Submission: Community Relocation Due to Natural Hazards

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In response to increasing coastal hazards and environmental change, households can continue to live as they have, take adaptive measures to safely stay in place, or adapt through migration (Bailey et al., 2014). Nonstructural policies to strengthen resilience have focused heavily on interventions that help people stay in place, including flood proofing and home elevation. However, focusing on the mitigation of structures alone is not sufficient to meet the challenges of increasing flood risk and coastal climate adaptation. Increasingly, local officials in Louisiana and elsewhere in the United States are recognizing the need for relocation to reduce vulnerability. Helping property owners move out of areas of high flood risk is a key component of the nonstructural measures outlined in Louisiana's 2017 Draft Comprehensive Master Plan for a Sustainable Coast.

While local officials may understand the need for voluntary relocation strategies, and migration away from the coast has already started in Louisiana as some residents have "moved up" or further inland to areas less susceptible to storm related flooding, surprisingly little is known about the factors that shape climate and hazard-induced migration decisions (McLeman & Hunter, 2010; Warner et al., 2010). Sophisticated tools like the RAND Corporation's Coastal Louisiana Risk Assessment (CLARA) model can identify areas or structures most at risk but do not explain factors that determine when people decide to move (or accept a buyout), why they would choose to do so, or where they would likely go. Existing buyout programs are not well suited for the incremental decisions associated with migration induced by long term environmental change (Nelson & Ehrenfeucht, 2016)

Drawing on an analysis of resettlement efforts and population shifts underway in Terrebonne Parish, Louisiana, this paper examines how communities are responding to increasing climate-related coastal hazards and offers suggestions to inform equitable and effective relocation strategies that can provide residents more options to reduce risk and build more resilient communities.

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Key Words: adaptive migration , relocation, resettlement

BECOMING MORE RESILIENT FROM FUTURE COASTAL HAZARDS: LAND USE DECISIONS AND IMPLEMENTATION MECHANISMS OF TSUNAMI-AFFECTED CITIES IN TOHOKU

Abstract ID: 71

Group Submission: Community Relocation Due to Natural Hazards

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Resilient land use – by relocating, rebuilding in situ or a combination of these – in recovery planning has been of key concern for planners. Although researchers have addressed the need to consider hazards in land use planning pre- and post-disaster (Schwab, 2014), large scale rezoning to address this is rare worldwide. One reason is that governments wish to maximize the amount of land available to accommodate citizens and businesses. Thus, there is less emphasis on regulating land use to minimize risk (Maly, Kondo, & Banba, 2017). Empirical post-disaster cases – particularly in the developing world – also explain how regulating land use in recovery is often unsuccessful, and even in the United States, widespread land use transformation is uncommon (see Nelson, 2014; Pardede & Munandar, 2016).

Cities in Tohoku after the 2011 Great East Japan Earthquake (GEJE) have faced various land use decisions upon rebuilding tsunami-swept coastal areas. The unprecedented scale of the tsunami devastated residential areas required entirely new rationales and programs to rebuild resilient communities. The first two years post-tsunami were mainly used for creating recovery frameworks including land use plans, community-rebuilding programs, and funding schemes for the affected cities. Four main community-rebuilding programs were prepared: i) collective relocation; ii) land raising and readjustment; iii) strengthening disaster management functions in fishing communities; and iv) public housing. Use of at least one of these programs allowed cities to have almost no budget ceiling as long as the national government approves their plan. As result, 682 communities from 67 local governments used at least one of the four programs to proceed with their plans for greater resilience (Iuchi & Olshansky, 2018). Seven years later, people have returned to some communities, while others continue to be less populated.

This article focuses on three tsunami-affected cities in Tohoku: Higashi-Matsushima and Kesennuma in Miyagi Prefecture, and Rikuzen-Takata in Iwate Prefecture. While all were devastated, the type of damage varied – Higashi-Matsushima had some areas completely wiped out whereas in other areas some structures sporadically remained; Kesennuma had structures inundated but still standing; and Rikuzen-Takata lost almost all of their downtown. Given the difference in damage, I examined the various city decisions on land use to be more resilient, and how they applied community-rebuilding programs to implement these decisions. The primary resources used for this article come from multiple interviews and fieldwork conducted during summers of 2016 and 2017. I interviewed government officials who were involved in the land use planning process, and who collaborated with communities upon program implementation. I additionally collected publicly available information such as governmental documents and newspaper articles related to zoning implementation, and conducted site visits to confirm rebuilding status.

All three cities had similar decisions in terms of timing to develop and pass land use plan and zoning resolutions that reflected tsunami-simulation results, and proceeded to community reconstruction in general. There are several findings on land use mechanisms. First, while the national government only provided four types of community-rebuilding programs, all cities proceeded with community rebuilding in different ways. However, variations in zoning and program adoption were mostly due to the physical circumstances of each city, rather than to their ability to make independent decisions based on local values. Second, while some cities adopted land raising and readjustment aiming to keep residents in the original downtown, the time required for these programs prompted residents to move away and rebuild elsewhere, thus increased the risk of reconstruction without residents. Finally, the varying communication methods between cities and residents regarding decisions on land use and programs resulted in differing rebuilding procedures, which are ultimately reflected in the resulting spatial form.

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Key Words: Recovery planning, Resilient land use, Great East Japan Earthquake, Relocation, Land raising and readjustment

THE MONOCENTRIC MODEL AND URBAN SPATIAL STRUCTURE IN GERMANY

Abstract ID: 18

Individual Paper Submission

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In explaining the determinants of urban spatial structure, researchers have relied, both conceptually and empirically on the traditional monocentric “Alonso-Mills-Muth” model, due to its simplicity and reliability (Brueckner and Fansler, 1983; Spivey, 2008; McGrath, 2005; Paulsen, 2012; Oueslati et al., 2015). This paper contributes to this discussion by testing the viability of the monocentric model when applied to metropolitan areas in Germany. We estimate the model with a unique dataset covering 119 metropolitan areas over two time periods (2000 and 2014), which allows estimation in both a cross-sectional and a panel framework This allows us to not only empirically analyze the monocentric model outside the US, it allows us to test whether the underlying determinants of urbanization vary according to factors unique to the German context, including the role of historical geography, regional polycentricism, and urban shrinkage. We find that the monocentric model was able to explain between 86% and 93% of the variation in city size, similar if not higher than comparable US based studies, and much higher than the results from Oueslati et al. (2015). We found evidence that regional geography did matter. The coefficient for the dummy variable for the cross sectional models indicate that, all else being equal, an eastern metropolitan region is associated with an urbanized area that is 6,765 hectares smaller than one in the west in 2000. IN addition, our proxy for polycentricity, the number of central places, was positive and highly significant. For the cross section and panel models, each additional central place per metropolitan region was associated with between 513 and 820 hectares of additional urbanized area, all else being equal. Finally, we found that the model works effectively for both shrinking and non-shrinking cities, however there are some notable differences. The estimated elasticities for both transportation costs and per capita income are negative. The later finding suggests demand actually decreases with rising incomes.

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Key Words: monocentric model, urban spatial structure, German metropolitan areas, Alonso-Mills-Muth

THE SMALL WORLD OF LOCAL FOOD SYSTEMS: LINKS BETWEEN LAND REGULATIONS, PRODUCTION PRACTICES, MARKETS, SUPPLY CHAINS, SOCIAL NETWORKS, BODIES AND SOCIAL CHANGE

Abstract ID: 23

Individual Paper Submission

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This research offers empirical and theoretical insights into the ways that social values, social networks, markets, and governance systems align to transform physical landscapes and human bodies. In market chains, power manifests through social connections that guide economic flows connecting sites of resource extraction with sites of distribution. The local food system is an example of a movement that seeks to reorient both landscapes of production and the diet-related health of consumers. This research employs geo-social network analysis and a socio-ecological framework to identify the social and spatial structure of the local food system. Findings reveal a small world network aligned with land-use regulations. Community governance over land-use suggests a powerful mechanism for further localizing food systems in an increasingly globalized world.

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Key Words: social movement, social network analysis, general plan, local food, supply chain

THE DRONE PROLIFERATION: A NEW CHALLENGE FOR URBAN AERIAL SPACE

Abstract ID: 30

Individual Paper Submission

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Unmanned Aerial Vehicles (UAVs), more widely known as drones, have rapidly found their way back into civilian life from the military battleground over the past decade (Jensen, 2016). As of January 2018, more than one million drones, most of them owned by hobbyists, are registered with the Federal Aviation Administration (U.S. Department of Transportation, 2018). Besides the burgeoning market for affordable recreational drones, growing demand for commercial drones in surveillance, inspection, mapping, and other applications also fuels the proliferation of civilian drones. As both the quantity and usage of civilian drones grow, so do safety, security, and privacy concerns over drone operation, especially in densely populated urban areas (Gallacher, 2016).

The impact of drone proliferation on urban space has been analyzed primarily from a conceptual or theoretical perspective. Insufficient evidence has been provided to inform the academic claims and policymaking practically. The most recent published data on drone registration and drone-related incidents, along with the census data, offer the opportunity to examine the question: How have civilian drones spatially affected U.S. cities, and what lessons can be learned to inform future planning policy?

To address these questions, this study has 1) mapped the spatial distribution of more than one million registered drones by usage and more than three thousand drone-related incidents in the U.S. between 2014 and 2018; 2) constructed a unique dataset of drone-related incidents based on textual FAA UAS Sightings Reports to provide comprehensive and quantifiable coverage on the altitude of sightings and types of incidents; and 3) combined the above datasets with Census data to explore the socioeconomic characteristics of drone users and the cities in which drones are densely distributed. In general, we have seen a surge in drone counts and incidents across the U.S. over the past few years. The map, at the most disaggregated level (ZCTA), provides a snapshot of the uneven distribution of drone registration as well as drone incidents. Urban and coastal communities with high population densities or a high proportion of the population working in MBSA (management-business-science-arts) tend to have more drones. The spatial-temporal analysis of the dataset indicates that drone incidents and drone registrations are positively correlated ($r=0.94$).

As the number of civilian drones and their users is growing rapidly, the drone threat to cities is bound to increase (Rao, Gopi, and Maione, 2016). This study provides a systematic analysis of the best available data on drone registration and drone incidents in the U.S. More importantly, however, identifying the spatial pattern and socioeconomic characteristics of civilian drone users could help regulators and policymakers to make better-informed decisions and address the risks created by the proliferation of drone in urban settings.

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Key Words: Drones, Spatial distribution, Community, Safety

URBAN DEVELOPMENT AS A LOCAL POLITICAL PROCESS: PROJECTS IN THE PARIS REGION

Abstract ID: 32

Individual Paper Submission

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This paper argues that local politics and variations in ideological preferences impact the incorporation of affordable housing in large urban redevelopments. Many scholars contend that these projects, which are a major focus of planning for cities through Europe (Pinson, 2009), are oriented toward neoliberal economic development; democratic participation is limited, and the usual result is increased inequality across territories (Swyngedouw et al., 2002). The implication of this line of argument is that, faced with the realities of global competition and a national state rescaled away from pursuing redistributive aims (Brenner, 2004; Sassen, 2001), municipalities have little room to maneuver; larger patterns effectively dictate the displacement of the poor in favor of the wealthy. Enright (2016), for example, argues that the Paris region is undergoing “generalized gentrification” even in areas dominated by putatively left-wing politics. The structuring premise of this school of thought, therefore, is that major redevelopment projects will produce regressive outcomes regardless of the ideological composition of political actors involved.

Is it possible for such projects to achieve progressive outcomes, or are neoliberal urbanism and generalized gentrification unavoidable in the context of the metropolitan economic and institutional landscape? And does the complexion of municipal-level politics impact the building program of major development projects?

This paper evaluates these questions through a case study of Île-de-France, the region that encompasses Paris and the hundreds of suburban municipalities that surround it. It is growing relatively quickly, putting pressure on the

local housing market, but the region's wealth is unevenly distributed, with some suburbs suffering from high levels of poverty while others are among the richest in the world. Moreover, political persuasions vary markedly from one municipality to another, with right-wing, left-wing, and centrist leaders in power in different parts of the region. On the other hand, what holds true across these municipalities is that they have embarked on the construction of massive mixed-use development projects.

In this paper, I conduct a quantitative analysis of these projects to track outcomes between municipalities of different ideological leanings. I rely on data supplied by the regional planning agency to identify the locations of the more than 1,400 recent large developments, as well as characteristics such as the nature of the developer (public, private, or public-private partnership), the square meters of different building uses, the share of housing units devoted to low- and moderate-income families, and the date of planning and completion. I combine these data with information about the political party of the elected officials, demographics, and economic conditions in the municipality in which each project is located, in the period when it is planned and constructed. I then provide both descriptive data and results of multi-variate regressions to identify the connection between the leadership and electorate's political ideology and project characteristics.

My initial findings suggest that major development projects in the Paris region present variegated outcomes, in some cases supporting the claim that their primary goal is gentrification, while in others offering evidence that an alternative politics is possible. Projects in municipalities with left-wing mayors include, on average, significantly more affordable housing as a share of total project housing units than those in cities with centrist or right-wing mayors, even after controlling for local demographics, economy, and year of construction. The former projects are ultimately achieving integrative aims, not pushing the poor out or encouraging inequality. This finding suggests that in large metropolitan areas, development projects are considerably impacted by local politics and ideological preferences; this nuances the arguments according to which a neoliberal rationality will tend to prevail in policymaking no matter the variations in these factors.

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Key Words: Development, Politics, Neoliberalism, Paris

MUNICIPAL ANNEXATIONS IN ALBERTA, CANADA: GOOD, BAD OR INEVITABLE?

Abstract ID: 56

Individual Paper Submission

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Annexation is the most common form of municipal government reform and boundary restructuring, in the province of Alberta and elsewhere in Canada. Saskatchewan is the only other province that has had more incidents of annexations than Alberta. However, in proportion to the number of municipalities, Alberta has had the highest % of annexations in the last 15 years (at about 48%).

The process of annexation essentially lets a municipality permanently acquire and incorporate territory of an adjacent or non-contiguous municipality. Given its prevalence, annexation significantly affects both urban (usually annexing municipality) and rural agricultural communities (usually annexed municipalities) in terms of their boundaries, revenues, land and other resources. Annexation in Alberta is not subject to any ex post facto

review. Therefore, no systematic or comprehensive study currently exists on annexations in Alberta, despite being the most common and frequent form of municipal government reform.

This paper will present the findings of the study that examines how effective annexation has been in expanding municipal boundaries and what the wider financial and other implications are of this strategy, more specifically, how and even whether it contributes to local or regional growth, strengthens the municipal tax base, and contributes to making urban-regional economies healthier. The findings are based on the analysis of data collected from a select set of cases from the hundreds of annexations approved since 1995 along with interviews with the municipal and provincial officials.

It is important to note that contrary to popular belief, most annexations in Alberta are uncontested and occur in smaller and rural parts of the province. Our preliminary findings suggest that the main reasons behind annexations are one or a combination of two or more of the following municipal intentions: 1. to satisfy the demand of lands from growing population in annexing municipality; 2. to create a land bank with the assumption that it will attract developers and thus will spur growth; 3. to increase municipal revenues by expanding non-residential use on the annexed lands; 4. to fulfill the needs of a large landowner who stands to benefit from annexation; 5. to acquire a utility facility that is key to the annexing municipality, for instance, a water treatment plant; or 6. to introduce more develop-able land to the municipal inventory because the current develop-able land within the annexing municipality is sterilized. Reasons for sterilization could include: land owners not motivated to develop their land holdings, the develop-able lands too expensive to build upon because of geo-technical issues or the federal regulations prohibiting any development in and around certain parts of the annexing municipality.

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Key Words: annexation, Alberta, Canada, municipal boundary

RESHAPING A TENANCY MODEL IN JAPAN: FARMERS AND THE FARMLAND BANK PROGRAM IN A DELTA SUBURBAN COMMUNITY

Abstract ID: 63

Individual Paper Submission

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Tenancy provides a channel to improve efficiency in land use through bridging different needs and interests in land between owners and users (Deininger and Feder, 2001). In an attempt to reverse the trend of farmland abandonment and revitalize the farming sector in Japan, the government has introduced the intermediary mechanism to bring new actors and resources into tenancy so as to promote large-scale farming for better economy of scale. Building on several successive models emerged since the 1970s, the latest model gives more power to prefectural authorities through a cross-level intermediary mechanism, called the Farmland Bank (FB) program. By design, the program allows the FBs to accommodate tenants, including business corporations and outsider farmers, in tenancy arrangements without landowners' consent. This is a major turning point in agrarian reform since the postwar era when farmers have been given the role as primary decision makers in private farmland use.

This paper explores why and how farmers have accepted the FB program. Farmers have historically exerted political pressure towards the state to nurture the policies protecting their vested interest in holding farmland (Mulgan, 2005). At the same time, they often face cost-benefit trade-offs in farming such as those between profit making and environmental stewardship, which have ramifications for sustainability (Chouinard et al., 2008). To better deal with interactions associated with ecosystem goods and services traveling across administrative boundaries, multi-level governance (MLG) has emerged as a form of governance specifically involving and delineating the interlinkages between the levels (Cash et al., 2006). Carefully taking into account the challenges such as subsidiarity and dependency, scholars and practitioners have proposed various governance architectures such as co-management and polycentric governance (e.g., Ostrom, 2010). Yet, less attention has been given to the interplay of farmer's value perspectives in governance processes.

The study employs MLG as an analytical framework to explain how farmers have interacted with other social agents in both public and private sectors in shaping and accepting the tenancy model. The analysis is explored with postwar institutional changes at the household, community, administrative, state and international levels. To delve into the status and drivers of farmers' participation in the FB program, the study focuses on a farming community in Ishikawa Prefecture in the context of rice production that is no longer a sanctuary for trade. Despite several infrastructural investments in farmland, the community has experienced the continuous decrease in farming population along with suburbanization, leading to accumulation of farmland under the management of few farmers through tenancy. Based on semi-structured interviews with 23 farmers, the study finds that the community at large developed locally-based tenancy arrangements but was yet to achieve consensus on communal farming to allow for collective program adoption. Most farmers continuously relied on direct tenancy contracts between local owners and users to maintain a sense of security in managing farmland as a household asset. On the other, a few took advantage of the program by retiring from farming to be eligible for subsidies but leveraging the locally-based arrangements prior to the FB's intervention in tenancy.

The findings show that the model has been reshaped through the interactions involving farmers as active social agents in the process. The results also elucidate interlocking transitions of households and communities in connection with broader contexts, along with the change in farmers' perspectives involving tensions between material and subjective aspects of farmland. Beyond the program evaluation, this paper will provide scholars and practitioners with insights into dynamic and transformational nature of social agents and their interactions involved in land governance.

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Key Words: Multi-level governance, Land use, Tenancy, Farmland, Agricultural policy

GETTING TO GREEN: THE CHALLENGE IN TRANSFORMING LAND USE IN LEGACY CITIES

Abstract ID: 101

Individual Paper Submission

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In the last decade urban planners have created plans that address ways to adjust to population loss and property abandonment. Such plans issue prescriptions for large scale changes in land use. Proposed land use maps show repurposing of large swaths of disinvested residential areas for green uses of varied types that improve city conditions. But how would this transition take place? The value of property is low. The highest and best use of property may be a dumped-on vacant lot; therefore, private development will not make the change occur. Residents, place-committed nonprofits, and city officials may want transitions to take place, but resources for making the change are scarce.

This research examined what helps and hinders such a transition by looking at what might be the easiest of these land use changes—the transition from derelict structure to green stormwater infrastructure (GSI). The research looked particularly at governance of this land use change. To study this issue, the research compared Detroit's and Cleveland's experiences. These cities have similar, weak demand for land and large numbers of vacant lots; they face similar requirements from the EPA to stop discharging stormwater and untreated sewage into nearby bodies of water. The cities differ in ways that could mean governance works more effectively in Cleveland for installation and maintenance of GSI because city and county governments often collaborate more than in Detroit and because the nonprofit community development system is stronger in Cleveland. The research also compared the experiences of two projects to install GSI in Detroit neighborhoods, one that the authors participated in and another that also aimed to install GSI on vacant residential property. The authors investigated governance through public documents and other materials available in print or on the web, news stories, interviews with key informants whose jobs related to GSI, observations at meetings and conferences where governance of GSI was discussed, and participation in a project with Detroit Water and Sewerage Department and the Detroit Land Bank Authority to build four GSI projects.

The results showed, contrary to expectations, that Cleveland and Detroit faced similar, significant barriers of governance in installation and maintenance of GSI. In Detroit, the two initiatives experienced the same, substantial hurdles in installing GSI, consistent with expectations. Despite challenges, projects were implemented. Federal requirements provided no choice without complex renegotiation of legal agreements. Further, city officials, staff from nonprofit organizations, and others were enthusiastic about increasing the use of land for GSI. In both cities and in both Detroit projects, personal relationships resolved issues that blocked implementation. In Detroit the commitment of leaders of key departments was essential for making changes happen. Nevertheless, making the land use change was very difficult for numerous reasons. For instance, city systems were not adapted for installation and maintenance of green infrastructure. Who was responsible for what was unclear. Departments and sections of departments needed to work together in unfamiliar ways. City ordinances, departmental responsibilities, and infrastructure investments were configured for the context of growth and development and were based on the goal of getting water to the treatment plant efficiently. Systems did not exist for permits and inspections, and regulations had not been written for installation of GSI. Mayors had other important priorities so did not press departments to address GSI. Neither city provided sufficient citywide approved plans or frameworks for location of GI. In other words, land use transformation requires governance transformation, a difficult change.

In both cities, some officials are working to improve systems and establish routines for installation of GSI. Over the next few years, considerable changes are likely to improve these processes.

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Key Words: green stormwater infrastructure, disinvestment , land use transition, legacy cities

EVALUATING FARMLAND PRESERVATION POLICIES WITHIN THE CONTEXT OF CHANGING AGRICULTURAL LAND MARKETS

Abstract ID: 108

Individual Paper Submission

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Planners designed farmland preservation programs to protect agricultural land from encroaching upon urban development by (1) recognizing the difference between the agricultural value and the fair market value of open land and the associated tax implications, (2) establishing ordinances with large minimum lot sizes and restricted residential and commercial land uses, and (3) adopting voluntary programs for removing the development rights of specific parcels (Daniels & Bowers, 1997). Urban development still threatens farming operations and agricultural land uses in peri-urban areas, but other conditions are emerging in rural communities that affect the viability of family farms. The simultaneous trends of farm consolidation and investor landownership interact with the opportunities and processes that family farmers employ to access land through rent, purchase/sale, and transfer processes. The trend towards large crop farms (i.e., 2,000 acres or more) has been prevalent since the 1990s (MacDonald, Korb, & Hoppe, 2013) and since the 2008 stock market crash, investors have become interested in owning farmland as a way to diversify their portfolio and decrease risk (Fairbairn, 2014). It is necessary to understand these phenomenon within the context of each other (Rotz, Fraser, & Martin, 2017; Visser, 2017) but given the emergent nature of investor ownership, it is the key issue here.

The paper combines farmland preservation and land financialization research to evaluate the relationship between existing policy assumptions and objectives in planning and changing social and economic contexts in agriculture. I contextualize the issue from the farmland preservation literature that analyzes how planners developed and implemented programs and the emerging asset making theories that describe the process for transforming farmland into a secure financial asset. In addition, I analyze present conditions through two inductive methods: First, I conducted semi-structured interviews with farmers and agricultural professionals about their understanding of who is renting and buying land and how the new owners affect farmland markets. Second, I worked with the State of Wisconsin Department of Agriculture, Trade, and Consumer Protection to digitize and map parcels that have been rezoned from a certified farmland preservation zoning district to another land use category. The GIS analysis identifies changes in ownership, parcel size, and zoning category and identifies land use change hot spots. I argue that farmland preservation programs must acknowledge and address two trends in agricultural land markets: investor ownership and land financialization and I recommend how planners can integrate land access issues into their practices.

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THE TENSIONS OF TRANSPARENCY IN LAND USE PLANNING & PROJECT SITING

Abstract ID: 182

Individual Paper Submission

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The concept of government transparency is generally uncontroversial and intuitively appealing. Indeed, transparency has become a staple of government reform efforts, both in the United States and internationally. Yet, government transparency – as currently understood – is not a timeless feature of democratic governance (Pozen, forthcoming; Schudson, 2015). It emerged as an ideal only in recent decades, and its implications for urban and environmental planning have gone largely unexamined. This article remedies that deficit, identifying the tensions of transparency in land use planning and project siting.

In the planning and policy context, transparency is an imprecise metaphor. A material is literally transparent when it has "the property of transmitting light, so as to render bodies lying beyond completely visible" (OED Online, Jan. 2018). If we can see a mannequin (a body) behind a shop window, then the window (a material) is transparent. But, in the realm of government transparency, there is no physical body that will be revealed or obscured by an intervening material. Instead, the object of observation is information.

Whether information is produced and – if so – what kind of information is produced may hinge on the beliefs of the prospective producers of information about the accessibility of that information to others (Fenster, 2006; Mansbridge, 2009). In particular, as detailed in this article, requirements concerning government transparency can influence both the content of communication itself and the institutional framework within which communication occurs. For example, if e-mail correspondence is subject to disclosure under a freedom information law, then environmental regulators may forgo communication when in-person or telephone communication is not possible. In the economic development context, proponents of public-private development projects may prefer to rely on government institutions, such as economic development corporations or redevelopment agencies, that are distinguished by their relatively limited transparency requirements (Pacewicz, 2016).

We surveyed the state of planning research on transparency, searching research articles published in the *Journal of Planning Education & Research* and the *Journal of the American Planning Association* between January 2000 and June 2017 for the terms "transparent" or "transparency" anywhere in the article. Our analysis, detailed in this article, indicates that scholars commonly use the term "transparency," frequently in order to define central concepts or explain key conclusions. But the term itself is rarely defined, operationalized, or critiqued. This is problematic, because central practices of contemporary planning, such as environmental impact reporting and public-private project development, are often justified (in the case of the former) or criticized (in the case of the latter) by reference to transparency or lack thereof.

Our purpose is neither to criticize nor to extol the phenomena associated with transparency, but to demonstrate that planning scholars and practitioners should not treat transparency as either self-explanatory or unproblematic. First, we briefly review the evolution of the concept of government transparency during the latter half of the twentieth century. Second, we demonstrate how, in the twenty-first century, planning scholars have largely treated the concept of transparency as unproblematic. Third, drawing on examples from prior research and primary source documents, we identify the tensions of transparency in the context of land use planning and project siting, focusing on open meeting requirements, freedom of information laws, and environmental impact assessment mandates. In particular, we show how the goal of transparency can impede deliberation, confer special advantages on relatively well-resourced parties, and thwart social-welfare-enhancing projects. Finally, we discuss the tradeoffs inherent in contemporary approaches to transparency as well as the implications for planning research and practice.

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Key Words: government transparency, land use planning, freedom of information, environmental impact assessment, open meeting laws

TO PARTICIPATE OR NOT TO PARTICIPATE IN TOWER RENEWAL? THE INVOLVEMENT OF LOCAL COMMUNITY-BASED ORGANIZATIONS IN URBAN REVITALIZATION PROJECTS IN TORONTO

Abstract ID: 316

Individual Paper Submission

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Over half a million Toronto residents live in aging postwar apartment buildings and neighbourhoods predominantly scattered on the city's periphery. These residents—who are more likely to be lower-income, recent immigrants and visible minorities, and families with children—face significant challenges due to the lack of adequate social and physical infrastructure in these neighbourhoods (City of Toronto, 2013; Young & Keil, 2014; Cowen & Palette, 2011; Hulchanski, 2010). In 2008, the Toronto City Council adopted the Tower Renewal program with the aim of revitalizing an estimated 1,200 postwar apartment buildings and the surrounding neighbourhoods (City of Toronto, 2011). In Tower Renewal promotional documents, the participation of the non-profit sector, and specifically local community-based organizations (CBOs), is said to be crucial in the implementation of this municipal revitalization program at the neighborhood scale. Historically, CBOs have played critical roles in advocating for community rights and services. In the current era of neoliberal governance and municipal budgetary constraints, however, CBOs are often shifting their roles from community advocacy towards governmental policy implementation and social program delivery. This has been highlighted in the concept of the 'shadow state' (Wolch, 1990), which describes the proliferation and active role of the non-profit sector in addressing the social service voids left behind by the retreating, yet also managerial, government. Building on this notion, this paper examines why local CBOs have become critical partners in the delivery of the Tower Renewal program and other municipal policy and programs in Toronto's marginalized neighbourhoods. Emphasis is also placed on exploring the opportunities and challenges that CBOs face when increasing their participation in the rollout of these policies and programs. These research topics are investigated through a case study analysis of a Tower Renewal project in east Scarborough, Toronto and the involvement of a local community-based organization—the East Scarborough Storefront ('Storefront'). Data was gathered through 30 semi-structured interviews with staff from the Storefront and the Tower Renewal office, architects, and other actors involved in the implementation of this particular project. This case study highlights the important role that local CBOs, such as the Storefront, can play in municipal policy implementation in marginalized communities. The Storefront was a valuable neighbourhood partner in the rollout of this Tower Renewal project because they had already gained the trust of tenants and residents, had knowledge of local networks, and a mandate that focused on providing backbone support to residents and community-based projects. However, the Storefront also struggled to find adequate and longer-term resources and staff to address their increased involvement in the implementation of this municipal revitalization program. In this way, Tower Renewal portrays both the contemporary turn in municipal policy implementation where emphasis is placed on partnering with the non-profit sector, as well as the continuation of the systemic under-funding of this sector while increasing their responsibilities. The current lack of funding and the ad hoc nature of CBO involvement in Tower Renewal raise important questions regarding the politics of engaging the non-profit sector in municipal policy implementation. These questions include the extent of CBO involvement, which CBOs will have the resources to participate, and what that means for their historical role as community advocates. We suggest that engaging with these issues is

important for the non-profit sector and the local government in Toronto in order to build sustainable ways for local CBOs to participate in urban revitalization projects.

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Key Words: urban revitalization, local community based organizations, municipal policy implementation, marginalized neighbourhoods, postwar apartments neighbourhoods

THE ECONOMICS OF MIXED-USE DEVELOPMENT – AN EMPIRICAL STUDY IN THE CITY OF SEATTLE

Abstract ID: 371

Individual Paper Submission

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Mixed-use development, commonly observed in cities, has been widely advocated by urban planners as an important tool for sustainable urban development. Yet, the concept of mixed-use and the conditions under which it is economically desirable have not been well defined or explained in existing urban economic theories and land use studies. A comprehensive literature review suggests three major research gaps. First, a disconnection can be found between the theories of mixed-use development and its empirical studies. Secondly, in measuring the economic benefits of mixed-use developments, the direct benefits from the mixed-use project itself and the indirect benefits to the surrounding neighborhood of the project has not been distinguished properly, which leaves the trade-offs and the distribution of benefits under-discussed. Thirdly, though mentioned in a few historical studies of mixed-use development, the role of institution and organizational structure has not been explicitly and systematically elaborated in the literature.

This study explores three dimensions of mixed-use development that have been commonly recognized in existing literature – the functionality, the spatial layout, and the organization and managerial structure – utilizing the CoStar Group database. The CoStar data contain detailed building and contact information that covers 19,610 commercial properties in the City of Seattle. The dataset is joined with datasets from the King County Tax Assessor to obtain related financial and zoning information. The property-level data enable us to distinguish between direct and indirect benefits of mixed-use development, with the former as benefits gained by mixed-use properties and the latter as benefits obtained by properties near mixed-use properties. Based on literature, we define mixed-use as a property with more than two secondary uses.

To measure the organizational and managerial structure of each property, we adopt two common indicators in the institutional economic literature – vertical integration and horizontal integration – by matching the three recorded company addresses: owner company address, leasing company address, and property managing company address. The first measures the level of hierarchy of the managerial structure by counting the number of matches among the three addresses of a same property. A number of 3 matches means the property is owned, leased, and managed by the same company, which indicates a higher level of hierarchy, while a number of 0 match indicates a more decentralized managerial structure. The second indicator measures the degree of market concentration by counting

the number of properties that share the same address for owner or property manager. In this case, a larger number of matches means the company that owns or manages the property has a higher percentage of market share and vice versa. The result shows that mixed-use properties on average have more centralized managerial structures measured by the degree of vertical integration, whereas non-mixed-use properties have a higher average degree of market concentration. The paper employs the transaction cost economic theory as an alternative framework to interpret the results.

We use tax per square feet, recent sale price, and vacancy rate to measure economic performance. On average, mixed-use properties have 9% lower recent sale price, and 20% lower vacancy rate than non-mixed-use properties. Tax per square feet is 50% higher for mixed-use properties. To understand what drives these differences, especially the roles of vertical integration and market concentration, hedonic models are estimated. To control for spatial autocorrelation, both a hedonic model with market clusters as fixed effect and a spatial lag model are tested. The paper is expected to provide not only new frameworks and methodologies to characterize mixed-use development, but also insights for future planning and development decisions on mixed land use.

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Key Words: mixed-use development, vertical integration, market concentration, hedonic pricing model, transaction cost economic theory

...AND WELFARE?: THE ARTICULATION OF DESIGN'S SOCIAL RESPONSIBILITIES THROUGH IMPACT ASSESSMENT IN BUILDING CERTIFICATION PROGRAMS

Abstract ID: 372

Individual Paper Submission

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How buildings and urban developments perform is no longer taken for granted. An increasingly complex ecosystem of materials certifications, urban indicators, building codes, certifications, and ratings systems have emerged in recent decades that aspire to predict the performance of these interventions. But these programs are socially situated, the products of the socio-technical networks in which they originate, a fact that requires mindfulness about what these programs actually value, what they leave out, and the kinds of knowledge these predictive approaches reflect and perpetuate.

Rating and certification programs in particular have blossomed in the green building sector of the design and construction market since the 1990s. Although originating with a focus on environmental sustainability, these programs have evolved over time, and new programs have been initiated, which increasingly emphasize the social impacts of building. Through a comparative content analysis of these programs' missions, goals, credit structures, and governance models, this study explores the ways that social impacts metrics are increasingly integrated in building certifications.

These programs use a range of diverse measures and objectives to describe the social impacts of the projects and communities they address, including equity, aesthetics, wellbeing, and social capital, each of which inflects social impacts differently. These programs will also be analyzed in terms of the richness of pathways for affected

communities to inform the articulation of these values and to participate in data collection.

Drawing from the STS literature, this content analysis deconstructs the black boxes in which building assessment systems operate in order to understand their social construction and how these values are then codified into the built world. Critically engaging with the potential efficacy of these social impact measures to incent better land use practices, this study will consider how social impact goals are set, how data is gathered, and what challenges and opportunities remain as building assessment systems continue to attempt to illustrate and value the less tangible impacts of land use decisions. Our analysis brings in best practices in assessment from other fields to better grasp how social impacts are measured when making decisions about land use in vulnerable communities.

Building assessment systems increasingly influence, and sometimes guide, local land use regulations, and are often passively received by local policy makers as a proxy for ethical development standards. These policies can also inform the policies of federal and state-grant making agencies, impacting entire real estate market sectors, notably affordable housing via evaluations of applications for Low Income Housing Tax Credits, and thus exhibiting the potential to redefine what constitutes social value for vulnerable populations who may not have significant agency in the production of these knowledges. The planning discipline's inherently interdisciplinary lens and applied orientation is well suited to more deeply and critically analyze the implications that these assessment systems have on land use decisions, and on the residents living in the communities effected by such rubrics.

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Key Words: Building assessment systems, social impact metrics, sustainable community development

IMPACT OF AN URBAN GROWTH BOUNDARY ON HOUSE PRICES: A QUANTILE REGRESSION APPROACH

Abstract ID: 380

Individual Paper Submission

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Central theme or hypothesis

An Urban Growth Boundary (UGB) is a popular growth management tool that is often used to preserve farm or environmentally sensitive land and promote denser development. However, researchers highlight the potential negative impacts of UGBs, including increase in house prices, largely because a UGB could restrict the supply of developable land which, in turn, could restrict housing supply. The extant literature has empirically estimated the house price impact of a UGB on an average-priced house only. This study advances research by estimating King County, WA, UGB's price impact across the entire house price spectrum. Thereby, the project investigates whether lower-priced houses are more likely to increase/decrease in price compared to higher-priced houses.

Approach and methodology

This study uses a dataset that inventories sales transactions of single-family homes within two miles of either side of the Eastern boundary of the primary UGB in King County, Washington. Specifically, this study seeks to

answer the following research questions:

- Q1. Controlling for other factors, what is the impact of a UGB on house prices for each decile of house price?
Q2. How much of the house price change is due to the change in land price?

Using quantile regression, I ran nine (9) regression models, one for each decile of house prices—from the first decile to the ninth decile. The quantile regression method offers three main advantages over the ordinary least squares (OLS). First, the OLS only measure the average relationship between a set of independent variables (x) and the dependent variable (y) based on the conditional mean function $E(y|x)$. Therefore, it does not describe the relationship at different points in the conditional distribution of y . Quantile regression overcomes this limitation. Second, quantile regression does not assume normal distribution of error terms in the regression equation, which OLS does. Third, the OLS assumes constant variance of the error term. This assumption is violated if the variance changes with change in y . By running a separate regression model for each subset of y , quantile regression reduces this violation.

Findings and relevance of work

This study finds that the UGB increases the price of land across the entire housing price spectrum with the effect increasing with an increase in house price. However, the UGB does not increase house prices—in fact, the UGB decreases house prices across almost the entire housing price spectrum, except for the houses in the 9th decile. These two findings indicate that a UGB is not likely to result in an overall increase in house prices, especially if the houses are on small lots, therefore, the land price is a smaller proportion of the price of the house compared to the houses on large lots. These findings should also encourage policy makers to adopt a more nuanced—housing sub-market-level—set of policies to mitigate the anticipated inflationary price effect of a UGB by facilitating housing supply in whichever housing sub-markets a UGB is likely to increase house prices.

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Key Words: Housing Markets, Growth Management, Urban Growth Boundary

DEVELOPMENT REGULATIONS REDUCE LAND UTILIZATION EFFICIENCY IN INDIA CITIES

Abstract ID: 451

Individual Paper Submission

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The purpose of this study is to examine the long-term big impacts of small regulations in Indian cities, taking the case study of Ahmedabad, which has a population of 7 million people, making it the fifth largest city in India, and also one of the fastest growing Indian city. This paper argues that general building density levels in city centers are too low to maximize land values and land utilization efficiency. This results in gross utilization of valuable and scarce serviced urban land, which does not make economic sense in Indian cities experiencing rapid urbanization. Building regulations result in underutilization of scarce urban land, increased land prices and suburbanization by pushing development into the urban fringes.

Restrictive regulations in Indian cities are often a result of misguided and deliberate attempt by local governments to keep densities low. They restrict maximum amount of built floor space by imposing building heights, FAR, ground coverage, and margins and setbacks requirements. FAR restrictions not only result in suburbanization of housing, but also jobs (Sridhar 2010). Height restrictions result in suburban sprawl and impose social costs due to artificial scarcity (Brueckner 2009), in Bangalore the welfare cost is approximately 2% of the household income which can range from 1.5-4.5% (Bertaud and Brueckner 2005, Brueckner and Sridhar 2012). Bertaud and Malpezzi (2001) found that the key regulations that drive up price of urban land may not always be FAR or minimum lot size restrictions, but also road space and setbacks. Further, a recent study in Ahmedabad found that imposing FAR, building heights, parking, setbacks, and elevator requirements reduces the supply of affordable housing by as much as 75% and increases prices by 34%, fueling the formation of slums (Patel et al. 2018).

We select four prime business districts of uniform size (25 ha) under commercial and mixed use in various parts of Ahmedabad for analysis. These have developed during different periods under varying sets of regulations: Ashram Road (oldest commercial development before 1980), CG Road (older development from 1980s onward), Prahlad Nagar (development since 1990s), and SG Highway (recent development since 2000s). Several built form parameters are examined, including: areas under public domain such as streets and open spaces, as well as areas under building footprint, private open spaces, parking, intersections, block sizes, and building density (FAR).

Analysis of building regulations show that setbacks and margins particularly limit supply of prime land on the most valuable ground floor and result in wasted peripheral space not used efficiently, and results in wasted space not used efficiently by the owners/users. Results show that regulations have prevented efficient land utilization in prime commercial areas, and continue to restrict supply of serviced urban land, creating distortions in the urban land market. This study shows that under-utilization of land in Indian cities is not a local but a city-wide phenomenon, imposing immense economic costs on the city, and is a direct long-term outcome of economically irrational building regulations.

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Key Words: Development regulations, Land development, Land under-utilization, Ahmedabad, India

EXCLUSIONARY ZONING AND THE LIMITS OF JUDICIAL IMPACT

Abstract ID: 468

Individual Paper Submission

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Regulatory restrictions on residential development are widely recognized as a leading cause of rising rent burdens, increasing home prices, and income segregation in the United States (Lens & Monkkonen, 2016; Quigley & Raphael, 2004). The use of local regulatory authority to thwart projects affordable to low- and moderate-income (LMI) households is commonly described as exclusionary zoning. State courts can take the lead on curbing exclusionary zoning, but the efficacy of such judicial intervention is a matter of debate.

Courts in the neighboring states of New Jersey, New York, and Pennsylvania have taken divergent approaches to exclusionary zoning, and we assess whether this variation has affected the availability of LMI housing over a 40-year period (1970-2010). Much previous analysis concerning the efficacy of judicial intervention in exclusionary zoning provides no empirical test (e.g., Fischel, 2015; Payne, 1997; Haar, 1997). This study fills that gap.

In New Jersey, the state's highest court interpreted the state constitution to require municipalities to accommodate their "fair share" of LMI housing, and it fashioned a set of remedies to implement this requirement. New York State law, by contrast, does not provide powerful legal remedies to compel suburban jurisdictions to accommodate LMI housing. Pennsylvania courts typically require municipalities to accommodate a diversity of land uses and have imposed some constraints on large-lot single-family zoning. But Pennsylvania courts have not embraced New Jersey's "fair share" requirement for housing restricted to LMI households.

This variation among the three states, combined with their geographical proximity, permits empirical assessment of judicial efforts to combat exclusionary zoning. We use difference-in-differences models to analyze the impact of state judicial intervention on the stock of different types of housing units in northern New Jersey and southern New Jersey with, respectively, adjacent portions of New York State and Pennsylvania. We use person-level microdata to validate our use of housing type as a proxy for the incomes of occupants. Our regression models control for time-invariant municipal characteristics and time-varying attributes common to all jurisdictions within each of our study areas. Due to the long duration of the study period (1970-2010) and the limitations of the relevant data, our models may omit some factors affecting changes in housing stock, and we address the robustness of our models to potential confounders in an appendix.

We first summarize relevant legislative and judicial mechanisms designed to combat exclusionary zoning, briefly describe influential theories of judicial impact on social policy, and discuss prior empirical evidence concerning relevant legislative and judicial interventions in local land-use regulation. We then explain the motivation for our empirical model, describe the relevant limitations, present our data, and report our results. Our findings suggest that, in comparison to New York, New Jersey's requirements have resulted in increased production of LMI housing. In comparison with Pennsylvania, New Jersey's requirements have not clearly increased LMI housing production. We conclude by discussing the implications of our findings for policy.

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Key Words: Land use regulation, Exclusionary zoning, Courts, Affordable housing

EXPLORING NONLINEAR INFLUENCES OF BUILT ENVIRONMENT CHARACTERISTICS ON CARBON EMISSIONS OF DAILY TRAVEL IN MINNEAPOLIS

Abstract ID: 473

Individual Paper Submission

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Urban form has an important influence on carbon emissions through its effects on people's travel (Froehlich et al., 2009). Many studies have examined the relationship between built environment characteristics and carbon emissions associated with people's travel (Silva, Oliveira, & Leal, 2017), and most assume that these relationships are linear. However, this might be not true.

In this paper, we use Gradient Boosting, a machine learning method (Ma, Ding, Luan, Wang, & Wang, 2017), to illustrate the nonlinear relationships between built environment characteristics and carbon emissions. Trip data for seven days were obtained from the Sustainable Healthy Cities project. The survey was conducted in Minneapolis through a newly-designed smartphone application that can track and record people's daily trips and locations. We applied the values of carbon dioxide emission per person mile estimated by the USDOT (Hodges, 2010) to convert trip data into carbon emissions. Using ArcGIS, we computed built environment variables related to respondents' home locations. In the model, the dependent variable is individuals' carbon emissions resulting from trips by automobiles and transit, and the predictors include both built environment and demographic characteristics.

The results show that among the variables tested, distance to downtown Minneapolis and population density are the most important variables that predict carbon emissions; each contributes about 13% of the prediction power. Transit-related variables contribute about 9%. Altogether, built environment characteristics collectively contribute about 60%. Furthermore, number of dead ends, distance to downtown Minneapolis, distance to the nearest bus stop, number of intersections, and job density are positively associated with carbon emissions. On the contrary, number of bus stops, land use mix, and population density have negative associations with carbon emissions. More importantly, all of the associations are non-linear. For example, distance to downtown Minneapolis tends to have a linear relationship with carbon emissions within the range of 17 miles, and beyond the range, carbon emissions increase substantially and then keep constant.

Given the nonlinear influences, this study offers planners a guidance on the effective ranges of different built environment variables. When they have limited resources, planners should emphasize on changing the built environment features with a larger relative importance: distance to downtown and population density.

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Key Words: Greenhouse gas emission, Land use, Machine learning, Travel behavior

SUPERSTORM SANDY AT 5: GENTRIFICATION, EQUITY & RESILIENCE IN THE ROCKAWAYS

Abstract ID: 488

Individual Paper Submission

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Superstorm Sandy struck in 2012 near the end of former Mayor Bloomberg's tenure, an era characterized by substantial gentrification (NYU Furman Center, 2015) and widening income inequality – trends viewed as inextricably linked to Bloomberg's commitments to sustainability (Flegenheimer, 2015) and rebuilding NYC as an international destination after 9/11 (Greenberg, 2008). In 2014, newly elected Mayor De Blasio created the NYC Mayor's Office for Recovery and Resilience (ORR), to build on and transform Bloomberg's post-Sandy recovery efforts. De Blasio prioritized reducing income inequality, arguing there is no environmental sustainability without economic sustainability.

The Rockaway peninsula, a barrier island on the southern border of Queens County between the Atlantic Ocean and Jamaica Bay, is a critical site for examining how NYC is navigating this persistent tension five years on since Sandy. Via qualitative research in Rockaway in 2017-2018, including participant-observation in community meetings and during the summer season on Rockaway Beach, in-depth interviews and media research, I explored how emerging patterns of gentrification are influencing the ongoing recovery of Rockaway, especially efforts to build a more resilient and equitable peninsula. I highlight the concepts of resiliency and equity as they represent policy discourses in tension with one another in NYC from the Bloomberg Era to the current De Blasio Administration. Former Mayor Bloomberg's well-regarded commitment to urban sustainability was motivated by population growth projections for NYC through 2030. Land-use planning included rezoning underutilized land, of which a significant portion was along the city's 502-mile waterfront. Yet, Bloomberg's reliance on waterfront development ran headlong into concerns over documented and projected sea level rise. Superstorm Sandy recovery accelerated an emerging municipal focus on resilience that began after Hurricane Irene (Navarro, 2012; A Stronger, More Resilient New York, 2013), influencing rebuilding priorities.

Prior to Sandy, Rockaway residents considered their community a "dumping ground" for unwanted public and institutional uses (e.g., public housing). It was long burdened by a history of economic malaise and neglect that began in the second half of the 20th century. Yet, since Superstorm Sandy, with public investments in rebuilding Rockaway Beach and boardwalk, among other recovery efforts, there has been an emergent economic vibrancy amidst enduring political tensions that suggests NYC's relentless process of gentrification may have reached Rockaway's long troubled shores. For example, in 2016, The New York Times Real Estate section christened Rockaway one of NYC's "next hot neighborhoods" (Higgins, 2016) while its metro section reported on Rockaway as one of three pilot sites for community policing, given its stubborn violence (Goodman, 2015; Southall, 2016).

This research is a second phase following qualitative research conducted on the peninsula in 2013-2014, exploring Sandy recovery policymaking and planning. Findings from Phase I include the multiple and intersecting psychological, institutional and spatial constraints public housing tenants face in participatory democratic processes, and the efforts community groups make to balance the trade-offs of urban resilience interventions in the face of development pressures and gentrification. At ACSP, I will share my preliminary findings from Phase II concerning on-going changes and opportunities for the peninsula in NYC's current municipal context of gentrification, inequality, and commitment to urban sustainability and community resilience. This research fills an important scholarly gap in the literature on the long-term growth and perseverance of community resilience work, especially in the face of gentrification. Furthermore, this research contributes to the critical environmental studies scholarship on "environmental gentrification" (Checker 2011, 2015; Dooling, 2009; Wolch et al., 2014), by documenting the historically contingent urban processes underway in a given time and place.

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Key Words: disasters, urban resilience, gentrification, New York City, climate change

THE ROLE OF RACIAL BIAS IN SUBURBAN ZONING PRACTICE: EMPIRICAL EVIDENCE FROM HENRICO COUNTY, VIRGINIA, 1978-2015.

Abstract ID: 556

Individual Paper Submission

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Researchers have had difficulty articulating the role of race in zoning decisions in the United States. On the one hand, scholars have found a relationship between exclusionary zoning practices that increase the cost of housing – reduced residential densities, floor area requirements and so on - and heightened levels of racial segregation in American metropolitan areas (Pendall 2000; Rothwell and Massey 2009). On the other, local jurisdictions have not explicitly cited race as a factor in their zoning decisions since the early 20th century, and alleged incidents of racially motivated zoning, though numerous, can appear anecdotal (Rabin 1989). Predominant theories of zoning posit that exclusionary actions are motivated by the facially race-neutral concerns of home owner-occupiers about the values of their homes (Fischel 2001). This paper returns to the question of the role of race in zoning, presenting a comprehensive study of residential zoning decisions made in Henrico County, Virginia, a large suburban jurisdiction surrounding Richmond, from 1978-2015. It examines the geography of conditions related to density, floor area, and lot size that the county has often included in rezonings for residential development. It finds that prior to the mid-1990s, these conditions were characteristic of areas that were more White, but not with higher incomes or homeownership rates, than areas where these conditions were not implemented. The quantitative evidence thus suggests that racial anxieties may have played a more significant role in motivating the adoption of these exclusionary conditions than other factors. The paper uses qualitative evidence from interviews and archived planning commission minutes to understand the stated and unstated reasons for the county pursuing these conditions in the places that it did, concluding that the election of African-American county supervisors was a primary reason the racial disparity in the geography of zoning conditions came to an end in the late 1990s. The paper thus provides evidence that Whites' racial anxieties, while not readily apparent, played a role in the county's historical zoning practices, and that African-American representation provided a means for change in policy.

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Key Words: race, zoning, land use, equity

THE VALUE OF ETHNIC DIVERSITY: HOW CONCENTRATED DIVERSITY SHAPES GENTRIFICATION IN MULTIETHNIC ENCLAVES

Abstract ID: 563

Individual Paper Submission

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Culture and economics are often presented as competing explanations for gentrification. The former relies on social-cultural or consumption-oriented explanations for gentrification, arguing that it occurs as a result of individual consumer decisions pursued by new classes of well-heeled residents seeking enhanced quality of life and social diversity in the post-industrial, middle class city. The latter explanation draws on political-economic or production-oriented perspectives and asserts that gentrification is a knowing activity on the part of the development community and local governments wherein certain neighborhoods are disinvested and devalored over long periods, but are then “rediscovered” by capital seeking new investments and opportunities to exploit rent gaps, or the difference between the existing value of land and the potential value of that land if developed to its highest and best use.

Yet both perspectives are valuable for understanding the factors shaping neighborhood change, and research in this area has begun to examine the interrelated roles that culture, ethnicity, and capital play in influencing gentrification in global cities. Some of this work suggests that traditional ethnic enclaves with lively commercial corridors and rich cultural amenities are increasingly attracting middle- and upper-class residents and fostering gentrification (de Oliver, 2016; Fincher et al., 2014; Terzano, 2014). But we know considerably less about whether collections of several ethnic enclaves, or “multiethnic clusters of concentrated diversity” (MCCDs), do the same. We define MCCDs as areas that include at least three ethnically homogeneous census block groups located within walking distance of each other.

In this paper, we ask whether MCCDs in diverse urban regions are more likely to gentrify than singular ethnic enclaves (e.g., Chinatown, Little Italy), while recognizing that the former are also increasingly ethnically diverse places. We hypothesize that this will be the case for two reasons. First, urban dwellers increasingly value access to a range of cultural amenities (e.g., restaurants, galleries, markets), a trend Hackworth & Rekers (2005) attribute to planning for place branding and “ethnic packaging.” Second, areas with high concentrations of a single ethnic group, particularly Black residents, tend to be stigmatized and can be less likely to gentrify (Hwang & Sampson, 2014). Thus, MCCDs should be more likely to gentrify than homogenous areas with a single dominant race or ethnicity.

We focus on the Los Angeles and San Francisco-San Jose metropolitan areas, two of the most diverse in the country. We conduct logistic regressions to uncover whether gentrification-susceptible (GS) census tracts that are part of MCCDs are more likely to gentrify between 2000 and 2015 than GS tracts outside MCCDs. We control for a variety of variables that describe economic factors known to influence gentrification, including the production of housing between 2000 and 2015, distance to downtowns, access to jobs, and the supply of multifamily housing units. In this way, we operate from the assumption that culture and economics are complementary and mutually constitutive determinants of gentrification.

We find that gentrification-susceptible (GS) census tracts that are part of MCCDs in the San Francisco and Los Angeles regions are, respectively, two and four times as likely to gentrify than GS tracts outside MCCDs, even when controlling for other variables. We examine the possible explanations for these findings, and discuss how the value of multiculturalism can be highly marketable in urban regions attracting a young workforce (Hackworth & Rekers, 2005). Our findings help confirm that concentrated ethnic diversity is a key component of place attachment for new urbanites, and that planners in rapidly diversifying U.S. cities must develop ways of both promoting intercultural integration and helping long-time residents stay in place.

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Key Words: gentrification, diversity, multiethnic enclaves, culture

THE MAXIMUM DEVELOPMENT LAND SIZE OF CITIES - URBAN GROWTH RED LINES IN CHINA

Abstract ID: 580

Individual Paper Submission

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China's frantic urban growth can be understood as the result of the local government's dependence on land leasing fees and its desire to generate GDP growth through real estate development. Based on interviews with planners involved in the recent master plans of three cities - Beijing, Shanghai, and Chengdu, this paper attempts to investigate how the idea of land use control was initiated, understood and implemented in these three cities' master plans. It finds out that, 1) urban growth control in China is not intended to be able to adjust land supply according to the changing population and employment demand, rather it is to establish an ultimate city land use area space envisioned by the political leadership with the concerns over urban diseases including crowding, pollution, and crime. Whether the city will in the end reach the population size, is not a concern. 2). The central government still holds great power over balancing regional growth in China, through setting up city's population size or land area space, that can lead to either further urban sprawl or downsizing of existing urban land use. 3) the public land financing system continues to serve as the driving force of urban development in most Chinese cities. Growth control can only be effective if the cadre performance evaluation criteria is changed from its existing focus on GDP growth numbers.

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Key Words: urban growth control, population, red lines, Buildable land, master plan

PREDICTING PHYSICAL ACTIVITY AND BMI FOR COMMUNITIES OF CONCERN FOR THE STOCKTON, CA 2018 REGIONAL TRANSPORTATION PLAN

Abstract ID: 654

Individual Paper Submission

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Purpose: As the policy backbone of built environment changes, long-range regional transportation plans (RTP) have health implications including physical activity levels and associated chronic disease. This paper illustrates how the National Public Health Assessment Model (NPHAM) (1) predicts physical activity and BMI at the

census block group (CBG) for the San Joaquin 2018-2035 RTP; and (2) analyzes disparate impacts on minority and poverty “areas of concern” (AOC). This analysis helps understand the general policy direction of the RTP in terms of physical activity and health; it also supports an equity analysis and equitable implementation of discretionary funds.

Methods: NPHAM is a series of predictive models based upon CBG built environment and demographic data and individual responses to the California Household Transportation Survey and California Health Interview Survey. Physical activity and BMI for baseline (2015) and future (2035) were estimated for each block group within San Joaquin County using NPHAM by translating EnvisionTomorrow – a popular scenario planning tool – data into NPHAM inputs. Outputs were then population weighted for the entire region; baseline and scenario averages were then compared.

For the equity analysis, AOC CBGs for poverty, minority, and/or CalEnviroScreen were identified; population weighted averages for both AOC and non-AOC communities at baseline and future were calculated. Equity comparisons (difference of means between AOC and non-AOC) and, when appropriate, Wilcox t-tests were performed.

Findings: For current conditions, AOC CBGs statistically differ from non-AOC in 13 out of 15 comparisons of physical activity metrics and BMI; all but walking for transport indicated negative disparities in AOC CBGs. The planned 2035 land use changes are predicted to result in modest increases in physical activity and modest decreases (~2%) in BMI.

Minority and poverty AOC garner a larger increase of minutes for transport walking than non-AOC; comparisons for other metrics were more mixed. CalEnviroScreen AOCs generally performed better than the more restrictive high minority and poverty AOCs, suggesting that the proposed policy package for this RTP will help neighborhoods that have high levels of minority or low-income populations more than the highest levels of equity populations.

Implications for Practice: Land use interventions and long-range transportation planning can increase health and reduce health disparities. NPHAM is a novel approach for modeling the health and thus supports the integration of health and health equity into transportation and land use planning. Analysis of the health impacts can support more targeted land use interventions, particularly when there is a desire to focus interventions on vulnerable populations.

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Key Words: Physical Activity, Long range transportation (RTP) Plans, Equity

THE IMPACT OF LAND USE CONFIGURATION OF LIGHT RAIL TRANSIT STATION AREAS ON RESIDENTIAL PROPERTY VALUES IN CALGARY

Abstract ID: 672

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The benefits of Transit-Oriented Development (TOD), which generally refers to dense, mixed-use, and walkable development oriented to rapid transit, are abundant (Cervero et al., 2004). As a walkable sub-center, TOD typically plays a role in increasing activities in and around stations. A better transit accessibility attracts people to live near major transit stations and encourages traveling by transit. Diverse land uses in station areas can also provide a higher accessibility by active modes of transportation, other than driving. Additionally, TOD can be a core for guiding urban development patterns by encouraging compact and mixed-use development near transit areas, which can manage to prevent urban sprawl (Cervero & Dai, 2014). In addition, the benefits of transit accessibility and transit-oriented land use planning can influence the land market, particularly in nearby neighborhoods (Bartholomew & Ewing, 2011; Duncan, 2011). Many previous studies focused on an increase in residential property values in areas adjacent to rail-based stations, while Ko and Cao (2013) demonstrated the positive influence of Minnesota's first light rails on commercial and industrial properties near Light Rail Transit (LRT) stations.

However, each station area is developed in a heterogeneous way, considering its own context based on its location and function. Yet, the configuration of land use development of station areas and its impact on the urban housing market has attracted relatively little research. Thus, this study investigates the relationship between the land use patterns of the existing LRT station areas and the residential property values in Calgary, Canada, while controlling for the impact of transit accessibility. Using the 2017 housing sales transaction data from the Calgary Real Estate Board (CREB) in conjunction with relevant spatial data from the City of Calgary, we employ a hedonic regression modeling approach to examine the effect of station area land use patterns (e.g., commercial-dominant, residential-dominant, etc.) influence housing values, but at the varying degree by property type (e.g., single-family houses, apartments, condominiums, etc.) and its location in the city (e.g., inner city and new communities). The outcomes of this research will provide a better understanding of the linkage between residential property values and transit area development opportunities. Furthermore, this research will help to enhance local knowledge of developers, city staff, nearby communities, politicians and the general public regarding transit station area development opportunities and challenges.

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Key Words: Station development, Light rail transit (LRT), Land use, Property value, Calgary

PEOPLE BASED OR PROPERTY BASED? FORMALIZING INFORMALITY BY VILLAGE DEMOLITION IN BEIJING

Abstract ID: 695

Individual Paper Submission

China has experienced rapid urbanization over the last four decades, with around ten million new rural-urban migrants pouring into cities each year (CNSP, 2017). Due to a shortage of rental housing spaces inside cities and the exclusiveness of official affordable housing programs, many of these migrants rent rooms from indigenous villagers in peri-urban areas, thereby forming so-called villages in the city (VICs), a unique informal settlement rooted in Chinese dual land institutions (Tian, 2008). Residential buildings in VICs usually do not comply with urban building standards or planning requirements; and living conditions in VICs are worse than those in other urban neighborhoods (Wang et al., 2009). The most important aspect of their informality, however, lies in their violation of the people-based principle of Chinese land law, in which the state legalizes one owner-occupied housing plot per rural household (Webster et al., 2016; Zhang et al., 2016).

To curb the spreading informality of VICs, modernizing municipal governments in China have issued policies of peri-urban village demolition, and have attempted to formalize VICs by redevelopment work (Liu, 2018). However, it is not clear exactly how the policies of village demolition formalize the villagers' informal residential buildings. Does the people-based principle of the land law persist through the formalizing process, or does a more market-oriented conception of property formalization dominate the redevelopment?

This paper aims to answer these questions from the perspectives of informality and social recognition theory (Alsayyad, 2004; Harris, 2017; Hilbrandt, 2017; Kim, 2011; 2012; Roy, 2005; 2009; Wu, 2013). We argue that the informality is created by the gap between what the formal institutions regulate and what indigenous villagers do. Thus formalization is just a process that narrows the gap by changing outdated and impractical rules, or by adjusting the degree of enforcement in response to the various local levels of social recognition of “illegal” development rights in VICs.

We first analyze the formalizing processes and compensation standards in six VICs in Haidian District, Beijing. These six villages (Yimuyuan, Tayuan, Xiaojiahe, Tangjialing, Beianhe, and Daniufang) vary in their location, level of urbanization, types of building and housing plots, and degrees of informality. Then, based on 1156 questionnaires collected from the six villages, we check the attitudes of indigenous villagers towards formalizing informal buildings. We use a two-level nested random intercept model to test our theoretical hypothesis that village context affects group attitudes among indigenous villagers and also determines the social recognition of informality. The paper concludes with the policy implications for formalizing this type of informality in China and elsewhere

The study will contribute to the theoretical explanation of urban informality, and especially to the informality produced by state-promoted redevelopment (Mcfarlane, 2012; Gazdar and Mallah, 2015; Mukhija, 2015; Roy, 2009). We argue that the formalizing is a process of institutional innovation by mutual interaction between the state and the people. This involves the remaking and reinterpreting of rules, but at the same time is rooted in degrees of social recognition of informality that vary from place to place.

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Key Words: urban informality, urban Village, social recognition , indigenous villagers, Beijing

GREEN GENTRIFICATION OR “JUST GREEN ENOUGH?” DO PARK SIZE, AMENITIES, AND NEIGHBORHOOD CONTEXT AFFECT WHETHER A PLACE GENTRIFIES OR NOT?

Abstract ID: 821

Individual Paper Submission

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Gentrification is a major challenge facing planners, elected officials, and communities. Research shows that, especially when established in historically marginalized neighborhoods, new large parks such as New York’s High Line and Atlanta’s BeltLine can result in rent and property values increases that often displace the same low-income residents these projects were intended to benefit. This phenomenon has been called green or environmental gentrification (Gould & Lewis, 2017; Immergluck & Balan, 2017).

But not all parks are created equal, and not all parks might result in green gentrification in the same ways. Even as nearly all research on green gentrification has focused on single iconic projects such as those listed above, some advocate for a “just green enough” approach which argues that small parks intended to serve long-term residents can reduce the chances of green gentrification (Curran & Hamilton, 2012; Wolch et al., 2014). Although at least one article has shown that everyday neighborhood parks can also foster gentrification when they are located in desirable neighborhoods (Anguelovski et al., 2017), none has deliberately modeled how a park’s size, location, context, and amenities interact to shape neighborhood change, and no investigation has analyzed green gentrification across a sample of diverse cities. We build on the green gentrification literature by asking how these variables might predict whether the areas around them will gentrify. We particularly focus on the assertion that “just green enough” interventions can benefit existing residents without displacing them.

We conduct a longitudinal study of parks built between 2000 and 2015 in ten major U.S. cities, including the five largest (New York, Los Angeles, Chicago, Houston, and Philadelphia) and five medium-sized cities experiencing economic growth (Denver, Seattle, Portland, OR, Austin, and Albuquerque). We map gentrification trends at the census tract level for two periods: between 2000 and the 2006-2010 American Community Survey (ACS; for parks built between 2000 and 2008), and between the 2006-2010 ACS and the 2012-2016 ACS (for parks built between 2009 and 2015). We focus on new parks built near gentrification-susceptible (GS) tracts, which we define as those with lower SES and higher shares of renters and people of color than their city’s average.

We run logistic regressions wherein we model gentrification as a dichotomous variable based on widely-accepted parameters as well as geographically weighted regressions (GWR) in which the dependent variables describe changes in SES and housing costs during the two periods. The independent variables include being located within a half-mile of a new park (logistic regression), the Euclidean distance from a new park (GWR), park size, park amenities (e.g., urban trails) and neighborhood context (distance from downtown, vacancy, income, race, transit, and housing stock).

We find that, although variations exist across cities, census tracts located within a half-mile of a new park are 34% (2000-2010) and 45% (2010-2016) more likely to gentrify than tracts without access to new parks, even when controlling for park acreage, amenities, and neighborhood context. Also, tracts within a half-mile of a new greenway trail are even more likely to gentrify than those with access to other types of parks. These findings suggest that new parks, regardless of their size and neighborhood context, can trigger green gentrification. The paper advances previous research (e.g., Anguelovski et al., 2017) by demonstrating that even small parks can stimulate significant neighborhood change, challenging the claim that “just green enough” interventions can curb green gentrification. Thus, planners should accompany the construction of new parks in GS areas with programs and policies that seek to preserve affordable housing and create jobs for long-term low-income residents.

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Key Words: Green gentrification, Urban parks, Gentrification, Neighborhood context

HOME SWEET (TINY) HOME

Abstract ID: 833

Individual Paper Submission

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The range of housing options available to the public has rapidly increased in the last few years. Micro-housing, typically defined as free-standing units with full kitchens and baths that total less than 400 square feet, include container homes, Tiny-Homes on Wheels (THOW's), and an array of pre-fabricated housing units. The rise in demand for these units has been attributed to, or perhaps more accurately the interplay between, concerns about housing affordability and the desire to increase housing options, changing demographics and market demands, the desire to promote Accessory-Dwelling Units (ADU's) and other urban infill techniques, the potential for these units to address homelessness and transitional housing issues, popular culture, and the rise of “minimalist” lifestyles. While demand for these types of units, as well as the awareness of the issues associated with them is increasing, the development of municipal Land Development Regulations (LDR's) and local building codes to address the variety of land development administration issues associated with micro-housing development(s) is lagging as many municipalities are in the process of adopting and updating local LDR's to adequately respond to the potentials and concerns associated with these types of development requests. Currently advocacy for these types of housing units and popular literature surrounding this trend greatly outweighs available academic literature. As such, this work provides a systematic examination of the issue with the aim of having research directly inform planning practice.

With a specific focus on container homes and Tiny-Homes on Wheels (THOW's), this paper presents the results of a two-stage research process designed to address the question of how municipalities in Oklahoma are addressing the rise in demand for tiny homes. The specific objectives of the research inquiry includes identifying what are the primary concerns municipal officials have about tiny homes, are municipalities seeing an increase in demand for these types of units and are they allowing them, and last and more directly germane to both planning research and practice is how, through a variety of local land development regulations (LDR's), municipalities are handling the permitting and code enforcement questions posed by these development requests. The paper formally presents the results of a survey of municipal planning, community development and building code officials in 36 municipalities in Oklahoma. Survey findings are supplemented by the associated results of a series of focus-group interviews with planners, code enforcement officials, tiny home builders and tiny home owners to further determine some of the broad issues associated with their physical siting, code enforcement questions, their potential for addressing housing affordability concerns, and in general some of the benefits and limitations that tiny homes pose to the administration of local LDR's and other municipal housing and community development goals.

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Key Words: Tiny Homes, Land Use Planning, Zoning Administration, Micro Housing

LEGISLATING “COMMUNITY CHARACTER” THROUGH CRIMINAL ACTIVITY NUISANCE ORDINANCES

Abstract ID: 879

Individual Paper Submission

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Local land use ordinances have historically been used to control not only the built environment, but also the people living in it. A frequently expressed justification for such controls is the protection of “community character”. For decades, scholars have suggested that land use controls are often used to exclude people that are perceived to negatively impact a place – namely, renters, poor people, subsidized housing residents, and racial minorities. Nuisance ordinances in particular aim to control behavior – whether that is how often a lawn is how loudly children can play. Some of the more controversial types of nuisance ordinances are those that punish criminal activity (CANOs). We examine CANOs in four Ohio cities, analyzing how these ordinances are enacted, written, and enforced, to determine how and when such ordinances act as a form of legislating social control and excluding undesirable populations. Our findings suggest that, although the ordinances themselves are neutral in terms of targeting specific populations, the intent and the enforcement of them target subsidized housing residents, minorities, and youth. These findings suggest that there is not only disparate treatment in the implementation of CANOs, but that this was the intention of their passage in the first place.

That these ordinances have become increasingly popular indicates that many Americans continue to harbor suspicion toward non-white neighbors, and will act in ways that prevent their incursion into their neighborhoods. Local policymakers should tread extremely carefully when considering passage of a CANO, and should seriously consider overturning any existing ordinances. The material outlined in this article presents a small snapshot – only 4 cities in one region of the country where up to 2000 ordinances exist. Coupled with the increased attention of the ACLU and fair housing advocates on this issue, continuing to enforce these ordinances may have serious legal consequences.

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Key Words: Land Use, Nuisance, Race, Segregation, Poverty

EXPLORATORY SCENARIO PLANNING: WHAT'S IT GOOD FOR?

Abstract ID: 882

Individual Paper Submission

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In recent years, scenario planning has attracted growing interest as a futures-oriented urban planning methodology (Hopkins and Zapata, 2007). These projects can be categorized by the types of scenario they create: normative scenarios define a desired future, predictive scenarios define a most likely future, and explorative scenarios analyze a range of possible futures (Chakraborty and McMillan, 2015). Most scenario-based urban plans are normative, such as the many regional land use-transportation scenarios which have been created at the regional scale, which typically define a preferred scenario (Bartholomew and Ewing 2008). Normative and predictive scenarios share similarities with well-established planning methods such as visioning and forecasting, each of which can be analyzed in well-established ways, such as Allred and Chakraborty's (2015) conformance evaluation of Sacramento's normative regional scenario plan.

However, exploratory scenarios introduce new ways of thinking to planning practitioners (Roberts, 2014). In general, the purpose of the strategic planning methodologies like exploratory scenarios is to improve decision-making. In the business context where the method has been developed, this is typically defined as improving a firm's competitive advantage. Since urban planning is such a different context, there is a need to define the specific ways exploratory scenarios are valuable to planners. The focus of our paper is to develop a deeper understanding of the value of exploratory scenarios in an urban planning context, through the use of case studies. Since this form of scenario planning is often supported by planning support systems (PSS) their role, hitherto unexamined in this context, will also be part of this enquiry. Addressing this gap in the planning literature is needed to improve practitioner understanding of when and how to apply this methodology, as well as inform scholarly research into its effectiveness.

To answer this question, we will conduct case analysis of 6 cases which used exploratory scenarios. The cases are selected through a most divergent case selection strategy, and includes cases at multiple spatial scales using a variety of models, tools and process structures. Although the work is not yet complete, we anticipate the methodology's benefits will include methods to overcome common obstacles in plan creation given identified uncertainties, evaluating the overall resilience of a plan and its proposed investments, or improving awareness of emerging trends. We will also discuss the role of PSS in fostering these outcomes. The specific cases are: Atlanta Regional Commission (Winning the Future, 2017); Delaware Valley Regional Planning Commission (Voices and Choices, 2017); Puget Sound Future Scenarios, University of Washington, Urban Ecology Research Lab (2008); Prospects for a Sustainable Region Tomorrow, National Center for Smart Growth, UMD (2018); Alternative Futures, La Paz, Baja California Sur, Mexico, Carl Steinitz et al, 2006; Denveright – City of Denver, Lincoln Institute and Sonoran Institute, 2018.

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Key Words: scenario planning, professional practice, planning methodology, evaluation, regional planning

CONTRACTING FOR COMMUNITY DEVELOPMENT: CONTRASTING PRACTICES IN AMSTERDAM, HAMBURG AND NEW YORK

Abstract ID: 914

Individual Paper Submission

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In recent decades, urban development is managed by various stakeholders. These stakeholders have different interests, apply different reasoning to justify their actions, and operate in different organizational settings. Because they cooperate over longer periods of time, unforeseen events are bound to happen. Therefore, the stakeholders use urban development agreements (UDAs) to regulate their relations and to cope with risks. How community development should take place or citizen participation is organized is also specified in an UDA. An UDP has often a central agreement that outlines the arrangements and responsibilities of all the stakeholders (van der Veen, 2009). The central agreement is often supported by various other agreements, sometimes contractual, sometimes more informal. From the start of the project until the end of the project, the UDA can undergo changes because of (unforeseen) events. When a UDP is completed, it has been managed by an umbrella of various agreements, varying in whether the agreements are legally binding or not. The research is guided by the following research question: ‘How are citizens interests defined and incorporated in agreements managing community-linked urban development?’

In this paper, we investigate urban development projects (UDPs) in Amsterdam, Hamburg and New York. The cases are selected because in the cases, citizens have organized themselves in a collective and participate in the negotiations of an UDA. We have studied the modes of legitimation that are used by citizens and other stakeholders to incorporate or exclude their interests into written agreements. We have tracked the (policy) documents and legally binding agreements that are written about the UDP and placed them in a timeline. Because many informal agreements are made during an urban development process, we have added those that are mentioned by our interviewees as significant to our timeline. In this way we have mapped out the umbrella of agreements and analyzed how interests of citizens are incorporated in the UDA. We have paid special attention to how legal documents and planning tools are interpreted differently by social groups.

Research shows that it is difficult to incorporate local norms and social goals into UDAs, because local norms and social goals can widely differ in neighborhoods. The rigidity of contracts are often insensitive to the fluctuating needs of citizens (Raco, 2013; Janssen-Jansen, & Van der Veen, 2016). Failing to incorporate local norms and social goals into the UDAs can be problematic for the democratic legitimacy of UDPs. Our research has identified practices that help to translate local norms into legal language.

The research project is part of the R-link research project that was granted to a coalition of Dutch universities by NWO (the Dutch Scientific Organization) as part of their research project SURF (Smart Urban Regions of the Future).

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Key Words: Community development, Contracts, Citizen interests, Negotiations, Local norms

DOES REMOVING FEDERAL INFRASTRUCTURE SUBSIDIES DISCOURAGE DEVELOPMENT? AN EVALUATION OF THE IMPACT OF THE U.S. COASTAL BARRIER RESOURCES ACT

Abstract ID: 916

Individual Paper Submission

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In many areas, urban development relies on a number of factors to be viable, including federal assistance with infrastructure development, whether that be roads, utilities, or other major investments. Many studies of urban growth management regimes and growth control policies have focused on understanding where development occurs and the characteristics of the development in relation to permissions, services, and targeted subsidy provisions (Knaap, 1985; Cunningham, 2007). Much of this work has characterized growth management programs as fully designed and implemented, often by a single agency, without any differences in details of implementation. However, in situations involving federal or state level policy, development responds not just to one regulatory signal, but to multiple signals from overlapping and competing jurisdictions (Hopkins 2001). The 1982 U.S. Coastal Barrier Resources Act (CBRA) offers an opportunity to study when and how development restrictions and economic disincentives protect natural resources by stopping or slowing urban development in management regimes with distributed authority and responsibility. CBRA prohibits federal (but not state or local) financial assistance (e.g., loans, grants, flood insurance, rebates, subsidies or financial guarantees) for roads, bridges, utilities, erosion control, and post-storm disaster relief for new development on designated “undeveloped” sections (CBRA units) of coastal barriers along the Atlantic and Gulf coasts. While significant development has occurred in some CBRA units in spite of federal subsidy loss (Salvesen 2005), there has been no recent, systematic assessment of coastal barrier development or analysis of CBRA’s differential impact on development. This study focuses on the question: To what extent, where and how has development occurred in coastal areas where federal public infrastructure, disaster relief, and flood insurance subsidies have been withdrawn (i.e., CBRA units)?

To address this question, we compare the current density of structures within and outside of CBRA areas using a cross-sectional, quasi-experimental research design. The study area includes the coasts of five states (Alabama, Delaware, Florida, North Carolina, and Texas), which together comprise nearly half of the total areas under CBRA designation and have experienced a wide range of development patterns and housing market changes since 1982. After dividing the coastal areas of these states into a 1 square kilometer grid, we used high resolution aerial imagery to compare the number of structures and total impervious area in cells within (n=2,735) and outside of CBRA units (n=2,735). We control for drivers of urban development such as roads, water and sewer service areas, school districts, recreation areas, and coastal defense infrastructure from a variety of other sources. By matching on observable factors using a multivariate matching estimator implemented by Kaza and BenDor (2013), we estimate the effect of CBRA designation on development intensity. The findings demonstrate the degree to which CBRA reduced development rates since 1982 in coastal barrier zones and shed light on how withdrawal of federal subsidies might be counteracted by state and local responses in particular places. This work has implications for understanding how limitations to infrastructure subsidies can affect desired outcomes in the face of overlapping jurisdictions with competing goals.

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Key Words: coastal barriers, land use policy, federal subsidies

GROWTH MANAGEMENT IN THE MID-SIZED CANADIAN CITY

Abstract ID: 950

Individual Paper Submission

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Smart Growth is an established policy framework adopted by municipalities to facilitate more sustainable patterns of development. The salient principles of the movement include redirecting development towards existing urbanized areas through intensification, and an emphasis that development be more compact (Downs, 2005; Edwards and Haines, 2007; Ye et al., 2005).

This research develops an analytical framework exploring the relationship between Smart Growth planning policies and spatial growth patterns in seven mid-size cities across Canada. These conceptually appropriate case studies will indicate if growth management policies and growth patterns from 1990-2010 demonstrate a shift towards Smart Growth.

An important component of the analytical framework is content analysis of municipal plans with a focus on intensification strategies, targets, monitoring & evaluation instruments. The growth patterns of the subject municipalities are measured using the population density gradient model, and population share analysis.

Initial findings indicate that growth at the periphery or urban-rural fringe continues to perpetuate, indicating limited impacts of the Smart Growth movement. We argue that there is a significant gap in the implementation process illustrated in modest spatial patterns of intensification.

This research contributes to the body of literature pertaining to Smart Growth, intensification, and urban sprawl. This research provides insight within the context of the mid-sized Canadian city, a cohort of cities that has been largely unexplored within academic research (Seasons, 2002). In particular, this research provides insight regarding the extent in which planning policies and development outcomes in the mid-sized Canadian city align with the Smart Growth movement.

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Key Words: Smart Growth, Growth Management, Intensification, Urban Sprawl, Canada

“SECURE IN ITS FUTURE, GROUNDED IN ITS ROOTS AND HOPEFUL IN ITS PRESENT STATE:” PLANNING IN PARTNERSHIP WITH CITIZENS IN DETROIT

Abstract ID: 988

Individual Paper Submission

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With the anniversary approaching of Arnstein's "A Ladder of Citizen Participation," first published in the Journal of the American Planning Association in 1969, planning professionals in practice today have an opportunity to reassess their core values and practices with regard specifically to community engagement. The current political, economic, and social context, where slogans such as Black Lives Matter claim critical attention, furthermore provides a unique opportunity to reevaluate approaches to relationships between city residents and municipal officials in planning projects, specifically with regard to underrepresented groups. Taking the City of Detroit as a case study this paper will analyze current approaches to community engagement in neighborhood planning efforts. Bridging history, theory and practice, the paper explores how current practices differ from or resemble those of a highly contested era in planning history, that of urban renewal and attempts to answer key questions about how planning professionals and residents can better balance responsibilities in the development of their cities. We have two research questions, then, in this paper. First, how have we learned from flawed planning processes of the past and what mistakes may we still be making? Second, how can we take advantage of Detroit's unique history and current circumstances to model a planning process that moves us up to the top of Arnstein's ladder in ways we have not previously considered or been able to implement?

The City of Detroit offers an important case study as the post-industrial city in which everyone is interested, the city that epitomizes many legacy cities in the United States and indeed around the globe that are struggling with changes in manufacturing and industry, leaving mass vacancy and population loss. Detroit is a poster child for how planning might be considered differently, shifting the responsibility for development from relying solely on municipal expertise to acknowledging residential agency and competency, without abdicating responsibility for providing needed services. Detroit experienced all the negative effects of post-industrialization, only at a greater scale than most other cities, yet it has a population that has consistently demonstrated independence, creativity and innovation infused with a strength and resilience that comes from centuries of resistance, self-determination and a refusal to quit. With a population that is over 80% African American, Detroit is one of the largest Black cities in the country: Detroiters emerged from bankruptcy with the same resolve and creativity that has consistently characterized African American life. Considering the history of injustice this particular people has experienced in the United States, planning processes have an acute responsibility as well as an opportunity to try to set things right as much as possible.

The City of Detroit Planning Department consists of a new team of professionals selected for their knowledge and experience working with issues of social justice. Their mission is to rebuild a city "secure in its future, grounded in its roots and hopeful in its present state." In this paper we draw upon quantitative and qualitative data about community participation processes for City of Detroit planning efforts both in the more distant past and in recent years with the current team in order to evaluate how planning has changed. We also evaluate how the planning processes might change further, led by residents' talents and agendas. We find that although the current processes are significantly more inclusive and citizen-driven than older processes, changing old ways can be difficult. We also find many examples of notable and innovative citizen-led or citizen-influenced planning processes. We hope that our analysis will serve as a useful gauge by which to measure future attempts to involve citizen participation in the development of their cities.

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Key Words: participation, DIY urbanism, planning process, legacy cities, revitalization

“RE-IMAGINING THE CLASSIC HOLDOUT PROBLEM: AN COASEAN BARGAINING ALTERNATIVE TO EMINENT DOMAIN DURING PUBLIC LAND ASSEMBLY REVITALIZATION PROJECTS”

Abstract ID: 998

Individual Paper Submission

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Research Question:

“Is Eminent Domain Required to Overcome Holdouts During Public Land Assembly Projects?”

Introduction:

Land Assembly is a key process in the ongoing revitalization/resurgence of the urban center, performing the essential market process of reallocating scarce resources more efficiently, equitably, and environmentally... the 3 pillars of Sustainability. Unique to the land assembly process is the classic holdout problem... landowners hold out for a monopoly price, thwarting negotiations, thus preventing this reallocation... a classic market failure. The Courts (Berman, Poletown, Kelo, et al) have traditionally viewed holdouts as an intractable problem requiring eminent domain. Since Berman, municipal governments have granted private developers broad latitude in using eminent domain for private developments... leading to the near-complete privatization of Public Space in American downtowns (Banerjee and Loukaitou-Sideris 1998).

Methodology:

By finding real-world examples where eminent domain was not required to overcome holdouts during public land assembly projects, this “refutes by existence” (Bierto, Gordon, Tabarrok 2002) the orthodox assertion of market failure in land assembly due to intractable holdouts. In this qualitative study IRB interviews conducted with real estate officials at public universities across the US ... each of whom having direct experience in negotiating large scale campus expansion projects ... while purposely avoiding the use of eminent domain to prevent damaging town-gown relations. By collecting original data in the form of descriptive narrative accounts by this under-explored population, it fills the gap in our knowledge concerning efficient and equitable land assembly negotiation procedures... i.e., as a practicable alternative to eminent domain.

Findings:

In 1965, the City of New York and the Public-at-Large joined a coalition of landowners to successfully halt land assembly of the World Trade Center, NYC, WTC... considered the “Crown Jewel” of the Urban Renewal era (Lipton and Glanz 2003). WTC Project Manager Guy Tozzoli successfully negotiated an inclusive, mutually-beneficial agreement among the four principal stakeholders to successfully resolve the holdout... thus refuting by existence the alleged market failure due to intractable holdout problems. A 17-year study of ongoing land assembly projects at 4 public universities: University of Oklahoma, Norman; University of Texas, Austin; University of Cincinnati; and University of Illinois, Champaign-Urbana provide the narrative accounts of university real estate officers who successfully resolved multiple holdout problems... without requiring eminent domain.

The original findings of the study are that:

(1) Eminent Domain is NOT required for Land Assembly;

- (2) Public Universities routinely use innovative bargaining mechanisms for resolving holdouts... without using statutory power of eminent domain;
- (3) Over time, universities have streamlined the land assembly negotiation process;
- (4) There exists a Genuine Desire for reaching Mutually-Beneficial Agreements with all four principal stakeholders.
- (5). Because universities successfully reach 4-party, mutually-beneficial agreements... while purposely avoiding the use of eminent domain... this implies they are inherently Coasean Agreements.

Relevance:

A practical and systematic procedure for resolving holdout problems should accelerate the resurgence of urban revitalization... via public land assembly. When aligned with the goals of New Urbanism, the ability to successfully resolve holdout problems... without requiring eminent domain... this also helps promotes environmental, economic, and equitable sustainability. By allowing the use of eminent domain by private developers for so-called "Public Benefits", the City reduces its role to that of a business agent, while removing the Public-at-Large as a principal stakeholder during public land assembly negotiations, thus giving developers inordinate authority to shape the future of the City. A practical and systematic procedure for resolving holdouts... without requiring eminent domain... restores the continuing democratic process of coordinating People, Planning, & the Long Road to Urban Resurgence.

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Key Words: holdouts, land assembly, eminent domain, externalities, Coase Theorem

BUILDING THE "BEST OF BOTH" URBANISM AND SUBURBANISM? PRACTITIONER PERSPECTIVES ON DEVELOPING COMPACT AND COMPLETE COMMUNITIES IN THE TORONTO REGION

Abstract ID: 1028

Individual Paper Submission

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Bringing urbanity to the suburbs has become a primary goal of normative suburban planning theory, policy, and practice influenced by the interrelated principles of smart growth, new urbanism, and transit-oriented design. Nelson (2013) argues that attaining "a certain level of urbanity" may be necessary for suburbs to succeed (p. 394). Increasing the density of the built environment is a central tenet of urbanizing the suburbs. Newman and Kenworthy (1999), among others, argue that compact city form is strongly correlated with higher transit-use, and lower energy consumption by automobile travel. The promises of densification and subsequent translation into policies have also been met with public and academic debate.

Concern about sprawl across Canada's largest regions has led to the wide adoption of smart growth and new urbanism-influenced policies, with targets set to increase building densities, intensify built up areas through infill, mix land uses, and improve transit-access (Quastel, Moos & Lynch, 2013). Toronto has been central in the debates about the compact city. Newman and Kenworthy (1999) on the one hand, suggest that Toronto is a positive example of dense, transit-supportive compact form. Mees (2010), on the other hand, attributes Toronto's transit successes to service scheduling rather than density. Others scholars researching Toronto beyond the urban core, argue that pockets of density scattered throughout the suburbs are "wasted" and have had little impact on shifting modal shares (Filion, McSpurren & Appleby, 2006).

In this paper I examine how key actors in the Toronto region's planning and development regimes (planners, developers and municipal politicians) discursively produce visions of suburban futures through planning policy and new-build residential development advertisements. I further consider how those same actors reflect on the successes and challenges of pursuing the policy goal of suburban "compact and complete communities." How do these actor-practitioner discourses structure, and confront, the field of possibility for transforming the suburbs within the compact city framework? My goal is to draw out the challenges and opportunities of "urbanizing the suburbs" as a strategy for moving beyond auto-centric suburban landscapes. The study methodology includes content and discourse analysis of policies, new build housing advertisements (N=304 developments), and interview narratives (N=60 respondents).

I find that a common theme in the advertisements echoes the Garden City's "best of town and country," yet in updated terms where new developments are said to exemplify the "best of both urban and suburban worlds" with proximity to amenities and transportation options. Practitioners similarly describe realities as "in between" urbanism and suburbanism; however, they offer a less sanguine perspective, where residential densification occurs amidst continued functional land use separation, and where retail and employment areas remain persistently low-density and poorly transit-served, perpetuating car-dependency and preventing the realization of intended benefits. I argue that practitioner perspectives expose how compact city strategies can exacerbate old problems like traffic, and produce new issues related to parking and "car-cramming" in denser neighbourhoods. By discussing challenges of the compact city approach, I am not suggesting a defense of auto-centric sprawl. Residential densification is likely to continue as a policy goal, and as an outcome of rising house prices. The research points to the importance of planning solutions that move beyond the density-as-destiny framework, to consider how transit service, and alternative mobility options can be improved in the suburban areas of metropolitan regions, like Toronto, with variegated densities across land uses and periods of build-out.

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Key Words: suburbs, compact city, mobility, visioning, planning practice

CAN TRANSFER OF DEVELOPMENT RIGHTS SAVE FARMLAND IN METROPOLITAN COUNTIES?

Abstract ID: 1041

Individual Paper Submission

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Research Question: Do transfer of development rights programs help preserve farmland in metropolitan counties, compared to counties without such programs? If yes, by how much?

Background: Planners are committed to insuring urban environmental health and sustainability; one component has been preserving farms on the fringe of metropolitan regions. Transfer Development Right (TDR) programs have been credited for preserving farms with few lawsuits and public funds, and thus have been replicated in many locations across the world, such as the United States, Spain, Australia, Italy and Japan. Several studies evaluated how many acres of farmland TDR programs have helped to preserve (Pruetz and Standridge, 2008), but few implemented a quasi-experimental design. The lack of a quasi-experimental design means that while we observe that counties with TDR programs slow down farmland loss, counties without such programs may have experienced the same. In other words, the general economic trend may have helped to preserve farms instead of the TDR programs. Thus, a comparison between counties with and without TDR programs is essential to understand the actual effectiveness of TDR programs in redirecting development.

Methodology: This paper focuses on three counties with TDR programs in the state of Maryland: Montgomery, Charles and St Mary's. The first two are among the most successful programs in the nation, while the third is a representative of the newer generation of "rural TDR" defined by Linkous (2016). This paper adopts a quasi-experimental method called the synthetic control method to find the optimal comparison group for each of the three TDR counties. It then uses the difference-in-difference method to compare the trend of farmland loss between the TDR county and the comparison counties after TDR implementation. It uses farmland data from the Census of Agriculture, population data from the Census Bureau, and land use data from the Maryland Planning Department, from 1959 to 2012.

Findings: The preliminary results show limited effects of TDR on farm preservation, contrary to the common belief but consistent with some previous studies (Linkous and Chapin, 2014). In fact, Montgomery County preserves 4% more farmland than its comparison counties, while Charles and St Mary's actually loses at least 10% more than comparison counties. An analysis with the land use map shows that TDR programs in the three counties leads to mostly large-lot low-density residential development instead of retaining farmland in its original use.

Relevance: This paper cautions planners about their enthusiasm toward TDR programs and reveals the difficulty of preserving farmland on the fringe of metropolitan regions. It also highlights the characteristics of the TDR program in Montgomery that have helped with its relative success compared to the two other programs. These are the features that future TDR programs should consider building in if they aim to preserve farms.

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Key Words: TDR, Farmland, Quasi-experimental design, Preservation

IS DENSITY LIVABLE? HOW DENSE IS TOO DENSE? CITIZEN PERCEPTIONS OF DENSITY AND LIVABILITY IN OREGON

Abstract ID: 1045

Individual Paper Submission

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Oregon's well-known statewide planning program aims to improve land use efficiency in Urban Growth Boundaries (UGBs) while conserving farm and forestland outside of UGBs. Further, the program has the explicit objective to "provide for livable communities." Though livability is widely used in policies and planning, the concept remains loosely-defined and relatively unmeasured. There seems to be a general understanding that livable communities are ones where people want to live. Research has shown that land use efficiency has increased in Oregon cities in cities and regions across the state since the 1990s. But, how does land use efficiency and other elements of the built environment contribute to people's perceptions of livability?

Livability has emerged as key focus for integrating transportation and land use planning throughout the United States. While numerous studies examine neighborhood satisfaction, few studies have focused explicitly on livability. Li (2012) examines how perceptions of livability differ between native and foreign born residents. Chen et. al. (2013) examine livability and neighborhood satisfaction in China, focusing on how satisfaction varies by income status.

Some studies have examined how density impacts satisfaction. The research is varied. Several scholars find that high density is detrimental to life satisfaction. Other studies show that high density is not detrimental to satisfaction (Howley et al., 2009; Kearney, 2006).

Two previous studies have examined how density relates to livability. Mouratidis (2017) compares livability in compact and sprawled neighborhoods in Oslo, Norway by examining neighborhood satisfaction as a proxy for livability. Howley et al (2009) examines the relationship between density and satisfaction in the central city in Dublin. The authors find that density is not the source of dissatisfaction, but environmental quality, noise, traffic, and lack of services and facilities cause dissatisfaction in dense neighborhoods.

As government and academic research have not yet tackled citizen perceptions of how these planning efforts contribute to livability, we examine the following questions: 1) "how well do citizens predict the density of their neighborhoods?" 2) "how does density affect perceptions of livability?"

This study relies on a survey administered to registered voters, living in neighborhoods of various housing densities within three MPOs in Oregon outside of the Portland region. The Portland Metropolitan region was excluded from this analysis as this study focuses on smaller communities— areas that have mostly been overlooked in previous studies. We received 509 valid responses for a response rate of 16.2 percent. On the survey, we ask respondents to estimate their density using a likert scale. We ask respondents to rate whether their neighborhood is too dense. Using the survey results, we use logistic regression to understand how perceptions of density affect perceptions of livability.

We found that respondents did not accurately indicate the actual density of the neighborhood they live in. In fact, 28% indicated the correct density range, while 53% of respondents indicated perceived densities that were higher than the actual density. Nineteen percent of respondents indicated perceived densities that were lower than the actual density in their neighborhood. We find that actual and perceived density negatively impact perceptions of livability.

Many communities face ongoing issues with housing affordability, and research increasingly points to zoning codes and NIMBYism as key contributors. Local and state government should attempt to educate citizens about what density looks like. Researchers should continue to conduct research that gets at the root causes of these perceptions, which may be more strongly related to income and housing tenure than density.

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Key Words: density, statewide planning, livability, NIMBYism

HOW SCIENTIFIC KNOWLEDGE OF CLIMATE CHANGE INFORMS LAND USE PLANNING IN VIETNAM: THE CASE OF QUY NHON CITY

Abstract ID: 1096

Individual Paper Submission

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This research illustrates how scientific knowledge of climate change flows and influences land use practices in Quy Nhon City, Central Vietnam. The role of scientific knowledge in planning is crucial although its use is highly contested in post-positivist discourses. Knowledge utilization in planning has evolved from unified (single-sourced; expert-based) to collaborative (multiple-sourced) modes (Rydin, 2007). The demand-pull and science-push perspectives (Landry, Amara, & Lamari, 2001) portray the unified utilization whereas the interactive perspective (Landry et al., 2001) represents the collaborative use. Some see the utilization of “knowledge” in planning happen in three forms—conceptual, symbolic and instrumental (McKenzie et al., 2014). Proper land use planning can reduce the impacts of climate change (Burby, 1998) by guiding new growth away from hazard-prone areas, relocating existing development to safer sites, and reducing vulnerabilities in post-event redevelopment (Berke & Stevens, 2016). In the case of land use planning for climate change adaptation, however, the successful utilization of climate science to improve practices on the ground involves a complex process. Scientific knowledge of climate change streams from multiple sources, across multiple scales, in multiple forms. This influences how local decision makers’ use of knowledge is translated into plans and policies, and in a top-down hierarchical planning system, like Vietnam’s, the process is uniquely complex, often problematic.

Within Vietnam’s planning institutions, which espouse a heavily rational approach reliant on master-planning, scientific information of climate change flows in from international, national and local sources. Yet, scientific knowledge’s impact on plans and their implementation is minimal. To evaluate how climate science is being utilized in land use planning to develop adaptation measures in Quy Nhon, this research uses two methods: 1) content analysis of the city’s master plans of 2004 and 2015 to assess how well, over time, have land use plans used climate science as basis to adapt the evolving threats of climate change; and 2) semi-structured interviews with 46 central, provincial and local government organizations to assess how scientists produce, and planning officials view and utilize scientific knowledge about climate change. Its major findings are that the utilization of climate science into local land use planning depends on: 1) institutional settings (formal and informal); 2) the clarity of knowledge; 3) the proximity of relationship between the local government officials and climate scientists; and 4) how the central government supports climate change adaptation and incentivizes it for local planning actors. The methodological contribution of this research is proposing a framework to evaluate climate science utilization in planning, especially in cities of developing countries where top-down planning dominates and local planning capacities are limited.

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Key Words: knowledge utilization, climate science, land use planning, climate change adaptation, Vietnam

INFORMATION TRANSPARENCY AND ITS EFFECT ON BROWNFIELDS PRICE IN CHINA

Abstract ID: 1183

Individual Paper Submission

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Contaminated urban land in China is the result of the relocation of state-owned enterprises, engaging in manufacturing activities from urban areas, to less-developed urban peripheries beginning in the 1990s. Primarily driven by a booming real estate market in the 2000s, such a de-industrialization process became more widespread, evidenced by a significant amount of former industrial land being redeveloped for more productive uses. However, the redevelopment of industrial sites, commonly known as brownfields in the Western context, does not appear to be treated differently from non-contaminated sites until very recently, mainly because “brownfield” had not been a familiar term to policymakers, real estate developers, and the general public in Chinese society.

Over the past ten plus years, two major changes related to China’s industrial sites have occurred. The first is the result of the launching of a market-based land transaction system, which replaced the past free-allocation or negotiation-based land-use right transfer. The second change, related to the increasing awareness of land contamination, has resulted in policy initiatives and media exposure of contamination-induced health problems in newly built communities, which has caught local, national and international attention.

A debate prevailing in the Western literature is whether it is necessary to spend public money cleaning up private properties. Using empirical data of cities in the United States, scholars find statistically significant positive linkage between remediated brownfields and the surrounding properties (Kaufman and Cloutier, 2006; de Sousa et al., 2009). Also, they find that for industrial properties in prime locations, sales price displays a discounted rate that appears to take into consideration remediation cost (Howland, 2010 and Alberini, 2007). Such an empirical analysis with Chinese land data is clearly missing.

This study fills a gap in the literature by investigating land sales in Beijing over a thirteen-year period (2004-2016). With over ten years of land sales under the market mechanism, this study examines whether land remediation cost in industrial site redevelopment has been capitalized in land prices. Statistical models test two hypotheses: (1) After controlling other factors, over the past 13 years when site information becomes more and more transparent, a price discount emerged and has become more significant now than before; and (2) After controlling other factors, during recent five years, former industrial sites are sold at a discounted rate than other sites. I find out that, due to the increasing societal awareness of environmental problems related to land contamination and the adoption of the market mechanism in land transaction, real estate developers have learned over time to take into consideration remediation cost when they bid on former industrial sites.

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Key Words: Brownfields, Hedonic price modeling, Land sales, Beijing, China

PLANNING FOR A FUTURE WITH SELF-DRIVING CARS: HOW ARE MUNICIPALITIES PREPARING?

Abstract ID: 1239

Individual Paper Submission

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Self-driving cars, or autonomous vehicles (AVs), are considered among the most transformative forces to shape our society in the near future. Their potential benefits include increased traffic safety and efficiency; increased mobility for individuals who have limited mobility options; increased accessibility for individuals with limited resources to access healthy food, jobs, education, and health care; and in general, improved quality of life for individuals (Fagnant and Kockelman, 2015; Gruel and Stanford, 2016). As importantly, AVs are expected to significantly impact the way our land is used and have great implications for the sustainability and livability of our communities (Chase, 2016; Riggs and Boswell, 2016). For instance, on one hand, because there will likely be significant reduction in parking demand, much of existing parking can be converted into different land uses (e.g., residences, retail, offices, bike lanes), which could contribute to more vibrant and sustainable communities. Yet on the other hand, because individuals will not be stuck behind a wheel and can instead use their commute time more productively, living further away from urban centers may have lower costs for individuals, which could contribute to sprawl.

Despite the very fast pace of AV technology development and important implications of AVs on our communities, we have very limited empirical evidence on how communities are planning for a future with AVs (see Guerra, 2016). Our research aims to help fill this gap in the planning literature by investigating the extent to which, and how, municipalities are planning for a future with AVs. It also explores barriers to planning and planner perceptions on the impacts of AVs on land uses and environmental sustainability.

The study is based on a nationwide survey of municipal planners. In November and December of 2017, the American Planning Association distributed our web-based survey to its membership. The paper will use responses from municipal planners (approximately 750 participants) to our survey.

Preliminary findings reveal that about half of the municipal planners have started at least discussing a future with AVs in their community, but they are not quite incorporating them in plans and when they do, most of their address of AVs is in the abstract, as a concept in the plans, and not as more concrete items and policies, such as actionable steps, timelines, and responsible parties. Responses to an open-ended question on how municipal land uses will be impacted by AVs reveal many potential impacts. These stated impacts include less space for parking in general but parking of AV fleet becoming a burden of lower income neighborhoods, and more livable spaces in urban areas but also lower density and greater dispersal of land uses, so continued sprawl and land consumption, with the additional environmental issues stemming from sprawl. Our ACSP paper will more systematically examine survey responses and identify relevant policies to promote environmental and urban sustainability in the age of self-driving cars.

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Key Words: Self-driving cars, Autonomous vehicles, land use impacts, sustainability, livability

HOW IS CONSTRUCTION REGULATED UNDER ACTIVE WAR? MACHINE LEARNING AND INSTITUTIONAL ANALYSES OF LAND DEVELOPMENT IN ALEPPO, SYRIA FROM 2012-2016.

Abstract ID: 1251

Individual Paper Submission

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Aleppo has become synonymous with urban destruction and tragedy. Nearly one in every 30 Syrians has died as a result of the conflict, and Aleppo has been a particularly contested battleground and center for barrel bombs. Yet, as one resident stated last year, 'Aleppians are more than a death toll', and life goes on for those who could stay, could not leave, chose not to, or who returned. This case tells one such alternate narrative. Even at the peak of violent conflict, greenfield construction, mediated by active land regulation institutions, continued across the city's peripheries, open spaces and roadways.

Using aerial photo analysis and emergent techniques in neural network processes of computer vision (machine learning), supported by institutional analysis of qualitative fieldwork from afar, this paper details how construction and local governance processes have operated during the period of most intensive conflict thus far, from 2012 to 2016. Much of Aleppo's recent history is extreme; a 'black swan' even among cities under war. Yet an analysis of Aleppo's experience contributes to broader discussion of how and where the planning institutions, and in particular zoning and construction controls, flex and change under extreme conditions and uncertainty. Could the informal institutions - such as the practices of Jabhat an-Nusra shaping when and where rural refugees build on the south-eastern outskirts of the city- be framed as a kind of critical pragmatism (Forester and Haselberger 2017) or pure opportunism? Or, as I argue, positioning land regulation practices as 'working rules' makes sense to describe institutional change and heterogeneity across an urban area.

By considering the physical evidence as 'residues of rule', or building footprints that only became possible because of certain institutional configurations, the paper interpolates spatial evidence with interviews of current and former practitioners and content analysis of formal and social media from the period of study. Layering the evidence yielded a set of mechanisms of growth control employed by the residual of the Syrian government municipality, primarily over West Aleppo, and other groups, primarily in East Aleppo, during the height of the conflict from 2012-2016, with a focus on the peripheries and unbuilt areas. Specifically, methods of intervention - whether through channelling construction to 'harden' peripheries of the Kurdish neighborhood boundaries, 'loosening' enforcement of informal construction on the southeastern fringe, para-statal patronage-infill on public lands or ordering the visible heights and frontages - appear in initial analyses to have remained highly regulated throughout the period of intense conflict, with distinct variations by area.

What does it mean for understandings of governance that construction continues to be regulated during catastrophic violence and destruction? Conflict perhaps only makes sense as part of a longer spectrum; wars past and expected permeate political and sectarian patchworks of land development even in times of relative calm (Bou Akar 2018). The act of building, setting stone on dirt, often serves the purpose of militarizing and fortifying a city (Graham 2011). Yet during periods of intense conflict, most research examines processes of destruction, or the subsequent reconstruction and intensified segregation processes, not the phenomenon of building. The story of Aleppo will contribute to the conversation about ad hoc planning institutions and the practices of land regulation under transition and intense uncertainty (Fawaz 2008; Dimitrovska Andrews 2005), and in particular how the non-state actors appropriate and change the working rules and norms around land development and construction. Understanding how and which institutions of land regulation remained in use, across the geographies of rule and cement, throughout the war ‘emergency’ of Aleppo may give insight into the emergence and resilience of land use practices under more peaceful forms of uncertainty and transition.

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Key Words: ad hoc land regulation, construction in conflict, Syria, local land governance, informal land institutions

LOS VS. VMT IN CALIFORNIA’S ENVIRONMENTAL REVIEW: A MULTI-JURISDICTION CASE STUDY

Abstract ID: 1254

Individual Paper Submission

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“Level of service” (LOS) more accurately measures driver comfort and mobility than environmental impact. Yet for nearly 50 years, LOS has been the primary metric of transportation-related “environmental” impacts under California’s state-level equivalent of the National Environmental Policy Act, the California Environmental Quality Act (CEQA). In that role, it has stymied numerous projects that would likely benefit the environment, and also made it more difficult to develop urban housing projects and ensure sufficient housing for Californians, contrary to CEQA’s primary purposes and efforts to solve California’s housing crisis.

Studies show that residents of denser, mixed-use and transit-rich areas drive less than their suburban and rural counterparts. And reducing driving – measured in vehicle miles traveled (VMT) – is necessary for California to achieve its greenhouse gas emissions reduction goals. But the focus on LOS has incentivized greenfield development over denser, infill development.

How, then, would environmental review and land use development change if VMT were used instead of LOS to measure transportation impacts, as California proposes to do for CEQA reviews pursuant to Senate Bill 743? Would it effectively incentivize development? And if so, what types? These are ripe questions for policymakers,

planners, developers, attorneys, and others in California and throughout the United States, as local and state governments work to reduce transportation-related greenhouse gas emissions.

We use a unique counterfactual history approach to explore these questions in three case-study jurisdictions – Los Angeles City, Sacramento City and San Joaquin County. We collected data from all available (over 300) environmental impact reports (EIRs) published between 2001 and 2016 for office, retail and residential development projects in our three jurisdictions. We determine whether and how each project would be streamlined by comparing the LOS-based transportation analyses performed during project review with the VMT analysis that California's currently proposed guidelines would require. Using data obtained via a Public Record Act request, we also determine whether each project was legally challenged based on LOS-impact-related grounds.

Our preliminary results suggest definite potential streamlining benefits of switching from an LOS- to a VMT-based metric, but also identify some areas of concern. For example, we find that while 25% of Los Angeles' land area qualifies for residential-project screening (no detailed VMT analysis required based on location) and 21% qualifies for office-project screening, only 3% qualifies for both, primarily in areas with or adjacent to job centers. We also find that 99 (64.7%) of the 153 Los Angeles projects we analyze could have qualified for transportation impact analysis streamlining, with 3 (2.0%) potentially avoiding full CEQA review (EIR preparation) altogether. Our findings indicate that LOS-based CEQA transportation impact analyses worsened – and a VMT-based approach could relieve – some development review burdens in low-VMT areas. However, local ordinances and congestion management plans requiring LOS studies and impact mitigation outside of CEQA could dampen those streamlining effects.

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Key Words: Vehicle miles traveled, Level of service, Environmental review, Compact development, Development streamlining

IS THE “WINDFALLS FOR WIPEOUTS” IDEA A VIABLE ONE? REVISITING LAND-VALUE CAPTURE AND COMPENSATION RIGHTS IN ADVANCED-ECONOMY COUNTRIES

Abstract ID: 1335

Individual Paper Submission

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The idea of reaping the 'windfalls' in land values due to planning decisions is by no means new. The underlying rationale is that much of the value of real property is created not by the landowner's work, but by government policies that grant development rights or by broad economic and social trends. Governments need the funds collected for financing public services of various kinds. The converse idea is that individual landholders should not suffer extensive diminution in their land values when planning (or zoning) decisions are made to benefit the general community.

The “windfalls for wipeouts” idea was introduced to the USA in Hagman and Miszczynski's 1978 seminal book. But the idea has a much longer history (at least on paper) in the British legal and policy world, where it is known

as the “compensation and betterment”. Is the idea viable in real life? In this paper, I present findings about the actual distribution of laws and practices of both sides of this symmetry notion.

Drawing on the author’s comparative research on the laws and practices in 16 advanced-economy (OECD) countries around the globe, the paper addresses the two sides of the formula: The degree to which windfall recapture policies or various types are indeed viable and used in real life, and the converse – the degree to which compensation right are granted to landowners.

The finding indicates that there is no symmetry in real life laws and practices. Only a few countries among the 16 have adopted laws and policies for direct, over value capture. And only a few countries have adopted direct laws and policies to compensate for downward land values. The most striking finding is that excepting one country these two sets of countries do not overlap. That is, windfalls for wipeouts, or betterment for compensation, is not a real-life formula, but remains a theoretical notion.

On the value capture side, the findings show a more complex and nuanced reality than on the compensation side. despite the convincing rationale for direct value capture, the idea has failed to catch on widely among advanced economies. At the same time, the basic idea of the “unearned increment” as a financial source for public services has not died away. On the contrary: it is flourishing in recent decades, and is a promoted policy by the UN and the World Bank. Among OECD countries, several “mutations” of this idea have been gaining popularity, but usually not with the direct, overt rationale of windfall capture, but rather with one of the indirect rationales. I call the alternative tools in this group “indirect modes” of value capture. These are much more complex and less “elegant” in their legal and policy rationales than direct value-capture notion, and they take on many forms, some in stealth. Indirect value capture modes present recurring legal challenges and political vicissitudes. Yet in many some contexts, these modes are more realistic instruments for funding public services. The paper presents focused analysis of the legal and policy challenges in several selected countries,

In the conclusions I discuss the disparity between the attention given by scholars to the “windfalls for wipeouts” idea and its presence in practice. What may be the (hypothesized) reasons? Is the idea itself at fault, or are there many other factors that stand as stumbling blocks to the real-life adoption of the formula? The findings show that the windfall capture side is more robust than the wipeouts side. But it is the smaller-scale, indirect but more locally pliable tools are on the increase in many advanced economies.

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Key Words: land-use regulations, regulatory takings, compensation rights , land-value capture

CAN PLANNING AND PROPERTY LAWS ADAPT TO SEA-LEVEL RISE? A CROSS-NATIONAL ANALYSIS

Abstract ID: 1336

Individual Paper Submission

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Climate change is impacting the sea level in many countries across the globe. An underexplored aspect of resilience to climate change is the legal context related to property rights and planning laws. This is especially pertinent to sea level rise because in many countries, much of the population resides along dynamic coasts, where there is intense competition for land use, and property values are high. How can governments (or private actors) prepare for sea level rise (or decline)?

While there is a worldwide abundance of policies addressing local climate change – both in mitigation and in adaptation – too little attention has been devoted to researching the responsiveness of existing legal contexts for coping with urban environmental challenges. Property rights and planning laws must work together to create physical and institutional resilience, but are often intransigent themselves. What is the balance between necessary stability of property rights, and the necessary responsiveness and flexibility to permit adaptation to climate change?

This research aims to contribute to the understanding of the roles played by planning laws and property rights in face of adapting to sea-level rise. Adaptation to sea-level rise is often sub classified into three responses: retreat, accommodation or protection. Each of these responses raises specific legal issues, such as interventions in property rights, liability, taxation, compensation rights, and more.

We approach these challenges from a comparative, cross-national analysis related to legal regimes and how they are in practice “on the ground”. For this paper, we focus on two contrasting cases: the Miami area in the USA, and the Netherlands. The latter is widely regarded as one of the global “best practices” in adaptation to sea-level rise, yet there too, property rights and planning law and regulations pose constraints that are not easily overcome.

The method of analysis encompasses legal research as well as stakeholder interviews “on the ground”. It so happens that we conducted our field research in the Miami area just before Hurricane Irma hit the area, and caused major damage in property and lives. The interviews in the Netherlands are currently being completed. Our paper will conclude with interim findings and their implications for legal, planning and fiscal policy, as well as for future research endeavors.

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Key Words: climate change policy, property rights, comparative

EQUITY CONSIDERATIONS IN COMPREHENSIVE PLANS: EQUITY ANALYSIS OF 21 NORTH AMERICAN URBAN COMPREHENSIVE PLANS

Abstract ID: 1375

Individual Paper Submission

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Over the past decades comprehensive plans have become the key policy documents to promote sustainable development in urban communities. Local comprehensive plans include a wide range of policies to guide local development in accordance with the community vision and goals as identified through an extensive public engagement process. These policies span across a wide range of sectors such as housing, transportation, economic development, and environment. The planning task of integrating and reconciling a variety of stakeholder interests across multiple sectors poses challenges, because they affect multiple stakeholders differentially. Further, most of

these impacts, such as those related to social equity are hard to define and difficult to predict. At the same time, implementation of comprehensive plan policies does significantly impact local distribution of and access to resources that influence equality of life outcomes for all stakeholders. This paper addresses two inter-related questions: How is social equity conceptualized, operationalized, and prioritized relative to other goals and objectives in local comprehensive plans; and how can social equity be more effectively integrated in urban comprehensive plans?

In this research, 21 local comprehensive plans from North American cities are analyzed, in terms of attention to equity in the plan document and the policy proposals included in the plan. Contemporary plan quality evaluation protocols were modified to create an equity focused plan quality evaluation approach. Specifically, the planning goals and objectives are analyzed in terms of local equity considerations. The plan quality analysis also focusses on evaluating how meaningfully is equity integrated in the choice of policies, performance measures or indicators, and their prioritization of planning objectives. Results indicate that majority of the comprehensive plans do identify equity as an important local concern. Vision statements and goals tend to highlight the importance of addressing inequities in the society and promoting equitable development. However, the analysis also reveals that social equity vision and goals rarely translate into clearly specified objectives, and appropriate policies for promoting equity. Similarly, there is a lack of meaningful measures and indicators of social equity in the local comprehensive plans. At the same time, there are a few good examples of policies that are specifically included to address existing inequities that also threaten local development and economic gains. In conclusion the paper, presents possible ways to incorporate equity concerns in the local comprehensive plans. Specific recommendations are made for policy formulation and development of measures for better integrating social equity into local comprehensive plans.

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Key Words: Social Equity, Comprehensive Planning, Plan Quality Evaluation, Land Use Planning

SMART GOVERNANCE FOR WALKABLE COMMUNITIES

Abstract ID: 1303

Poster

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In recent decades, people tend to live in communities that provide better quality of life and are more receptive to their needs. With new technology advancements, cities have become more responsive in recognizing demands, and implementing smarter policies and programs. Meanwhile, millennial and Gen Xers are becoming the dominant generation in the society and their demand for services and quality of life is reshaping our cities. Although suburban living is still attractive for older generations, walkability is one of the top priorities in selecting where to live, especially for millennial and Gen Xers (Strategies, 2017). Accordingly, our aim for this research is to identify the Smart Policy and Programs that enhance walkability.

The preference for living in walkable neighborhoods has grown remarkably in 2017, in compare to previous years. And the residents of walkable neighborhoods show more satisfaction regarding their quality of life (Strategies, 2017). Meanwhile, the technological advantages are supporting cities for involving citizens, recognizing demands and providing smarter supplies which enhance quality-of-life. Smart Cities are also using non-digital based programs for improving services, environment and quality of life (Neirotti , De Marco, Cagliano, Mangano, & Scorrano , 2014). Smart city researchers argue that smart governance has different aspects such as understanding community's context and culture, using ICT to identify demands and to acquire better results, and increasing citizen collaboration to achieve sustainable solutions and publicly valuable policies (Angelidou, 2014; Castelnovo, Misuraca, & Savoldelli, 2016; Meijer & Bolivar, 2016). However, due to lack of a global definition for Smart Cities and Smart Governance, cities and governmental organizations define their own strategies to employ ICT and generate innovative solutions for delivering services (Neirotti , De Marco, Cagliano, Mangano, & Scorrano , 2014).

To identify the Smart Policy and Programs that enhance walkability, Dallas-Fort Worth Metroplex has been selected as the study area. This Metropolitan Area consists of more than 200 cities competing with each other for attracting residents. For the purpose of this research, using the focus group qualitative method, we interviewed several City and Government officials in Dallas-Fort Worth Motorplex. These interviews were coded to categorize different policies related to walkability and improving quality of life. We then categorized these policies were categorized to directly or indirectly related policies, and digital and non-digital solutions. We also identified and compared successful walkable streets, using pedestrian counts. Hence, we developed a smart walkability governance framework, city planners and practitioners can use to promote walkability, and enhance quality of life in their respective communities.

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Key Words: Smart City, Smart Governance, Smart Policy, Walkability, Quality of Life

TRACK 8 - FOOD SYSTEMS, COMMUNITY HEALTH, SAFETY

PRE-ORGANIZED SESSION SUMMARY

PLANNING FOR REGENERATIVE, EQUITABLE FOOD SYSTEMS IN URBANIZING GLOBAL ENVIRONMENTS: EXPLORING THE IMPACTS OF ECONOMIC, CULTURAL, AND ENVIRONMENTAL PRESSURES ON SMALLHOLDER AGRICULTURAL PRODUCERS IN THE GLOBAL SOUTH

Summary ID: 6

Abstract ID: 136

Abstract ID: 145

Abstract ID: 204

Abstract ID: 849

Abstract ID: 867

Over 500 million smallholder farmers provide 80 percent of the agricultural output in the Global South. Farming on less than 5 hectares of land per operation, smallholder farmers struggle under the pressures of urbanization as well as globalizing economic and political environments. Understanding the impacts of a globalizing economy, climate change, cultural shifts, and planning/public policy investment through community-engaged research may offer strategies to increase the power of local food systems to sustain growers, improve food security, protect farmland, and promote health. The panel brings together researchers who seek to improve food equity among farmers in the Global South. Faculty from urban planning, agriculture, engineering, and public health will present studies that cover regions in India, Bolivia, and Ghana on topics including: interdisciplinary and community-based research to address economic inequity, health concerns, food insecurity, and other challenges faced by farmers; the role of urbanization and migration on farmer livelihoods; and the role of policy to address food inequities across the Global South.

Objectives:

- To understand challenges experienced by smallholder farmers in the Global South, in the face of a globalizing food system, urbanization, and extreme weather events.
- To explore strategies to increase the power of local food systems to sustain smallholder farmers, ensure food equity, protect farmland, and promote health.

THE GLOBAL POLICY CONTEXT: IMPLICATIONS OF THE "ZERO HUNGER" SUSTAINABLE DEVELOPMENT GOAL FOR FOOD SYSTEMS PLANNING IN THE GLOBAL SOUTH

Abstract ID: 136

Group Submission: Planning for Regenerative, Equitable Food Systems in Urbanizing Global Environments: Exploring the Impacts of Economic, Cultural, and Environmental Pressures on Smallholder Agricultural Producers in the Global South

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Globally, agriculture threatens numerous ecological thresholds, including critical ecosystem processes on which crop production depends, while 815 million people are undernourished and many more suffer from malnutrition. The second Sustainable Development Goal (SDG), Zero Hunger, seeks to mobilize transformative change to simultaneously address global environmental sustainability and food security challenges. We conducted an

integrated literature review spanning ecology and environment, nutrition and public health, and social and policy science fields to summarize the state of knowledge on pathways for achieving "zero hunger." In particular, we summarize how SDG 2 has influenced academic debates about food security to date, and ask whether the framing of SDG 2 is appropriate given current understandings of transitions to sustainable food systems. By applying a food systems lens, our review identifies several limitations in the way SDG 2 is framed and applied by researchers including a productionist perspective, limited attention to ecological processes on farms, a definition of food security that lacks a food systems perspective, and a lack of attention on historical and structural factors that shape opportunities for equity and food security in different contexts. Finally, we consider opportunities for expanding the research agenda and associated implications for development practice and food systems planning in the Global South.

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Key Words: Millennium Development Goals (MDGs), Sustainable Development Goals (SDGs), Food systems, Agriculture, Food security

GROWING OUR FOOD BUT FOOD INSECURE: TRADE-OFFS IN THE DAILY LIVING PRACTICES OF SMALLHOLDER FARMERS IN KERALA, INDIA

Abstract ID: 145

Group Submission: Planning for Regenerative, Equitable Food Systems in Urbanizing Global Environments: Exploring the Impacts of Economic, Cultural, and Environmental Pressures on Smallholder Agricultural Producers in the Global South

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Background

Smallholder farmers—defined as those occupying less than 5 hectares of land—contribute significantly in global agriculture and play an essential role in linking agriculture, nutrition, and health.¹ Still, smallholder farmer households are among the poorest and most food-insecure in the world. Further, the planning of some communities in the Global South occur with little regard for the futures of smallholder farms.²

Methods

Under the larger scope of the Planning for Regenerative, Equitable Food Systems in Urbanizing Global Environments (Plan-REFUGE) project, we explored the trade-offs made by smallholder farmers in Trivandrum and Thrissur districts of Kerala, India, as they adapt their daily living practices (DLPs) in response to extreme weather events, urbanization, and a globalizing food system. We define DLPs as smallholder farmers' preferences and practices categorized into interrelated domains: agrarian, politico-economic, environmental, social and cultural, and nutrition and health domains. Qualitative data was collected through in-depth interviews with 20 key informants and small-holder farmers. Additionally, we analyzed sub-national policies to understand how the local policy landscape hinders or alleviates food insecurity among smallholder farmers.

Findings

Despite Kerala's history of land reform intended to promote agriculture and protect farm land, findings reveal severe challenges experienced by smallholder farmers related to land ownership, water scarcity, economic feasibility of farming, food security, and poor health. Smallholder farmers reported on trade-offs across all domains to manage these hardships. In particular, results shed light on compromises made between the agrarian and environmental domains; between the agrarian, politico-economic, and health domains; and between the agrarian, politico-economic, and social and cultural domains.

Interpretation and Conclusions

Strategies for supporting equitable food systems within which smallholder farmers thrive remain under-investigated. Findings from this study reveal potential approaches for policy change to reduce food insecurity among smallholder farmers in Kerala, India.

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Key Words: Smallholder farmer, Food equity, Health equity, Food systems planning

TOWARDS EMANCIPATORY LAND TENURE & FOOD SYSTEMS PLANNING IN URBAN GHANA

Abstract ID: 204

Group Submission: Planning for Regenerative, Equitable Food Systems in Urbanizing Global Environments: Exploring the Impacts of Economic, Cultural, and Environmental Pressures on Smallholder Agricultural Producers in the Global South

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This paper examines how farmers navigate the complex, plural legal land system in urban and peri-urban Accra, Ghana. The majority of lands in Ghana are owned by traditional customary authorities (customary legal land system) whereby tenure arrangements differ among these geo-ethnically diverse customary authorities. This customary legal land system co-exists antagonistically with the country's statutory legal land system. The effects of this antagonist co-existence have been discussed in the literature. However, there is still the open question of how this oppositional, dual legal land system affects farming, specifically, and food systems planning, generally, especially within rapidly urbanizing areas in Ghana. This question is further complicated by the increasingly commodified and intensified use of urban and peri-urban lands in Accra. Food spaces are continuously marginalized, planning of these spaces is perfunctory at best, and farmers must constantly negotiate their 'rights to farm the city'. Situated within the "emancipatory planning" discourse, this paper is animated generally by the question: How do and could farmers emancipate themselves from the increasingly commodified, plural legal land systems in Accra? Interlacing its discussions with empirical instances, the paper argues for a (re)examination of current urban farming practices as emancipatory. That is, examining the strategic actions of farmers as they create networks of power and spaces of solidarity to disentangle themselves from the commodified, plural legal land system in Accra. The paper proposes complementary planning practices that could bring to bear the value, instrumental, strategic, and communicative rationalities of planning to realize authentically emancipative food system planning in Global South cities.

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Key Words: food systems, emancipative planning, urbanization, power, Accra

SOCIO-ECONOMIC CHANGES, LAND SYSTEM DYNAMICS AND FOOD SECURITY IN KASHMIR: A CASE STUDY OF HAAKH (COLLARDS) SHRINKING PRODUCTION

Abstract ID: 849

Group Submission: Planning for Regenerative, Equitable Food Systems in Urbanizing Global Environments: Exploring the Impacts of Economic, Cultural, and Environmental Pressures on Smallholder Agricultural Producers in the Global South

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Over the last few decades, the landscape in the Kashmir valley has significantly transformed as the land is being converted to other uses without any regard to its congenital land use suitability. This has adversely affected the production and consumption of traditional and cultural foods (Romshoo et al., 2018) and hydrological processes in the region (Badar et al., 2013). This research focuses on how do the observed land system changes in the region effect the food production, food security and land surface processes. From the analysis of the time series of satellite images, historical maps and other available thematic data, we observed a significant increase in the area under settlements (~40%) during the last 4-5 decades. The pristine aquatic ecosystems, which perform important hydrological functions in the region, are consistently degrading due to the urbanization in their vicinity wherein untreated sewage and effluents find their way into lake waters and wetlands altering their biogeochemistry (Rather et al., 2017). The total population of Kashmir valley has gone up by 26% from 5.48 million in 2001 to 6.89 million in 2011 with the consequent increase in the population density. The Increasing population has also exerted pressure on the arable agricultural land for its conversion to settlements. A significant shift in the cultivation patterns from agricultural to horticultural land use has occurred in the valley mainly driven by economic considerations but partly attributed to the depleting water resources. The area under the water intensive paddy cultivation has decreased significantly by about 800 km² during the last about 50 years only and the same has been either transformed into horticulture or built-up land. This has significantly reduced the demand for irrigation in the basin. The large-scale deforestation, dwindling grasslands, depleting glaciers and water bodies and denuded landscapes have transformed the land surface processes linked to hydrology, erosion and weather patterns in the region that are manifest by the decreasing streamflows, decreasing food production, increasing sediment and nutrient load, shrinking fish habitat and degrading water quality.

The green spaces including the cultivation of culturally important vegetables have significantly shrunk in the urban centers of Kashmir valley. In the capital city Srinagar, Haakh (collards) cultivation, which is culturally celebrated, nutrient rich and affordable has significantly reduced over the years mainly due to the unplanned urbanization in the city, thus adversely affecting the production and consumption of Haakh in the city. From the content analysis of the open-ended interviews with farmers and historical city master plans, it was observed that while the haakh farms are shrinking, the consumption of haakh is not changing. The farm size has also decreased due to the move from joint to nuclear families. The farmers are boosting the production by making a reckless use of the fertilizers and pesticides. The city development plan, emphasizing on how to make the city habitable for tourists, have failed to address the food security and food sovereignty in the city. There is need for informed land

use planning in the region to minimize the impacts of changing land system patterns on food security and various land surface processes.

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Key Words: Food Security, Land System Changes, Kashmir, Haakh, Green spaces

AN UNCERTAIN FUTURE: BARRIERS TO WELL-BEING AMONG SMALLHOLDER FARMERS IN ODISHA, INDIA

Abstract ID: 867

Group Submission: Planning for Regenerative, Equitable Food Systems in Urbanizing Global Environments: Exploring the Impacts of Economic, Cultural, and Environmental Pressures on Smallholder Agricultural Producers in the Global South

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Problem and question

As the producers of the majority of food for consumption across the Global South, smallholder farmers are vital to the food security of millions of people around the world. Yet, the future of their livelihoods is growing increasingly uncertain, as planning and policies often ignore the needs of smallholder farmers (Altieri, Funes-Monzonte, & Peterson, 2012). The lack of policy consideration for smallholder farmers may exacerbate the effects of external forces, such as extreme weather events, urbanization, and globalization of the food system. Those external forces may create significant financial and emotional hardship, which forces smallholder farmers to find alternative work, sell their land for development, or fall into debt (Hazell & Rahman, 2014). As farming becomes less viable farmers around the world, local governments may face serious consequences such as rising rates of poverty and increasing dependence on foreign food production, threatening well-being of smallholder farmers and entire populations (FAO, 2014). This paper explores the ways in which external forces – of urbanization, globalization of the food system, and extreme weather – threaten the current and future well-being of smallholder farmers in the Bargarh, Koraput, and Khurdha districts of Odisha in India.

Methods

This research is part of a broader multi-site action research project, Planning for Regenerative, Equitable Food Systems in Urbanizing Global Environments (Plan-REFUGE) about the experiences of smallholder farmers in the Global South. The data for this paper comes from a pilot phase of the project in Odisha, India. Using a qualitative approach, we conducted semi-structured interviews. Interviews were conducted in person by a team of researchers, including native language speakers. The research team audio recorded the interviews, and took field notes during interviews (audio is being transcribed as well, and will be analyzed for common themes). Additionally, sub-national policies and plans were analyzed to understand how the sub-national policy landscape

supports, or undermines, the well-being of smallholder farmers and the future viability of farming. Preliminary findings in this manuscript are based on field notes, and will be finalized once transcription and analysis of audio recordings is completed this summer. Data collection protocols were submitted to the authors' Institutional Review Board (IRB) for approval.

Preliminary Findings

Smallholder farmers in Odisha face barriers to their well-being at multiple levels, such as unpredictable weather patterns, impacts from urban development, costs of farm-related infrastructure, and shifts in market demand. As smallholder farmers bear the financial burden of these challenges, there is a ripple effect on the well-being of their land, households, communities, and beyond. Self-reliance and shifting to alternative production methods may mitigate some challenges, but the lack of supportive policy structures creates ongoing barriers to farmers' well-being.

Interpretation and Conclusions

Due to a variety of external forces, smallholder farmers in Odisha struggle to maintain economic viability of their farms. Findings from this study suggest policymakers in Odisha should implement policies that support the needs of smallholder farmers, by supporting localization of the supply chain and prioritizing agricultural production. Local and state policies may offer some opportunities for increased well-being among small-holder farmers through specific channels, but the benefits and challenges remain under-studied.

Funding

This research is partially supported by the University at Buffalo Community of Global Health Equity.

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Key Words: food systems , Global South, local government, policy framework, farming

PRE-ORGANIZED SESSION SUMMARY

YOUTH PLANNING FOR PUBLIC HEALTH: HOW ADVOCACY MAKES A DIFFERENCE

Summary ID: 44

Abstract ID: 860

Abstract ID: 870

Abstract ID:

Objectives:

- how to improve youth engagement
- participatory planning models
- community health education and advocacy

POLICY AND PRACTICE-RELEVANT YOUTH PHYSICAL ACTIVITY RESEARCH AGENDA

Abstract ID: 869

Group Submission: Youth Planning for Public Health: How Advocacy Makes a Difference

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Community engagement is central to a democratic planning process as it creates dialogue between residents, government officials, local agencies, and developers. A well designed engagement strategy generates a richer final product after putting effort towards a participatory process that includes a diverse coalition of constituents. Often missing from community design projects are the voices of youth yet spaces like parks and playgrounds are built with them in mind. The Youth Engagement and Action for Health (YEAH!) project is developing a program that empowers youth to act as advocates for change in their community. Originally designed around physical activity promotion, YEAH! is a 10-week curriculum that takes youth from neighborhood assessment through brainstorming solutions, and ultimately to presenting their findings and suggestions to appropriate decision makers. Expanding the curriculum to follow the traditional planning process allows youth to be active voices in their community. Using surveys and interviews with adult leaders, community decision makers, and local champions, this paper looks at lessons learned from the YEAH! study and makes recommendations for a redesigned model that planners can incorporate into their community engagement toolbox. The aim is for planning agencies to recognize the opinions and ideas of youth as vital components of the design process while building youth capacity. At the same time, civically engaged teens continue to be active community participants as adults.

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Key Words: Youth, Physical Activity , Public Participation

TRANSLATING HEALTH ADVOCACY INTO PHYSICAL ACTIVITY: AN ASSESSMENT OF LOW-INCOME YOUTH OF COLOR IN PUBLIC SPACES

Abstract ID: 870

Group Submission: Youth Planning for Public Health: How Advocacy Makes a Difference

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Background: Previous studies on youth Physical Activity (PA) promotion focused on education, programming, and environmental change, with evidence that many approaches can be effective. However, few effective interventions have been scaled up, disparities remain in PA and obesity especially for lower-income racial and ethnic minority youth. Youth advocacy for environment and policy changes holds promise for improvement in obesity prevention, self-efficacy, and barriers to prevention. By training youth to take an active role in their community, it can also lay the foundation for a central tenet of planning – improved democratic engagement. The purpose of this study is to examine how the YEAH! Curriculum impacts middle-school aged participants' in community-based youth serving organizations (YSO), including Boys and Girls Clubs (BGC). Methods: 26 BGCs or other YSOs delivered the Youth Engagement for Advocacy and Health! Physical Activity YEAH!(PA) group-based program that is designed to help youth advocate for policy/environmental changes that promote PA. Measures include pre- and post-surveys of youth and adult leaders and semi-structured interviews with decision-

makers. Results: This research presents results on how youth advocacy training impacts African American, American Indian, Latino, Asian, and Pacific Islander lower-income urban/rural participants' attitudes and beliefs, and PA. It also provides lessons on what youth recognize as barriers to healthy behaviors in their built environment. Results also document decision maker's perceptions of solutions given by the youth. Significance: This study has significant implications for planning practice by demonstrating the ability of BGC and other YSOs to successfully implement a youth advocacy training program that can advance PSE changes, promote positive youth attitudes and beliefs, and potentially increase youth civic participation in these populations.

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Key Words: Health, Engagement, Advocacy

YOUTH ADVOCACY TO PROMOTE HEALTH THROUGH POLICY, SYSTEMS AND BUILT ENVIRONMENT CHANGE

Abstract ID: 1328

Group Submission: Youth Planning for Public Health: How Advocacy Makes a Difference

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Introduction: Numerous studies in public health and city and regional planning have addressed low levels of physical activity among middle- and high-school youth. Advocacy skill-building is a promising approach for promoting behavior change in youth and has been implemented effectively in tobacco cessation interventions. Yet, little is known regarding advocacy's ability to encourage higher levels of physical activity in at-risk populations. This presentation uses Social Cognitive Theory's integrated focus on individual and environmental factors to assess existing physical activity literature and interventions for their propensity to promote behavioral change in youth and environmental change in their communities. Methods: The instruments assessed were discovered through a systematic review of the literature and NCCOR's database of interventions studying physical activity environments. Instruments were evaluated for their inclusion of mediating variables from Social Cognitive Theory, including youth's self-efficacy, social environment, or built environment. An index measuring each instrument's propensity for individual or environmental change was calculated. It was also noted whether youth agency was central to the study's research design. Results: Whereas advocacy employs a youth-led process for behavior change, the literature emphasizes an expert-led model. The majority of NCCOR interventions do not fit all criteria of Social Cognitive Theory, but there are many that fit one or two components of the theoretical model. Conclusions: Promoting youth advocacy within health interventions has positive implications for continuing research in public health and city and regional planning. Additionally, an advocacy approach potentially has direct positive impacts on the social and built environments of youth.

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Key Words: Physical Activity, Advocacy, Youth

RESPONSE TO REFUGEE RESETTLEMENT: HOW MAJOR RESETTLEMENT CITIES PLAN FOR FOOD AND HEALTH NEEDS OF NEW AMERICANS

Abstract ID: 26

Individual Paper Submission

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In the United States, resettled refugees (referred to here as new Americans) arrive in designated resettlement cities where they can start a new life with support systems in place. Although refugee resettlement agencies are the main point of contact upon arrival, agencies are mandated to work with new Americans for only 90 days. Traditionally local governments have not had much contact with new American populations, yet the policies they enact and built environments they shape impact lives and health of new Americans in myriad ways (Judelson et al. 2017). As new Americans adjust to new ways of life, local governments can support plans and policies that reinforce healthy lifestyles. Multiple studies show that among new American populations acculturation of diet leads to increased risk of chronic disease (Bovell-Benjamin et al. 2009, Flynn, Foster, and Brost 2011, Ayala, Baquero, and Klinger 2008). Furthermore, new American populations may be especially susceptible to experiencing cultural and economic inequities that ultimately contribute to food disparities, possibly leading to detrimental health outcomes (Craig, Ariel, and Daniel 2007).

We question the extent to which local governments in major refugee resettlement cities in the United States consider refugee and immigrant populations in planning, particularly in regards to food and health. Using a mixed-methods approach we first conduct a systematic review of the comprehensive plans of ten cities that resettled the most refugees between 2012 and 2016 to determine if and how local governments are planning for new American populations (top resettlement cities include San Diego, Houston, Phoenix, Atlanta, Dallas, Chicago, Fort Worth, Denver, Buffalo, and Glendale). With an in-depth case study of the city of Buffalo we explore the nuances of the findings from the review of comprehensive plans. For this deep dive case study interviews were conducted with multiple groups in the city of Buffalo to gain an understanding of how local governments and civil society groups plan for new American populations, particularly in terms of their food and health. Interviews were conducted with civil society organizations (n=7), local government officials (n=6), and Burmese American households (n=30), then coded and analyzed using thematic analysis. Through analysis of plans, it is evident that local governments do not consider new American populations in planning, particularly in regards to their needs surrounding health and food. Furthermore, the deep dive of Buffalo shows that new American led civil society groups are responsible for ensuring the needs of new Americans. Results carry implications as to how comprehensive plans can better serve new American populations.

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Key Words: refugee, plan evaluation, food systems planning, planning for health

ENVIRONMENTAL FACTORS INFLUENCING OLDER ADULTS' WALKING ACTIVITIES IN DIFFERENT NEIGHBORHOOD INCOME LEVELS

Abstract ID: 40

Individual Paper Submission

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The benefits of walking for older adults (65 years and older) as a form of physical activity are well understood and documented. Nevertheless, planners are still trying to figure out how to make neighborhoods more walk-friendly and increase the level of walking activity among older adults. Numerous studies have found the quantitative relationship between walkability and walking behavior as measured by the GIS walkability index (Cole, Dunn, Hunter, Owen, & Sugiyama, 2015; Frank et al., 2010). However, a deeper understanding of older people's perception of the walk-friendliness of the microenvironment of their residential neighborhood is needed. Other studies have also measured older adult's perception of neighborhood walk-friendliness using quantitative surveys (Bracy et al., 2014; Leslie et al., 2005), which does not capture how the built environment is influencing behavior. Additionally, existing studies focus on walking for transportation (Van Cauwenberg et al., 2014; Ferrer, Ruiz, & Mars, 2015), leaving out an important variable, which is leisure walk. Thus, this qualitative study investigates the neighborhood factors influencing older adults' walking activities at the micro level in neighborhoods of varying income levels.

The objective of this research is to gain a deeper understanding of how older adults' view their neighborhood environment walk-friendliness by answering the following questions; (1) How do micro-level environmental factors influence walking activities in low- and high-income neighborhoods? (2) How do these differ for older people living in high vs. low-income neighborhoods? (3) How do these differ for older people of different incomes living in these neighborhoods?

This research will analyze data from structured and semi-structured walk-along interviews conducted in Tallahassee. The structured interview will ask questions about the factors influencing and how they influence the participant's decision to walk. To complement the structured interview, the walk-along interview will focus on the micro-scale environmental factors and how older adults perceive them. A sample of 20-30 adults aged 65 years or older and living in Tallahassee, FL., will be recruited from the local Tallahassee Senior Center. Snowball sampling will be used to recruit additional participants. Participants will be selected purposefully based on their neighborhood income level, being half from a lower income neighborhood and the other half from a higher income one. The analysis will consist of a systematic approach of "three concurrent activities: data reduction, data display, and conclusion drawing/verification" (Lehning, 2011, p.349). The analysis will be inductive, with data reduction starting at the basic level of line-by-line coding. The first review of transcripts will yield the initial codes, and these will be refined as needed during the process. The data display will comprise of a spreadsheet for each code, including direct quotes and data from the interviews. The coding will be refined through the analysis of the visual display and themes will be established based on this analysis. From the analysis of the visual display and themes, conclusions will be drawn. Finally, the conclusions will be verified through a review of the interview transcripts as a method of validation of the qualitative analysis.

The findings of this research will help understand the importance of micro-scale environmental factors influencing older adults' decision to walk. It will expand the existing literature and reveal significant micro-

environmental factors influencing older adults' walking activities. The results will allow planners to consider micro-scale environmental factors that are easier to change and can have positive impacts on older adults walking activities. Moreover, the research findings can impact how the built environment is designed to improve walkability and increase the rates of physical activity among older adults living in mid-size cities.

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Key Words: Aging, Walkability, Micro-environment, Perceptions, Qualitative Study

PARK ACCESS & EQUITY IN A SEGREGATED, SOUTHERN CITY

Abstract ID: 60

Individual Paper Submission

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The relationship between parks, walkability, and physical activity have garnered particular interest in literature for healthy communities, with physical activity being a key component for health (Bedimo-Rung, Mowen, & Cohen, 2005). While research seems to support the idea that parks are now considered “an essential constituent of urban quality of life,” location, amenities, and quality are also subsequently important in measuring access. As an essential component of quality of life, parks, therefore, are an aspect to consider in terms of the inequities of public services that often are associated with racial and economic segregation (Lens, 2017).

A common measurement of access is whether a population is within a ½ mile of a park, whereby GIS access is measured radially or by network from a park's boundaries (Rigolon, 2016; Ussery et al., 2016). Bedimo-Rung et al. (2005) attempted to incorporate other park characteristics to explain use and physical activity and provide some helpful, although non-operationalized, possibilities. The park features theorized to be cogent to park behavior (i.e. usage) included the actual amenities, the condition of the park, the aesthetics, and safety. Suminski et al. (2012) added park features to the analysis and found that low-income parks had poorer quality and fewer amenities. In addition, income was negatively related to nuisances such as noise.

As more work has been done on access to parks, the results on who has access and what type of access has been mixed (Rigolon, 2016). The National Parks and Recreation Association study (Ussery et al., 2016) found that 39% of the US is within ½ mile to a park, with the lowest proximity being reported to non-Hispanic whites. Other research, while mixed, has indicated that there is inequity regarding amenities and quality of parks favoring more affluent or privileged people (Rigolon, 2016). Instead of simply adding to the mixed results of access/no-access, it is important that future studies begin to look at the processes, circumstances, and particulars that may shape the direction of a city's park access.

In this paper, Tallahassee was used as a notable case study because it has been singled out as one of the most economically segregated cities in the US. In addition, there have been strong concerns about the racial segregation

in the school system. Residents in segregated cities are often stuck in disadvantaged locations due to both market forces and discrimination, and these disadvantaged locations limit opportunities and amenities to change their circumstance (Lens, 2017). Yet, in a GIS study of the parks within the city limits, the results show a surprisingly equitable distribution, favoring the minority and low-SES populations. This holds increasingly true as issues of physical activity amenities (playgrounds) are taken into account (using a modified PARA instrument).

I begin with an overview of the methods for GIS analysis and its results, whereby GIS layers were combined with a quality analysis of 60+ parks in Tallahassee to create maps that measure access to quality parks and facilities. Then, selected parks with similar amenities but varying qualities were compared to their neighborhoods. Finally, interviews were undertaken to understand more about the planning and historical data that resulted in this distribution, such as the role concurrency and school safety played in the access to parks. This study begins to use access to parks as the beginning of the discussion rather than the end.

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Key Words: park access, park quality, segregation, healthy communities, social justice

HOW SOCIAL VULNERABILITY INDEX RELATES TO OBESITY?

Abstract ID: 173

Individual Paper Submission

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A growing number of studies have examined multiple individual-level and contextual-level factors related to obesity. Contextual socioeconomic factors represent the potential of vulnerability for each area (Gay et al., 2016) and social vulnerability indices have been used extensively to measure the contextual socioeconomic factors. What is less certain, however, is how the contextual social vulnerability characteristics could influence individual-level obesity risk. Furthermore, it is possible that people living in areas with high social vulnerability may have limited access to parks and exercise facilities and healthy foods, which limit their opportunities to consume healthy food and have adequate level of physical activity and increase the risk of obesity (Giskes et al., 2011). However, few studies have specified the mechanism contributing to obesity through the contextual social and built environmental factors.

This study addressed this research gap by examining the influence of county-level Social Vulnerability Index (SoVI) factors on individual-level obesity through county-level built environments. A conceptual framework based on literature review describes the antecedent conditions and connections to obesity was tested using a structural equation model (SEM). The results provide direction for using the social vulnerability index as a tool for identifying those socio-economic characteristics linked to specific health outcomes in different built environments.

This study used both individual-level and county-level data. The individual-level data was derived from the 2012 Behavioral Risk Factor Surveillance System (BRFSS). For the county-level indicators, environmental variables were collected from the 2010 County Health Rankings and Roadmaps. The data provides health conditions and ranking for almost every county in the U.S. The second county-level indicator set, the social vulnerability index, was generated by the author following methods created by Cutter et al. (2003) and later updated by the Hazards and Vulnerability Research Institute. After the combination of individual-level and county-level data, the total sample size was 204,610 respondents from 205 counties in the U.S.

For the relationship between county-level social vulnerability index and county-level built environments, counties with a high percentage of Hispanic populations and population without health insurance (0.135, $p < 0.05$), high percentage of African Americans, females, and single-parent families (0.206, $p < 0.01$), high percentage of older adults and special needs (0.620, $p < 0.01$) were associated with a higher percentage of fast food restaurants. There was a lower percentage of fast food restaurants in counties with high wealth and Asian populations (-0.147, $p < 0.05$). Furthermore, there was a higher access to exercise opportunities in counties with a higher wealth and Asian populations (0.312, $p < 0.01$) and older adults and special needs (0.266, $p < 0.01$).

For the direct association related to the probability of being obese, this study found that females (0.021, $p < 0.01$), African Americans (0.106, $p < 0.01$), and Hispanics (0.018, $p < 0.01$) were more likely to be obese, while those with higher education level were less likely. In terms of county-level social vulnerability, counties with higher wealth and Asian populations (-0.048, $p < 0.01$) were associated with a lower probability of being obese, while counties with a high percentage of older adults and special needs (0.025, $p < 0.01$) were a positive correlate. For county-level built environments, fast food restaurants (0.016, $p < 0.05$) were a positive correlate, while access to exercise opportunities was insignificant.

The results demonstrated that counties that are more vulnerable to emergencies and disasters may also be less resilient for public health-related issue such as obesity. Areas with high social vulnerability were also associated with unhealthy neighborhood environments. Social vulnerability index variables may be a quality substitute for typical need assessments for not only emergency preparedness but also health prevention.

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Key Words: Built environment, structural equation model, multi-level analysis, health prevention, social vulnerability

USING SYSTEMS THINKING TO IMPROVE SOCIAL EQUITY CONSIDERATIONS IN SUSTAINABILITY PLANS: AN ANALYSIS OF FOOD INSECURITY AND CAMPUS SUSTAINABILITY.

Abstract ID: 174

Individual Paper Submission

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Although the use of sustainability principles within plans is well-established, analyses of such plans have found that they tend to emphasize some parts of sustainability while understating others. The social equity aspects of sustainability, in particular, have received less attention in planning efforts (Aygeman 2005, Saha and Paterson, 2004, and White, 2013). This is perhaps unsurprising, given that discrete topics such as transportation or energy

use lend themselves more readily to typical plan structures and measurements. At the same time, only a future that is fair and just for all is truly sustainable. It is therefore incumbent upon planners to strive continually to ensure the commitment to social justice outlined in the AICP Code of Ethics.

The broad question guiding this paper asks: how could a systems thinking approach improve the social equity aspects of sustainability in plans? Systems thinking, put simply, recognizes the interdependence of distinct elements within any system (Meadows). The system in question, be it a city or a university campus, will function quite differently depending on what those elements are and what forces are acting upon them.

To explore this question, I apply a systems lens to campus sustainability plans and the issue of food insecurity among university students. A review of recent peer-reviewed studies of food insecurity on campuses across the U.S. found an average of 42% of students experience food insecurity, or the inability to afford and/or access a nutritious diet (Bruening et al., 2017). The implications of this situation for individual campuses and higher education are critical. While food insecurity almost certainly occurs within a constellation of related issues, such as the rising costs of tuition and student housing, its impacts include diminished academic performance and lower likelihood of degree completion (Cady, 2014). For all that campuses do to reduce their environmental impacts in affordable ways, campus sustainability, in the full sense of the term, requires fair opportunity for all students to succeed with their educational goals.

This paper draws from two main data sources. The first is a campus-wide survey of students from the University of Kansas (survey launch date = March 26, 2018) that assesses their level of food security and possible explanatory factors. The second data source will be information gathered in five focus group sessions for food-insecure students planned for April-May 2018. The focus groups will delve more deeply into the experience of food insecurity among university students.

With these data in hand, the paper will address how a systems thinking approach to food insecurity would differ from a more typical plan approach, in which goals, objectives and strategies would focus on that one topic. Based on this comparison, I will consider whether and how a systems thinking approach could enhance and diffuse social equity aspects within campus sustainability plans and other types of sustainability-oriented plans. I will use the University of Kansas “Building Sustainable Traditions” plan as a prototype for this analysis. As one of the main contributors to that 2011 plan, I am familiar with the challenges experienced in including social equity concerns. The paper will conclude with recommendations for bringing systems thinking into other planning efforts.

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Key Words: food insecurity, systems thinking, sustainability plans, campus sustainability

QUANTIFYING WELL-BEING FOR SUSTAINABLE DEVELOPMENT AND PLANNING IN TORONTO, CANADA

Abstract ID: 203

Individual Paper Submission

It has become increasingly challenging to achieve well-being for the majority of individuals and even more difficult to sustain it. As human populations are increasing, our cumulative dependence on resources has made it difficult to improve one's well-being without affecting others'. Most socio-economic and environmental phenomena such as development, quality of life and well-being are multidimensional in nature and require the definition of a set of indicators to assess accurately. The purpose of this work seeks to understand how well-being is measured at the neighbourhood level and its importance as a comprehensive tool for determining current conditions, gauging improvements and helping set future development goals. One fundamental barrier to this field research is the lack of quantitative indicators and models that integrate well-being with direct and indirect drivers. Therefore, it is vital to develop methods for assessing indices abased on existing data for real-world application. To address this, the study has taken data from the City of Toronto's Wellbeing open source catalogue and using a partial least square structural equation modeling (PLS-SEM) to construct a robust, spatially explicit well-being index. This study aims to provide a new organizational model and tool to expand and explain the relationship between the three dimensions of sustainability (social, economic, environmental) and its role in neighbourhood well-being using an structural equation modeling (SEM) method . Also, to demonstrate its validity and usefulness in well-being research. The study will be used as reference to assist the broader projects of well-being and sustainable development research. This technique is scale-free which allows for application in different frameworks or data sources, and supports easy replication in many other locations and environments. Further applications of this method in other fields could improve the understanding of well-being interactions at the neighbourhood level, and move towards robust theory development and decision-making around sustainable development.

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Key Words: Composite Index, Structural Equation Modeling, Sustainable Development, Well-being, Well-being Measurement

NEW HOUSING DEVELOPMENT AND NEAR-ROADWAY AIR POLLUTION: ASSESSING RISKS AND MITIGATION POLICIES IN SAN JOSE, CALIFORNIA

Abstract ID: 261

Individual Paper Submission

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Air pollution from high-traffic roadways has been associated with coronary heart disease, respiratory problems, and premature death. Housing is commonly built near freeways in American cities, yet there is little evidence about how policymakers mitigate residents' exposure to near-roadway air pollution. This research assesses risks

from near-roadway air pollution for residents of new housing, and identifies mitigation measures by state and municipal governments.

Urban planning and public health researchers have increasingly studied near-roadway air pollution. A large share of Americans live near major roads and are exposed to air (and noise) pollution. About 19% of the U.S. population lives within 1/3 of a mile (500 meters) of a high-volume roadway, while 40% of Californians live near such roadways (Rowangould, 2013). Residents of minority and low-income neighborhoods are often exposed to more air pollution and this leads to cumulative impacts from exposure to multiple pollutants (Pastor et al., 2005).

Our research begins by analyzing the locations of new residential development relative to high-traffic roadways. We analyze all residential developments of at least 50 housing units in San Jose (CA) completed between 2008 and 2016. Data include 39 developments containing 12,676 housing units. We define high-traffic roads as those averaging at least 50,000 vehicle trips per day, consistent with USDOT and California Air Resources Board definitions. Geographic information systems (GIS) software is used to create 500, 1,000, and 1,500 foot buffers around high-traffic roads, and to identify residential units that fall within these high-pollution buffers.

Cities and state governments may reduce pollution exposure by adopting policies to reduce emissions, separate people from emissions, and improve indoor air quality. We use the research literature to create an inventory of building code requirements, and land use and transportation policies that may be used to reduce pollution exposure. These factors include zoning that restricts housing development near high-traffic roadways, site design requirements, constructing soundwalls, planting dense vegetative barriers, managing traffic speed and flow, and requiring high-efficiency indoor air filtration systems. We apply this list to our 39 study developments in San Jose.

We find that a sizeable share of new units are built close to freeways and expressways in San Jose. About 3% of new housing units were within 500 feet and 31% of new units were within 1,500 feet of a high-traffic roadway. Of the 3,973 new units within the 1,500 foot buffer, 385 units (9.7%) were built for low-income families or seniors; households in these units may be particularly vulnerable to air pollution.

Preliminary results suggest that public and private sector actors engaged in limited mitigation of near-roadway air pollution. The primary policies and programs were California's building energy code and state construction of soundwalls along freeways. Local zoning commonly permits housing adjacent to freeways. Much of the new housing in San Jose – including affordable housing – is being built near freeways, but few measures are being taken to protect the health of households living near these high-traffic roadways. These results suggest that planners and policymakers have an opportunity to develop policies and programs to reduce exposure to near-roadway air pollution.

This is an important topic for planning scholarship and practice as millions of Americans already live near high-traffic roadways, and policies to promote compact development may reduce regional regional emissions but lead to more households living near high-traffic roadways (Rowangould, 2013; Schweitzer & Zhou, 2010). As a result of these issues, air quality should be a greater consideration in land use decision-making and there should be more formal strategies for “separating people from pollution” (Giles et al., 2010, p. 29).

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Key Words: Air pollution, Transportation emissions, Residential development, Land use policy, Building codes

THE SPATIAL ARRANGEMENT OF GROCERY STORES IN OKLAHOMA: DO AMERICAN INDIAN COMMUNITIES EXPERIENCE EQUITABLE ACCESS TO FRESH PRODUCE?

Abstract ID: 272

Individual Paper Submission

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Background

Food insecurity results from spatial, social, and environmental factors that limit the availability, access, and utilization of healthy foods among local residents. Food insecurity causes diet related health outcomes such as obesity, diabetes, hunger, and malnutrition. The opportunity for communities to access healthy sources of food is increasingly seen as an important component of individual dietary choices and a contributor to community well-being. The local nutritional environment, comprised of both healthy and unhealthy options, interacts meaningfully with other components of the built environment as well as individual beliefs and perceptions to influence eating patterns (Glanz, Sallis, Saelens & Frank, 2005).

American Indian and Alaskan Native communities experience health burdens that disproportionately limit the quality of life and health outcomes of residents. Those who identify as American Indian are more likely to experience food insecurity when compared to other communities in the United States (Gundersen, 2008). Rates of diet-related diseases, like diabetes and obesity, also remain elevated among American Indians, Alaskan Natives, and Native Hawaiians when compared to other residents (Subica, Agarwal, Sullivan & Link, 2017). Spatial disparities observed in nutritional environments available to tribal citizens in California suggest fewer opportunities to purchase components of a healthy diet (Chodur, et al. 2016).

Oklahoma provides an interesting setting for this study because it is home to approximately 300,000 residents who identify as American Indian, about 7% of the population. Residents of the state also experience higher prevalence of diet related diseases; the state ranks 41st in rates of diabetes, 42nd in rates of obesity, and 48th in cardiovascular deaths when compared to the rest of the United States according to United Health Foundation.

Being able to choose, purchase, and utilize components of a healthy diet, like fresh produce, necessarily involves the spatial arrangement of physical resources; offering planners an opportunity to meaningfully support access to healthy sources of food and promote food sovereignty (Alkon & Agyeman, 2011). Understanding how public policy contributes to the nutritional opportunity of American Indian communities can help planners and tribal leaders to develop spatial strategies to enhance food access for residents.

Method

I use a spatial data set of the location of 587 grocery stores operating in the state of Oklahoma in 2015. I visited each grocery store site to confirm store address, operation, and space dedicated to the provision of fresh produce. I spatially match each store with tribal boundaries and block group data from the 2015 US Census American Community Survey estimates to code each store according to proportion of residents in the tract who identify as American Indian, urban versus rural location, poverty status, and tract location in relation to tribal lands. I categorize each store to identify: 1) stores inside and outside a tribal nation and 2) stores situated in communities having a majority of residents of American Indian descent (>50%) and stores where this is not the case. I identify spatial patterns and employ nonparametric tests to explore the relationship between the dependent variable

measured by: 1) number of stores, 2) total area of fresh vegetables and fruit and spatial and socio-economic location of each store.

Key Findings and Recommendations

This research is currently ongoing. Previous research leads me to hypothesize that the availability and number of sources of fresh produce is likely to be lower in tribal communities. Such findings would merit planning support for tribal nations developing innovative approaches to cultivate local and traditional foods through both physical and economic means in order to improve health outcomes among tribal citizens.

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Key Words: access, American Indian, food security, nutritional environments, spatial justice

SPATIAL ACCESSIBILITY TO HEALTH SERVICES: A STUDY OF HCV INFECTION IN MASSACHUSETTS

Abstract ID: 284

Individual Paper Submission

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Current estimates are that 3.5 million persons – including incarcerated populations – are living with a chronic hepatitis C virus (HCV) infection in the United States; approximately 1% of the general U.S. population (Denniston et al., 2014). Estimates suggest that there are at least 100,000 HCV infected Massachusetts residents (MDPH, 2012). Between 2002 and 2009, statewide rates of newly diagnosed hepatitis C virus infection increased from 65 to 113 cases per 100,000 (a 74% increase) among persons aged 15 to 24 (CDC, 2011). Significantly, these trends in diagnosed cases of HCV infection are concomitant to a documented increase in opioid use in younger populations over the same period.

Timely testing for HCV infection is a significant public health challenge. The linking of cases and those at elevated risk of infection to medical management and prevention services is key for testing. This is vital both to prevent transmission and to reduce risk of chronic infection, liver disease, and hepatocellular carcinoma. The benefits of medical management and preventative services can only be realized when persons with infections or those at risk of transmission are identified and linked to appropriate care and resources. Research indicates that accessibility can play an important role in use of health care services and health outcomes (Eberhart, Yehia, et al., 2015). There is a clear consensus on the differentiation between the spatial and nonspatial aspects of accessibility. Nonspatial factors include a wide selection of demographic and socioeconomic variables - such as social class, income, age, sex, race – that affect health care access. Although these are non-geographic influencers by concept, they often interact with spatial accessibility in practice (Luo & Wang, 2003). Spatial accessibility to healthcare refers to the ease with which residents of a given area can reach medical services and facilities (Luo & Wang, 2003). The two Step Floating Catchment Area (2SFCA) is a special case of the gravity-based model developed by Luo and Wang (2003) and estimates accessibility as a ratio of suppliers to residents. There are a few studies that

look at the association between spatial accessibility of HCV and HIV-related health services and cases though there have been no conclusive results suggesting correlation between access and disease burden (Ransome et al, 2016).

In order to fill in this gap in the literature this paper will 1) map and model spatial accessibility to HCV-related services using a modified 2SFCA method, and visualize the distribution of services within Massachusetts 2) Use spatial mixed models Geographically Weighted Regressions and multilevel models to account for geographic variability of spatial access to HCV related services and the socioeconomic variation within the state across various spatial units (city, ZCTA and block group). We will use a partially de-identified, limited HCV Surveillance Dataset from the Massachusetts Department of Public Health (MDPH). The data set consists of 82,255 cases with complete location data. Socioeconomic and demographic variables were selected based upon a prior research of factors associated with HCV hotspots (Stopka et al., 2017) and are from the U.S. Census Bureau's 2010 Decennial Census and the 2009-2013 American Community Survey (ACS) 5 year estimates.

Preliminary results suggest spatial clustering of HCV infections, accessibility and socioeconomic variables across the state. Higher inequity in income as measured by Gini and poverty appear to be correlated with higher rates of HCV infection as well as poor accessibility to treatment services.

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Key Words: Accessibility, Health Data, Infectious disease, Built Environment and Health outcomes, Spatial Clustering

MAPPING LATINO FOOD DISPARITIES IN GREATER MINNESOTA

Abstract ID: 385

Individual Paper Submission

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As rates of obesity and chronic disease continue to rise in our country, there is a growing understanding of the importance of increased access to safe, affordable, and healthy food for all. Although Minnesota continues to rank as one of the healthiest states in the country and statewide efforts have been made to promote equitable access to healthy food through policies and practices, significant health disparities exist across populations of color, Native Americans, and new immigrants (Minnesota Department of Health, 2014). In Greater Minnesota, where disparities assume distinctive qualities due to rural conditions and the demographic composition of towns, food insecurity and higher rates of nutrition-related chronic diseases disproportionately impact new immigrant Latino populations (Minnesota Department of Health, 2014).

With this context and current policy efforts in mind, we explored several planning-related questions in specific rural municipalities in Southeastern Minnesota where Latino populations have undergone a dramatic increase. Our research addressed the following questions: (1) What are the needs, constraints, and experiences that Latinos face in accessing healthy, affordable, and culturally specific food in Greater Minnesota? (2) Where do Latinos find healthy, affordable, and culturally specific food in Greater Minnesota? and (3) What are existing municipal/county policies and plans in Southeastern Minnesota that address food systems planning? Do they address equity? if so how?

By conducting a series of structured focus groups and participatory mapping workshops, we identified food access outlets; modes of accessibility; types of food programs and services; opportunities for growing and producing food; and the nutritional quality, cultural relevance, and affordability of available food in each location. The workshops drew on community mapping and Place It techniques that enabled participants to collectively identify and create a visual representation of their experiences related to accessing food through graphic representation-based activities and design thinking strategies. Participants also shared their lived experiences through the use of their bodies, objects, and stories.

Additionally, we analyzed planning documents and policies to examine how these documents addressed the needs of specific minority populations; and leveraged secondary quantitative data to provide a clear understanding of each population, through spatial analysis techniques.

Our findings show that the growing demographic concentrations of Latinos in certain municipalities across Southeastern Minnesota represent new considerations for planners and civic leaders alike. Food security emerges as an important factor among other planning related systems, including transportation, housing, and access to open space. Given their political and socioeconomic status, Latino residents are often deprioritized in major planning decisions. Only certain types of people, with sufficient privilege, are easily able to engage in planning decision-making processes related to food systems (Horst, 2017). However, planners can play an important role in community advocacy, to provide avenues for disenfranchised communities to be involved in decision-making processes and promote equity by collaboratively creating policy ideas based on the needs of communities. The role planners play in this scope is important not only in providing the data that can help historically underrepresented groups and new immigrant communities access healthy foods, but also in facilitating engagement toolkits to champion policy changes at the neighborhood, municipal, and state levels (Campbell 2004, Heynen et al. 2012).

Our presentation will include lessons learned and recommendations for achieving equity goals in food systems planning and shaping new policies oriented towards the improvement of food access and positive health outcomes among Latinos and underrepresented communities. By participating in this presentation, attendees will gain an understanding about how design thinking, food mapping, and Place It activities can be employed by planners, food systems advocates, and public health practitioners to meaningfully engage nontraditional groups in developing sustainable and meaningful solutions that reflect community needs.

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Key Words: food access, rural communities, planning , immigrants, equity

DECODING THE URBAN NEIGHBORHOOD: INFLUENCES OF THE ENVIRONMENT ON PERCEPTIONS OF SAFETY AND ACTIVE LIVING

Abstract ID: 399

Individual Paper Submission

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Research has established that good health and active living are closely associated. Active living in neighborhoods leads to lower obesity and lowered risk of cardiac and pulmonary diseases (Galloway et al., 2000). Active living also contributes to the enhanced quality of life in communities. It is essential to understand what encourages active living, and what deters it.

Building safe neighborhoods is an established strategy for active living (Loukaitou-Sideris, 2006). People choose biking or walking over driving, residents lead healthier lifestyles (Oluyomi, 2014), and in general build stronger social bonds in safer communities. But, what encompasses safety in neighborhoods? Do we speak of crime, traffic crashes only, or is there something more than what is explicit? Research shows that people process specific facts and implicit cues, and come up with their safety perceptions of a location (Harvey et al., 2015; Wilcox et al., 2003). The central question of this project is:

How does the built, natural and social context of a neighborhood affect safety perception of its residents?

Safety and safety perception are related concepts. Safety or objective safety is a measure of the observed frequency of incidents. Subjective safety or safety perception is the feeling about safety. It includes personal experiences and 'cues' from the environment. Literature has not previously examined the relationship between safety perception and active living in mid-sized cities. We will test this relationship in Salt Lake City. There are four distinct steps to achieve this.

First, we have identified variables that affect overall neighborhood safety perception from general and from CPTED (crime prevention through environmental design) literature. We have chosen four neighborhoods from Salt Lake City and recorded built and natural variables for each of the districts.

Second, we are surveying residents of the identified neighborhoods. A reliable and efficient way of understanding perceptions is through surveys. Residents are chosen from each neighborhood by randomization and are surveyed phone calls to collect data on their understanding of safety perceptions.

Third, we have collected data on traffic crashes and crime incidents from relevant authorities.

Fourth, data from the previous three sources will be analyzed in a multiple regression model to understand what factors out of built, natural and social factors affect safety perception.

Preliminary results indicate expected relationships. Variables such as continuous sidewalks, presence of street light, low crime rates are positively related to heightened perceptions of safety. Variables such as Ill-maintained properties, Dense foliage, Lack of crosswalk features are positively related to decreased perceptions of safety. Additional data and several iterations of the model is required to reach a stronger conclusion.

This research is timely and essential. There are four clear, fundamental reasons why this research is critical. The first and immediate outcome of this project is understanding why some neighborhoods are perceived safe and why others are not. Results will help understand what changes are required at localities such that residents feel secure to bike or walk. These changes may be physical (such as adding street lights), or social (such as increasing police patrol). Second, we will build a safety score of residential neighborhoods. This metrics will determine the comprehensive safety of a community. It is based on design variables, crime data, traffic data, and perceptions of safety of residents. Third, the health of people residing in neighborhoods is related to active living, which is similar to safety perceptions. Obesity, pulmonary and cardiac illnesses are more likely to occur in districts where

active living is low. Fourth, community relationships, civic engagements, and trust qualities arise out of safety perception. Making communities safer will encourage us to build social capital in neighborhoods.

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Key Words: Active living, Safety perception, Quality of life, Neighborhood safety, Environmental design

THE EFFECTS OF PM ON OUTDOOR RECREATIONAL ACTIVITIES OF CITIZENS IN URBAN CONTEXT - THE CASE OF SEOUL, SOUTH KOREA

Abstract ID: 414

Individual Paper Submission

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Globally, airborne particulate matter (PM), such as PM₁₀ and 2.5, has become a serious problem. The exposure to PM is a direct or indirect cause of health symptoms, such as respiratory and cardiovascular diseases, certain types of cancer and mental illnesses (World Health Organization, 2016). As public awareness grows, diverse types of reaction to PM are observed in many parts of society, economy and politics. Particularly, changes in human behaviors are critical as they generate a wide range of socio-economic implications. For example, PM has led a shift in popular shopping places, a shrinkage of outdoor recreation and tourism industry, and the consequential economic loss.

South Korea is one of the countries with a threatening level of PM, and the air quality of Seoul was 173rd place of 180 countries in the 2016 Environmental Performance Index (EPI). Responding to the growing concern, the level of PM₁₀ and 2.5 have been reported as a part of the weather forecast, and posted through smartphone applications since August 2013. The air condition alters human behaviors, and would result in substantial changes in the local economy. Despite the magnitude of the issue, quantitative research has not been fully conducted to examine how people move and act on the days of high PM levels.

In this backdrop, this study aims to investigate the effects of PM on outdoor recreational activities of citizens in an urban context, with a specific focus on the site selection. We hypothesize that when the PM level is high, people would choose enclosed spaces rather than open spaces for recreation. The study site is Seoul, South Korea, and the study period is from March to June of 2017. We use generalized additive model (GAM) to examine the relationship between the level of PM and the pedestrian volume in certain types of outdoor spaces, controlling for various compounding effects of weather, and socioeconomic conditions. The main data used in this study is the hourly floating population record, including the number, age and gender measured at a 50-meter interval. The PM and weather data for the same period is provided by Air Korea and the Korea Meteorological Administration, respectively. The information on recreational sites is obtained from the digital map provided by National Geographic Information Institute of South Korea.

As an early empirical study of the impact of PM on human behaviors, the findings of this study will help evaluating environmental policies and making safe community development planning.

Acknowledgement

This work was supported by the Ministry of Education of the Republic of Korea and the National Research Foundation of Korea under Grant number NRF-2017066771.

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Key Words: Particulate Matter (PM), Air Pollution, Outdoor Recreational Activity, Generalized additive model (GAM), Open Spaces

IMPACT OF ROAD CAPACITY AND DEMAND CONTROL POLICIES IN EVACUATION MODELING FOR CHEMICAL ACCIDENTS: A CASE STUDY IN ULSAN METROPOLITAN CITY, SOUTH KOREA

Abstract ID: 415

Individual Paper Submission

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Chemical accidents are often regarded as chemical disaster, since spreading nature of chemical materials can cause catastrophic damage not only for employees in a workplace but also for residents and the environment near the accident site. Chemical accidents occurred near a large-populated area may result in enormous human losses. Despite of increasing frequency and severity of chemical accidents, only few literatures argued on the necessity of developing reliable evacuation strategies (Mukhim et al., 2017; Tauseef et al., 2018). This study aims to develop simulation models for mass evacuation induced by chemical accidents in Ulsan Metropolitan Area, South Korea. The accident scenario assumed simultaneous leakage of toxic chemicals from the industrial complexes and mass evacuation of residents within the study area. To analyze impact of road capacity and demand control policies in evacuation efficiency, we conducted sensitivity analysis for several critical factors in the simulation model.

This study used two simulation models. First model was the Areal Location of Hazardous Atmospheres (ALOHA) model, a stand-alone software for simulation of the release of liquid and gaseous toxic chemicals. Using ALOHA, we simulated the worst scenario of chemical release where simultaneous leakage of toxic chemicals occurred in very stable weather conditions. As a result, the radius of chemical release for 19 toxic chemicals used in 51 chemical plants within the study area were estimated. Using the spatial extent of chemical release, we simulated mass evacuation of residents using Transportation Analysis and Simulation System (TRANSIMS) model. TRANSIMS is an agent-based model for simulating individual travelers and their multi-modal transportation. Using the model, we simulated vehicle-based evacuation of all residents within the hazardous area from their own houses to evacuation shelters located at the outskirts of the city.

Analysis in this study consisted of two parts. First, we conducted sensitivity tests of evacuation efficiency for several factors (number of lanes available, proportion of private and public vehicles used for the evacuation, and temporal distribution of evacuation) and examined the impact of road capacity and evacuation demand control

policies on evacuation time. Clearance time, the time required for all evacuees finished migration to their evacuation shelters, was chosen for an indicator to evaluate evacuation efficiency. Second, we developed five distinctive evacuation scenarios of chemical accidents by mixing three factors used in the sensitivity test. Those evacuation scenarios were simulated using TRANSIMS and evaluated by their clearance time.

Our results showed that there were notable differences of clearance time according to different road capacity and demand control policies. For the number of available lanes, contraflow shortened nearly 30 minutes of clearance time compared to normal evacuation, while that of reduced lanes recorded 50 minutes longer than normal. For the proportion of private and public vehicles, clearance time were consistently reduced about 2 hour and 30 minutes as proportion of private vehicle decreases from 76% (which is maximum) to 0%. With regard to the temporal distribution of evacuation, there was less than 30 minutes differences between 30-minutes evacuation departure within 30 minutes and 4 hours. Among the five evacuation scenarios, the worst scenario (maximum private vehicles evacuation with reduced lanes) showed the longest clearance time (6 hours 5 minutes), while the best scenario (zero private vehicles with allowing contraflow) recorded the shortest (1 hours 48 minutes). Number of available lanes was more influential than the others in reducing the clearance time. Those findings imply necessity of proper intervention by regional government when mass evacuation of residents is required due to chemical accidents, since it can significantly reduce clearance time of evacuation and thus casualties from the accidents.

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Key Words: Chemical Accidents, Evacuation Modeling

A SPATIAL IDENTIFICATION OF THE EFFECTS OF HEAVY PRECIPITATION AND HOT DAYS ON TRAFFIC CRASHES: A CASE STUDY IN FLORIDA

Abstract ID: 438

Individual Paper Submission

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We are facing more severe, more frequent, and longer lasting extreme weather events (i.e. extreme hot days, heavy rainfall, heavy precipitation etc.) due to climate change. There is a large body of emerging literature focusing on the impacts of extreme weather events on the built environment and human health safety. One unsettled debate in traffic crash research is whether or not extreme weather events positively affects traffic accidents in the U.S. Many studies prove that weather can affect traffic situations and intensities by influencing traffic demand, volume, modes, and travel behaviors (Cools, Moons & Wets, 2010; Guo, Wilson & Rahbee, 2007; Maze, Agarwai & Burchett, 2006; Smith et al., 2004); whereas, some scholars argue that the association between weather and traffic crash are mixed and ambiguous (Eisenberg, 2004).

The mixed findings have led us to examine the relationship between extreme weather events and traffic accident with more rigorous analytic methods and more reasonable data. However, very limited studies use spatial econometrics methods to control for spatial dependency. It is important to look at the spatial-temporal relationship because, first, the cross-sectional analysis fails to consider the temporal correlations or time-persistence of unobserved factors within each county, which induces bias to coefficient estimations, for example, precipitation volume at the aggregate level in cross-sectional analysis could undermine the relationship between heavy precipitation and accident chances. Second, ignoring space and time cannot capture the county inner dynamics across time, which may bias. Third, spatiotemporal analysis can better explain among counties why spatial traffic patterns form over time. The Poisson and Negative Binomial models are widely used in modeling traffic crash, however, using these models requires the data have equal variance and mean, no serial correlation, and ignores the effect the unobserved heterogeneity. Hence, this study uses a time series and cross-sectional data panel to estimate the weather-crash relationship.

Motivated by the observed “booming” of traffic crashes and “tortured” road system caused by extreme weather events, this paper examines the relationship between heavy precipitation and extremely hot days and traffic crashes in the State of Florida during the period 2006-2015. Four models are applied here: fixed effects spatial lag model, fixed effects spatial error model, random effects spatial lag model, and random effects spatial error model. This study considers various factors associated with traffic crash, including the occurrence of accidents and fatalities caused by accidents: county population, county average income, the extremely hot days in a year, yearly heavy rainfall volume, Gini index coefficients, and proportion of households without a car. Results suggest that heavy precipitation, population, and household without a car are highly significant influencing the number of total crash and fatalities in the State of Florida. The comparisons indicate benefit from using random effects spatial error model when numerous spatial and temporal effects are unobserved.

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Key Words: safety/health, traffic accidents, extreme weather, spatial dependency

MEASURING AND VALIDATING WALKABLE ENVIRONMENTS USING GOOGLE STREET VIEW AND COMPUTER VISION

Abstract ID: 447

Individual Paper Submission

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Studies have shown that walkability is determined by both urban form metrics, such as proximity and connectivity, and urban design characteristics as perceived by the walker (Adkins et al. 2012; Ewing & Handy 2009; Frank et al. 2010). However, many of the commonly used walkability indices do not include street-level urban design characteristics in their calculation. This is mainly because there has been essentially no scalable way

to measure the design characteristics of the built environment at street-scale (Kang et al. 2015). We attempt to overcome this limitation by using Google Street View (GSV) images and a computer vision technique (Zhao et al. 2017) powered by deep learning to measure urban characteristics as perceived at eye-level in an automated, scalable way. We collected GSV images for all street segments in Atlanta at their midpoints and intersections, resulting in over 27,000 GSV images. Using the computer vision technique, each pixel in those images were classified into one of 150 categories of objects. This classification allowed us to calculate walkability-related characteristics (i.e., the existence of sidewalk, building-to-road ratio, sky factor, etc.) of the built environment at eye-level.

In this paper, we test the explanatory power of GSV-derived measurement and compare that to conventional walkability indices. To validate the results with actual walking behaviors, we extract walk trips from an activity-based travel model and specify two sets of regression models. The first includes conventional walkability indices and other control variables while the second model adds the GSV-derived measurements to the previous set. The regression results show a meaningful improvement in the explanatory power of conventional walkability indicators with significant contributions from several urban design characteristics to walking behavior. This novel method for deriving accurate measures of walkable environments using big data and deep learning techniques offers valuable lessons for incorporating such methods in other domains of active living research.

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Key Words: walkability, active living, urban design, Google Street View, scene parsing

NEWCOMERS FOR SOCIAL WELL-BEING: HOW DO IMMIGRANT-RUN COMMUNITY FOOD RESOURCES IMPACT WELL-BEING OF RESIDENTS IN A DIVERSE COMMUNITY?

Abstract ID: 474

Individual Paper Submission

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Immigrants are shaping community and metropolitan food systems in dramatic ways by changing the US patterns of food production, distribution and consumption. The contribution of immigrants to community food system is of special importance in the US metro regions, where the recent growth in the immigrant population has revitalized many urban and suburban communities that have experienced historic disinvestment (Vitiello and Sugrue 2017). Immigrants are noted for revitalizing commercial corridors, occupying vacant properties, stimulating the real estate market, reviving social institutions, and impacting local politics and voter turnout (Vigdor 2017, Schuch and Wang 2015, Jones-Correa 1998). Some local governments emphasize the role of immigrant entrepreneurs in community revitalization and celebrate them as heroic actors who build up communities against all odds. However, this appreciation for immigrant businesses ends with their contribution in generating tax revenues and there is less concern with the nature of services and products they provide. The decisions made by immigrant entrepreneurs on where to locate, what products and services to offer, and whom to serve have definite impacts not only on the economic dimensions of a community, but also on the social well-being of its residents (Stern and

Seifert 2013). This paper, as part of a larger dissertation project, aims to unpack the multifaceted impacts of immigrant entrepreneurs on receiving communities by focusing on the ways they shape and impact community food systems.

This study pursues two questions 1) How do immigrant entrepreneurs impact affordability, accessibility and availability of foods in a community? 2) How do immigrant-run community food resources impact people's experiences of their food environments? The project adopts a qualitative multi-case study approach to provide a comparative analysis of two distinct types of immigrant-run food resources. The cases are selected from Upper Darby PA, a hyper-diverse, working-class and first ring suburb located adjacent to Philadelphia. The cases include a Korean supermarket and a multicultural community-based organization. The data heavily relies on semi-structured interviews with managers of the selected food sites and the customers/recipients at each site. Interviews with immigrant entrepreneurs mainly focus on their motivations, resources, services and customers. Interviews with customers/recipients explore their shopping experience, food environment perception and relationship with the food providers. The findings from interviews are supplemented with administrative data on various components of social well-being and participant observations.

Using online business inventories and store audits, this paper will first provide a brief overview of the food environments to contextualize the findings from the case studies. Despite its small size, Upper Darby has extremely distinct food environments where one census tract resembles a "food desert" while its neighboring tract embodies a "food oasis". This paper will present the findings from the Korean supermarket which is located at the downtown, with a high concentration of foreign-born residents. The finding shows how the supermarket manager provides access to affordable, healthy and culturally appropriate foods to a population beyond his co-ethnic community by carrying a wide range of ethnic products that reflects the diversity of community members. The supermarket, in addition to capturing the tax revenue from out-of-town shoppers, plays an anchor role in revitalizing the downtown as it has stimulated development of relevant businesses in its adjacency (e.g. eateries/bars). Additionally, the findings demonstrate how the market is providing access to jobs, contributing to individual and community wealth, building inter and intra-ethnic relationships, and improving the residents' perception of their safety and food environment. This study carries implications for local governments – particularly economic development and public health divisions- as it provides insight on the conditions under which immigrant food entrepreneurs could create healthier food environments and building communities while doing so.

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Key Words: Immigrants, Entrepreneurship, Food environment, Community well-being, Community development

OPPORTUNITIES AND CHALLENGES FOR COLLABORATIVE GOVERNANCE: THE POLITICS OF URBAN AGRICULTURE IN SEOUL, SOUTH KOREA

Abstract ID: 483

Individual Paper Submission

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Urban Agriculture (UA) is increasingly gaining attention from planners worldwide as a means to achieve revitalization of urban slums, food security for disadvantaged communities, and a more sustainable urban environment (Armar-Klemesu, 2000; Lovell, 2010). With the spreading popularity of UA, however, some scholars raise concerns that UA may be seen as a panacea for urban issues, even as it may unintentionally reinforce social inequity (Horst, McClintock, & Hoey, 2017). Much of this research draws cases in North America (McClintock, 2010), while little is known about how UA is unfolding in the Global South. To fill this knowledge gap, this study examines the emerging urban politics of UA in South Korea, focusing on collaborations developing between the government and civil society. This elucidates: 1) the specific social and political circumstances that motivated government and civil society to promote UA, 2) ways in which different goals and strategies for UA affect collaborations between the two actors, and 3) opportunities and challenges for sustaining local innovations through collaborative planning.

After a series of global and domestic food scandals emerged in South Korea in the late 2000's, people started seeking a more reliable, self-subsistent way to address food safety and food security. UA, as an alternative to profit-oriented commercial food systems, surfaced as a government priority in the early 2010's, building on existing grassroots food movements that began as early as the 1990's when weekend-farming arose as a popular recreational activity. National-level master plans and the enactment of a supporting law on UA in 2012 demonstrated how government institutions began to support for local innovations. I argue that the social capital and local knowledge civil society had accumulated for decades played a pivotal role in making UA bloom in Korea. Considering this backdrop, I ask in this paper whether government intervention enhances grassroots initiatives or curbs bottom-up UA movements.

To answer these questions, this research is based on a qualitative case study. Methods include a) participant observation in a key civic organization – The Seeds Cooperative – one of the most active UA nonprofits working on multiple publicly-subsidized projects, b) semi-structured interviews with government officials and food activists, c) document analysis of the government's master plans, local ordinances, regionally-focused UA projects, and meeting minutes of the Urban Agriculture Civic Council (a countrywide coalition of civic organizations), and d) secondary data analysis. Findings indicate that current partnerships between the government and civil society involve a type of 'contract' in which the government provides resources to civic sector organizations that produce goods and services (Coston, 1998). This study has also identified several factors that may negatively impact the future success of collaborative partnerships: 1) discrete understandings among government actors of UA as an ends to appease public pressure rather than a means to achieve an alternative food system, 2) an imbalance of political power in the policy process, giving civil society actors less voice in decision making, 3) disagreement over public investments in 'Green Industries,' an industrialized form of UA for commercial profits, and 4) introduction of competition and evaluation elements to UA projects, which might harm underlying principles of bottom-up UA relying on a sense of cooperation and solidarity. To move forward with more productive 'collaborative' partnerships, findings suggest the need for planning strategies that ensure democratic participation of civil society in each policy phase and a long-term financial plan to allow grassroots innovations to become self-sufficient and autonomous from government.

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Key Words: Urban agriculture, Food systems planning, Urban food governance, Public partnerships, Collaborative governance

UNCOVERING THE IMPACT OF HUMAN ACTIVITY AND MOBILITY ON THE TRANSMISSION OF DENGUE FEVER USING MOBILE PHONE DATA: A SINGAPORE EXAMPLE

Abstract ID: 485

Individual Paper Submission

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Dengue fever is an acute mosquito-borne viral disease widely spreading in tropical and sub-tropical areas, including both developing and developed countries. Each year between 50 and 528 million people are infected and approximately 10,000 to 20,000 die. Despite the significant morbidity and mortality, currently, there is still no effective prevention and treatment against infection. Reducing dengue incidence and interrupting dengue transmission have been the major approaches for dengue prevention and control.

Human activity and mobility could play a central role in the transmission of dengue fever as it increases the probability of secondary infection. Some researchers have shown that factors like high population density and active migration from disease-endemic areas are significantly related to the reemergence of dengue fever. However, research on the impact of human activity and mobility on the transmission of dengue fever is still rare, especially at the intra-urban scale, largely due to the lacking of data to describe the spatiotemporal patterns of dengue fever incidence and individual activity and mobility patterns with fine-grained spatial details. In this paper, we use the traces of millions of mobile phones users to derive proxies for human activity and mobility and examine how their interactions with environment factors (physical and social environment) affect dengue fever emergence in Singapore.

The research benefits from two unique datasets. Dengue incidence data from the Ministry of Health provide detailed information on dengue case clusters in Singapore from April 2016 to February 2017, including the time, locality, and number of dengue cases in each cluster. Another main dataset is the anonymous mobile phone data from a local operator, which describe the movements of millions of users over space in a month.

Using the mobile phone trace data, we derive three human activity intensity indicators to capture the population clustering across the city, including population density during working hour, home hour, and nightlife, respectively. Human mobility is characterized by the standard deviation of population density within the three different periods. A greater value of this indicator suggests more population movements happening in this area. With the measures of dengue incidence and human activity and mobility, we adopt generalized linear regression models to investigate the relationship between human mobility and activity and the infection scale of dengue and calibrate logistic models for dengue cases occurrence.

We find that population clustering in areas significantly affects dengue fever development. High working population density increases the probability of dengue occurrence while it is negatively related to the size of dengue cases. Residential population density has a negative effect on both dengue fever scale and occurrence, suggesting that people in residential areas are less likely to be infected with dengue fever. Moreover, the study on population mobility and its interaction with environment factors indicates that human mobility positively affects dengue occurrence and the transmission of dengue fever is export-oriented: for areas with dengue incidence, more active human mobility will decrease the local dengue risk, as dengue virus are more likely to be brought out to other areas.

Taking advantage of the mobile phone data, this study is able to investigate the dynamic interactions between environment and human activity and mobility on dengue fever. It provides new insights in applying emerging big data in epidemic disease transmission research. The findings of this paper could assist public health bureau in making informed decisions in resource allocation to increase the efficiency of dengue fever prevention and control.

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Key Words: Dengue fever, Human activity and mobility, Mobile phone data

USING A TIME PRESSURE FRAMEWORK TO UNDERSTAND HOW TRANSPORTATION ACTIVITIES AFFECT URBAN DIETS

Abstract ID: 523

Individual Paper Submission

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A growing literature has documented inequities in access to food and food retailers across Canada, the U.S. and other western countries. According to Statistics Canada, in 2011-2012 approximately 8.3% of Canadian households lived in food insecure households where they lacked a sufficient variety or quantity of food because of money (Roshanafshar and Hawkins, 2015). Notably, the highest rate of household food insecurity, at 22.6%, was for households with a lone parent and children under 18 – a population acutely affected by time pressure. While money is an important factor, there are also many studies that examine the role of geography and urban planning in limiting access to food (Minaker, 2016). This lack of access is driven by a wide range of complex spatial, land use, economic, political, and social factors, and is suggested to profoundly impact a variety of social outcomes, like education, social skills in children, and health.

Typically, studies on barriers to accessing food in cities are represented by research focusing on either food affordability and the socioeconomics of food insecurity, or simple spatial representations of “food deserts” and accessibility to food retail. However, these dominant approaches neglect to consider the impact of time use and activity spaces, and their related drivers like transportation availability and costs (Widener and Shannon, 2014). By not incorporating time use, individual-level activity spaces, and transportation contexts, these studies are limited by conceiving of the food shopping process as either aspatial or through an overreliance on a relatively simple framework that often emphasizes spatial access to food retailers around a person’s home. Both cases neglect important and relevant temporal constraints faced by many lower-income populations. These limitations are reflected in ambiguous findings in work linking undesirable outcomes to residing in food deserts or food swamps – terms often used to describe regions as without access to adequate food retail opportunities.

Our talk will review the research methods we are using to collect data for a new research project exploring how time pressure influences dietary behaviours of middle-to-low income residents who identify as their household’s primary food shopper in Toronto, Ontario, Canada. The ultimate goal of the research is to disentangle the links between people’s food environments, spatial access, travel patterns, time pressure, and socioeconomic status, by focusing on urban tower communities with a variety of geographic, transportation, and socioeconomic contexts. In doing so, planning decisions can be made that allow for the development of an equitable food retail environment that encourages healthy eating across a wide range of urban forms.

We will present our custom smartphone app, which is designed to capture trajectory, food intake, transportation, and time use information for a seven-day period. Additionally, we will explore preliminary results from our pilot data collection with the app scheduled for the spring of 2018, noting components that worked well and current limitations. Finally, we will discuss how similar data collection tools can be used to explore how transportation impacts the time people have for a range of healthy behaviours.

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Key Words: Urban Food Environments, Time Use, Activity Spaces, GIS, GPS

SPATIAL ASSESSMENT AND TRENDS IN HEALTH INEQUALITY AND ITS ASSOCIATION WITH SOCIOECONOMIC STATUS

Abstract ID: 596

Individual Paper Submission

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Background:

Many researchers have identified health inequalities as being highly related to individuals' socioeconomic status (e.g., low income, high unemployment, or high poverty) and demographic characteristics (Andersen & Newman, 2005; Braveman & Cubbin, 2010; Schulz & Northridge, 2004). Additionally, many researchers have found that limited physical environments can lead to health inequalities (Gordon-Larsen, Nelson, Page, & Popkin, 2006; Kim & Ruger, 2010) as well as to communities with poor livability (Manaugh, Miranda-Moreno, & El-Geneidy, 2010).

Research Objective:

The objective of this study is to: 1) define and identify geographic patterns of health inequalities of the United States in recent 10 years, 2) understand whether health inequality differs by region, and 3) to assess factors that have affected health inequalities in recent years.

Study Design:

First, "Health inequality" is measured using two indicators, health status (perceived) and healthcare availability (objective) by using a Geographic Information System (GIS) model. The explanatory variables are four census regions (Northeast, Midwest, South and West, excluding District of Columbia) across the United States, and the response variable is measured using the Gini coefficient for 50 states. Health status is quantified from 2014 and 2003-2009 Behavioral Risk Factor Surveillance System (BRFSS). Healthcare availability is measured as the number of primary healthcare providers (PCP) per 100,000 people. PCP information is obtained from 2014 Area Health Research File (AHRQ). Both perceived and objective health indicators are quantified in 3,143 counties.

Second, the Analysis of Variance (ANOVA) test is used to identify the null hypothesis that the level of health inequality is the same across four census regions. In addition to ANOVA test, a bivariate correlation analysis examines the relationship between socioeconomic status and health inequality. Socioeconomic status (SES) variables are used as covariates to evaluate positive and negative correlation of health inequality. The latest 5-year Census (2010-2015) from American Community Survey were acquired.

Principal Findings:

For the health status, the disparity levels for all states has increased between 2008 and 2013 except Connecticut and Rhode Island. For health availability, the disparity levels for all states has increased between 2008 and 2016 except Kentucky, Oregon, and Rhode Island. The ANOVA results show that both health disparities in the South were the highest in the country. After controlling for SES covariates, disparity in health status shows significant negative associations with the median household income; while disparity in healthcare availability was negatively correlated with uninsured population, median household income, and non-Hispanic white population, and it was positively correlated with the percentage of population over age 65.

Conclusions:

This study yielded three main points: 1) the overall trend of health disparity based on both perceived and objective measures has increased continuously from 2008 to present, 2) disparity in the South was significantly higher than in the other regions, and 3) some SES variables - household income level, uninsured population, race, and age over 65, correlated with disparity.

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Key Words: Health Inequality, Spatial Pattern, Gini Coefficient, Health Disparity, GIS

IMPACTS OF CONVERTING A CORNER STORE TO A HEALTHY GROCERY ON RESIDENTS IN A FOOD DESERT IN DALLAS FORT WORTH METROPOLITAN AREA

Abstract ID: 610

Individual Paper Submission

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Over 23.5 million Americans are living in Food Desert areas (U.S. Department of Agriculture, 2009). Studies are increasingly focusing on the availability of nutritious food within communities across the country, and suggest that factors within the built environment play a critical role in a person's diet (Morland, Wing, & Roux, 2002). Accordingly, the collaboration of urban planning and public policy is a key component in addressing this issue.

Most urban planning-food accessibility projects concentrate on developing community gardens in food deserts areas. However, converting the existing corner stores to healthy food stores could be an effective approach. It is more sustainable and leads to more tangible results in a shorter time period with less financial resources (Fulmer, 2018). To the best knowledge of the authors, only three projects have implemented this approach in the US. However, there is little evidence on the effects of these stores on their surrounding areas. This research seeks to address this gap in the literature, through examining the effects of Tarrant County (TC) Plan4Health (P4H) project outcomes on its study area.

This one-year project analyzed the existing corner stores of a food desert in Fort Worth, TX suffering from food accessibility. After several rounds of analyses, the team selected Ramey Market store as the pilot store. The team applied different techniques to promote healthy food options in the area since the grand opening one year ago. This research seeks to analyze the effectiveness of these efforts. In order to do that, the authors conduct several interviews to explore the most significant actions that have been implemented in the project. Interviewees include the members of TC P4H team, the shop owner and the manager of the school engaged in renovating the store. Based on the results of interviews, the authors design a survey and ask residents whether the opening of the store has changed their food diets? If yes, which actions have been more effective in the potential changes? The distribution of the survey is in the store and a credit ticket for healthy produce is given as the incentive to respondents.

The authors expect to find that activities of the TC P4H project has changed the residents' perception about the importance of healthy food options. Moreover, providing accessibility to healthy products through the healthy market encourages residents to consume healthier food. Meanwhile, we expect that engagement of the adjacent high school students is the most effective action of the project and a mural painted on the wall of the store plays a crucial role in attracting residents.

Data collected on the shopping habits may have long-term implications for policymakers who aim to develop curriculum geared toward nutrition education and/or healthy living marketing (Lent et al., 2014). Additionally, this research may help to define best practices for policymakers and community activists, who seek to create healthy food environments through a process of community relationship building.

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Key Words: Food Accessibility, Built Environment, Healthy Shop, Food Desert

STUDY OF URBAN ENVIRONMENT FACTORS INFLUENCING PHYSICAL ACTIVITIES AND HEALTH—A CASE STUDY OF 16 NEIGHBORHOODS IN NAN'AN DISTRICT, CHONGQING, CHINA

Abstract ID: 618

Individual Paper Submission

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Since the reform and opening-up policy implemented, the rapid development of cities has led to the substantial increase of material wealth. However, the deterioration of environment and the alteration of life style cause new health problems. Chronic diseases like obesity, diabetes, apoplexy, heart disease and so on are gradually on the rise. According to the research, human physical activities and health are inextricably bound up with urban environment, which becomes more complicated and is paid more concern under the circumstance of high density of population in China. The paper obtains the data of 16 residential areas in Nan'an District of Chongqing by the means of questionnaire survey, GIS and site survey, analyzing and comparing individual social features, quantities of physical activities and Body Mass Index (BMI), and built environment. Also, it proposes to use Hierarchical Linear Model to establish Average regression model, Fixed Effect Logistic Regression Model and Complete model, and then analyzes what kinds of direct and indirect influences built environment brings to

human physical activities and health. The result turns out that, under the high density of Chinese urban structure, environment variables like mixed land use, road network connectivity, green parks accessibility and street interface are inclined to boost human physical activities and have impacts on obesity of residents. In addition, obvious differences also exist in different communities and social ranks.

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Key Words: Neighbourhood, Built environment, Physical activity, Obesity

ENHANCING URBAN FOOD SYSTEMS THROUGH PLANNING AND DESIGN: REFLECTIONS ON A DECADE OF TORONTO EXPERIENCES

Abstract ID: 640

Individual Paper Submission

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A decade ago, various professions that deal with the urban built environment were starting to appreciate food systems as an important aspect of the many ingredients that made a good city, town or region. An international symposium held in Toronto called “The Role of Food and Agriculture in the Design and Planning of Buildings and Cities” brought together a variety of design and planning initiatives and research projects involved with food systems. How this fast-moving field has evolved in the decade since that moment and what the current implications are for the role of built-environment professions – and planning in particular – is the focus of this paper.

This symposium is likely to have been the first to bring together “individuals from the full range of professions of the built environment who have been recently tackling challenges of the urban food system. The interface between the physical aspects of urban food provision and distribution, urban design and architecture” was explored.^[1] This symposium emerged from a world where many regarded urban agriculture as an oxymoron and where food and agriculture were not yet recognized as one of the basic systems that underpin the functioning of cities. However, things have changed a lot in the last ten years. By now, there is a clearer understanding amongst many in these related fields that, for many reasons, from health and well being to economic development to mitigating climate change, the food system is crucial to design and planning strategies.

This paper explores how planning and design professions have fared in this shifting landscape. The most significant change is that a substantial number of initiatives have been attempted or implemented that were, at best, theoretical before this past decade. Reviewing these efforts has revealed that many of them have encountered a range of planning-related issues along the way towards implementation. While planners were the pioneers in the emergence of this field, this paper asks what professionals and academics working in many aspects of the built environment (from parks department staff and code enforcement officers to architects, landscape architects and building scientists) can learn from the past decade of proposed and realized projects. In particular, the paper asks what these professions can learn from each other.

Through case study research, this paper examines both the planning and design challenges and successes that project teams encountered. From the introduction of raising backyard chickens to the installation of rooftop farms and farming along power corridors, the paper will consider how changing (or unchanging) regulations, land use and tax structure have helped and sometimes impeded these projects. The wide variety of experiences from greater Toronto will provide a range of illustrative cases, complemented by examples from relevant comparative projects elsewhere. This will draw on the extensive experience of the authors in research, outreach and policy development in this area, based both on their involvement as co-leads of that symposium a decade ago and the ongoing “Carrot City: Designing for Urban Agriculture” initiative that emerged directly as a result of this symposium,[2] as well as their direct work in Toronto’s local food movement.

The symposium’s introduction from 10 years ago stated that “the potential contributions that designers and the design process can make to the food supply chain” have been barely recognized, and the “potential that planners can bring to the reintroduction of food systems into urban space” has not been tapped sufficiently. This paper will reflect on how much progress has been made in the past decade to address this shortfall.

[1] Quotation is from the original poster advertising the symposium.
<https://sites.google.com/site/architecturefood/>

[2] www.carrotcity.org.

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Key Words: food system planning, urban agriculture regulations, community gardens, rooftop farming, power line corridors

NEIGHBORHOOD CONVENIENCE STORES, SUPERMARKETS, AND US HOUSEHOLD FOOD SHOPPING PATTERNS ON SNACKS AND BEVERAGES

Abstract ID: 662

Individual Paper Submission

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There is a growing concern about the health implication of eating energy-dense and low-nutritious foods and beverages as they can be purchased in an increasingly varied set of stores ([Gustafson et al., 2012](#)). To address this concern from the spatial perspective, we need not only to know what kind of stores at which such food items were purchased ([Pothukuchi and Kaufman, 2000](#)), but also must consider the changes in the food retail sector ([Stern et al., 2015](#)). An understanding of the type of store where purchases are made forms the foundation for developing appropriate spatial strategies (e.g., limiting the number of convenience stores, use of food demonstration, pricing,

promotion, and advertisement in supermarkets) to reduce access to unhealthy food and promote healthful food choices.

We used cross-sectional cluster analysis to derive shopping patterns from US households' volume food purchases by store from 2004 to 2015 using Nielsen's National Consumer Panel Dataset. We then used multinomial logistic regression to examine the associations between neighborhood convenience store and supermarket availability (separately) and shopping patterns in 2015, adjusting for household education, income, race/ethnicity, household composition, urbanicity, and region.

We found four food shopping patterns or clusters for snacks and beverages: households that primarily shopped at supermarkets and grocery stores, households that primarily shopped at convenience, drug, and dollar stores, households that primarily shopped at mass merchandisers, and a combination cluster in which households split their purchases among multiple store types. We found households predominantly purchased snacks and beverages in supermarkets and grocery stores but a growing number of households purchased such food items at convenience, drug, and dollar stores, and a mix of large and small store types. Households living in neighborhoods with greater number of convenience stores had a significantly higher probability of belonging to the group who primarily purchased snacks and beverages at convenience, drug, and dollar stores. We did not find that clusters of shopping patterns differed by the number of neighborhood supermarkets.

Our cluster analysis supported policies and programs to encourage supermarkets to reduce the relative access to unhealthy foods and beverages. Our cluster analysis results suggest the consideration of the use of non-traditional food stores other than convenience stores and supermarkets to purchase unhealthy food. Furthermore, households that primarily purchased at convenience stores are worthy of special concern, because convenience stores are usually closer to consumers and sold higher proportion of high-sugar and low-nutrition foods than supermarkets and households are therefore more frequently to consume such foods on impulse ([Farley et al., 2010](#)).

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Key Words: food purchase, food availability, supermarket, convenience store, food shopping pattern

EFFICIENT STREET MEDICAL MAP—RESEARCH ON NETWORK OPTIMIZATION OF STREET HEALTH BASED ON INFORMATION VISUALIZATION

Abstract ID: 689

Individual Paper Submission

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At the beginning of 2015, the State Council of the People's Republic of China issued the "Outline of the National Medical and Health Service System (2015-2020)" to further optimize the allocation of Chinese medical and health institutions and resources. In fact, it is difficult and expensive to see a doctor, and the use of community health service centers in the whole society is really inefficient as a whole. So how to make primary health care institutions work effectively is an important goal of this research.

The research study selected the Chaoyang street in Changsha City, Hunan Province of China, which has a relatively complete urban medical system, (including urban general hospitals, street health service centers, community medical service stations, clinics, and private hospitals). We analyzed the present situations of distribution, resources, and characteristics at each medical point, from the perspective of residents' use and cognition. By using the methods of cognitive maps and simulation experiments, we aimed at discussing the problems about uneven distribution of medical resources and obstacles in implementation involved in the establishment of basic medical and health system.

The study found three significant barriers to the circulation of resources and information from the angle of residents. Firstly, information obstruction in some medical institutions mainly led to residents' different perceptions about the distribution of different types of medical institutions. Secondly, the lack of the consciousness that prevention prior to medical treatment, and the separation of health care sites from the residents' daily activity spaces resulted in low participation of preschool and school age children, non - pregnant women and elderly people in preventive health care. Thirdly, the complexity of children's pathology and the lack of professional child doctors and equipment have led to the inability of children aged 0-7 to seek treatments within the street.

We hope to visualize information by using map, showing information about all the medical resources in the street. Meanwhile, by taking community medical and health service centers as the mainstay of the system, we can collaborate with large hospitals to sharing information and medical resources, and can use the "health pavilion"(a terminal infrastructure) to get closed to residents and construct personal health networks. These internet platforms of visualized information can help to build basic medical and health network maps, open the communication barriers of information and resource at all levels of institutions. In this way, we can optimize the allocation of medical and health resources, and guide residents to seek medical treatment efficiently.

There are two values of this study. First of all, while urban planning is lack of ability to allocate medical resources efficiently at the street level, it can make use of the Internet to make up for this short board. Secondly, it helps us to think about what a role urban planning will play in the field of terminal infrastructure, such as the planning of "health pavilions" proposed in the study, in the future of China. While The study was conducted in 2015, the mass emergence of "Internet+medical" models and smart wearable devices of healthy from 2015 to 2018 confirmed the objectivity of this study to some extent.

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Key Words: smart health, medical map, terminal infrastructure, public health care, street

THE RELATIONSHIP BETWEEN BUILT ENVIRONMENT AND TEENAGER OBESITY —TAKING BEIJING AS AN EXAMPLE

Abstract ID: 730

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Context

Environment of the society and quality of residential life have changed a lot in Beijing of China over the past few years, and a survey proves that the index of teenager obesity in Beijing is much higher than before. Substantial researches have demonstrated that built environment factors are related to eating and physical activities in western countries, but in China the situation might be different. This article is to find out how possible the built environment factors are related to teenager obesity in China.

Methods:

Using Geographic Information Systems(GIS) to combine the geographic spacial data(supplied by Beijing survey and mapping institute) and teenagers health tracking study data(supplied by Beijing children hospital) with the digital map big data created by the Internet crawler, then analyzing the procurement data with statistical method.

Findings:

Built environment especially the street connectivity and the density of activity space have a strong correlation with teenager obesity. The communities with ready access to health foods and more “Gray Space” have significant negative correlation with teenager obesity. Teenagers in low-income family have a much lower risk of obesity.

Conclusions:

Built environment, physical activity in outdoor space, healthy diet habits and school education are strongly recommended in reducing the teenager obesity. Based on the authors’ review, increasing the connectivity of community streets and the density of outdoor activity space will help to reduce the possibility of teenager obesity; increasing supermarket and Chinese market access, more building “Gray Space” may also be promising strategies to reduce teenager obesity.

This article is supported by the National Social Science Major Projects, Coastal Metropolitan Security Strategies and Comprehensive Disaster Prevention Measures Based on Smart Technology

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Key Words: Built Environment, Street Connectivity, Outdoor Activity Space Accessibility, Digital Map Big Data, Teenager Obesity

POLICY AND PLANNING FOR SUSTAINABLE URBAN AGRICULTURE

Abstract ID: 746

Individual Paper Submission

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Agriburbs – also called agrihoods – are residential developments focused around a working farm (Sandul, 2010), or areas where suburban developments co-mingle with functional agricultural lands (Newman et al., 2015). They provide residents with access to, and opportunities to participate in, local food production, and they represent an increasingly popular trend towards ‘made-in-suburbia’ solutions to multiple contemporary sustainability challenges, such as food insecurity, agricultural land loss, and disconnections between people and their

environments, among others (Di Paola, 2018; Newman and Nixon, 2014). Despite the promise of agriburbs, little is known about how policies and planning intersect to advance socially and ecologically sustainable agriburban developments, which raises the following research question: How does the interplay of policies and planning influence the emergence of sustainable agriburbs? By applying a multilevel governance lens to the current situation in Canada and the United States, this paper will present several emerging policy and planning pathways to spread agriburbs across the country and make them an accessible alternative to sustainability-minded residential home owners in the suburbs. The research draws on document analysis (e.g., policy documents, municipal plans), secondary statistics (e.g., census data), and semi-structured interviews with key informants (e.g., policy-makers, planners, developers). Two particular policy and planning pathways are examined in detail: (1) the intentional development of agriburbs through agricultural land protection and the marketing of sustainable lifestyles; and (2) the spontaneous emergence of agriburbs based on community-oriented thinking and bottom-up social processes. The research advances theory regarding the role of agriculture in urban sustainability and provides insights for policy and planning practice regarding the development of agriburbs.

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Key Words: Urban agriculture, Social-ecological sustainability, Agriburb, Agrihood

ALIGNING LOCAL PUBLIC SYSTEMS TO SUPPORT MATERNAL CHILD HEALTH IN RURAL COMMUNITIES: LEARNING FROM HOME VISITING PROGRAMS

Abstract ID: 786

Individual Paper Submission

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Introduction:

Limited access to healthcare and community services, compounded by a changing economic environment and devolution of services, has contributed to poor maternal child health outcomes in Pennsylvania's rural communities. Delivering maternal child health care services in the home presents an opportunity to mitigate health-related challenges common in low-density, under-resourced communities. The Maternal, Infant, and Early Childhood Home Visiting (MIECHV) funded home visitation service in the state of Pennsylvania uses a nationwide evidence-based program specifically designed to address the health of new mothers and young children. However, previous evaluations of the program have emphasized health outcomes only. Little research has explored how rural home visitors adapt delivery of evidence-based health programs to account for larger community-wide limitations such as gaps in public services. We use Flora and Flora's Community Capitals Framework to understand how rural home visitors address shortcomings in local government systems outside of the healthcare realm, and how these gaps can be filled by local government action.

Approach & Methodology:

interviews with MIECHV-funded site administrators, home visitors, and clients were conducted at 11 of the 32 home visitation community sites in Pennsylvania. The eleven sites utilize four evidence-based home visitation program models and are representative of a range of geographic densities as defined by Rural-

Urban Continuum Codes. Interviews were recorded, transcribed, de-identified, and imported into NVivo10. Data were analyzed for themes and patterns using modified grounded theory mapped onto Flora and Flora's community capitals framework.

Findings:

Our analysis includes in-depth interviews with administrators, home visitors, and clients at seven home visitation program sites serving 11 rural counties (n = 81), and four home visitation program sites serving three urban counties (n = 69). Findings indicate that rural home visitors engage in adaptive and curricular enhancing strategies far beyond and outside their assigned health-based curriculum. These strategies address multiple community capitals such as a built, cultural, financial, and social capital. Home visitors' actions shore up community strengths and address structural gaps in public systems such as inaccessible transportation and unsafe housing conditions, pointing to home visitor's role in promoting collective well-being. However, home visitors tend to operate in isolation from non-healthcare public systems, constraining the ability of their efforts to multiply benefits within the community. Through aligning maternal child health programming like home visiting with other public systems and infrastructure – such as transportation and broadband services – we believe local governments can facilitate improved maternal child health at the local level.

Relevance:

We use a community development framework rather than public health measurements to demonstrate how home visitation services' overcome gaps in local government systems that contribute to maternal child health disparities in rural Pennsylvania communities. We then identify actions non-healthcare related local government stakeholders, such as planners, can take to support public health programming and advance other forms of capital which strengthen the physical, social, and economic health of rural communities.

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Key Words: healthy rural communities, community capitals framework, maternal child health

WHAT STREET DESIGN ELEMENTS REDUCED PEDESTRIAN COLLISIONS IN NEW YORK CITY?

Abstract ID: 803

Individual Paper Submission

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Background:

In the U.S., 5,376 pedestrians were killed by vehicle crashes in 2015. Many cities have adopted pedestrian safety strategies. As of 2015, 8 large U.S. cities have passed a Vision Zero policy, aiming at no fatalities or serious injuries in street traffic. Although many cities have been implementing pedestrian safety projects, evaluation studies at the project level are lacking.

Objective:

The current study evaluated street design elements installed between 2007 and 2016 and their effects on vehicle-to-pedestrian collisions (VPC) in New York City.

Methods: VPC data came from Accident Location Information System in the New York State Department of Transportation. Safety improvement projects at 114 intersections were reviewed and their implemented street design elements were identified. A two-group pretest-posttest design was employed to assess individual element's

effect in VPC reduction. We used regression trees to classify the intersections with design elements as independent variables for the target variables of VPC outcomes, to identify effective street design element combinations.

Results:

In overall, all project showed a VPC reduction by 0.31 per year after project completion while their comparison intersections did not have significant changes in VPC. The safety improvement projects at intersections were effective in reducing VPC when the projects included curb extensions, high-visibility crosswalks, pedestrian refuge islands, pedestrian plazas, turning bay alteration, or traffic signal alteration (-0.59 to -0.27 VPC per year). The intersection group with curb extensions yet without bicycle lanes was the most effective in VPC reduction (-0.69 VPC per year) among various combinations of street design elements for pedestrian safety.

Conclusions:

Curb extensions were the most effective in VPC reduction, in particular when they were not combined with bicycle lanes.

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Key Words: Traffic Calming, Countermeasure, Pedestrian Accident, Pedestrian Crash, Safety

THE EFFECT OF SOCIAL CAPITAL ON INDIVIDUAL HEALTH STATUS: A MULTI-LEVEL ANALYSIS

Abstract ID: 817

Individual Paper Submission

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Recently, an interest in the well-being that includes physical and mental health has been increasing. Obesity is one of the major physical health problems that many countries are commonly facing. It can cause the serious medical problems such as cardiovascular disease and hypertension (WHO, 2016). Also, people are suffering from mental health problems such as stress and depression as the modern society gets more complex. Not only does mental health threat individual well-being but it also can lead to crime (Linsky & Straus, 1986).

Numerous studies examine factors affecting individual health status. The factors can be broadly divided into individual-level factors such as physical activity and socio-economic status and community-level factors such as park, pedestrian environment, and regional income level (Bronfenbrenner, 1979; Hopton & Humt, 1996; Kaplan, 1996; Jun & Namgung 2018). On the other side, studies find that close relationships with neighbors have a positive impact on individual health (Cohen, 2004; Surbramanian et al, 2002). The less studied area, however, is whether the effect of social capital on individual health is conditioned by community-level factors. For example, social capital at the individual level may further positively affect individual health by interacting with the availability of parks while moderate individual health by interacting with the presence of fast-food restaurants at the community level.

This study examines the relationship between the individual and community factors and individual health status by using multi-level analysis. To analyze this, we utilize 2017 Community Health Survey conducted by Korean Centers for Disease Control and Prevention, including various health data at the individual level. The dependent variables include BMI (physical health), self-rated health status, and the level of stress and depression (mental health). At the individual level, we include factors affecting individual health status such as age, income, lifestyle, etc. We also include a social capital variable at the individual level, which is also included as cross-level interaction terms, interacting with community-level factors, in the multi-level analysis. At the community level, we include factors affecting individual health status such as land-use mix, public transit access, parks, and fast-food restaurants, which are collected from the Statistics Korea. The empirical analysis shows that there is considerable effect of social capital and the effect of social capital is conditioned by community-level factors on individual health status.

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Key Words: health, social capital, multi-level analysis

THE IMPACT OF RESIDENTIAL ENVIRONMENTS ON PUBLIC HOUSING RESIDENTS' SOCIAL CAPITAL AND HEALTH IN SEOUL

Abstract ID: 822

Individual Paper Submission

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Background:

Since 1989, the supply of public rental houses has mitigated the low-income housing shortage problem and contributed to stabilizing the housing market in South Korea. At the end of 2016, the number of public housing units in the Seoul metropolitan area totaled more than 2.83 million, representing approximately 10 percent of total housing units in the area. The public housing is now offered in diverse forms differentiated by region, type of resident, and supplier. However, despite policy-driven achievements in the supply of public housing, the residents' social capital and health have not been thoroughly examined. While studies have investigated the impacts of residential environment factors on residents' health and social capital in general housing (e.g. Leyden, 2003; Kawachi et al. 2008; Gidlow et al., 2010), little is known about such impacts for residents in public rental housing.

Methods:

We used the data from in-home interviews administered by Seoul Housing & Communities Corporation to 3,009 households in public rental housing in Seoul, Korea, between May 2016 and March 2017. The data provided participants' socio-demographics (e.g. age, gender, employment status, income), health conditions, social capital, and perceptions of their housing and their neighborhoods. Six outcome variables were included in the social capital (trust among neighbors, interaction with neighbors, willingness to help neighbors) and health (health

status, chronic condition, level of intrusive stress) categories. Residential environments were assessed in three domains: (a) internal housing environments, including housing function, finishing condition, utilities, and barrier-free design; (b) external housing environments, including green space, parking facilities, facilities for disabled people, and security conditions; (c) neighborhood environments, including accessibility to public transportation, educational facilities, public facilities, cultural facilities, and medical facilities, and other amenities (e.g. convenience store, grocery store, etc.). All but socio-demographic variables were dichotomized. A base model was estimated by including significant socio-demographic variables identified from a series of bivariate analyses. A multivariate logistic regression was used to assess the associations of residential environment factors with residents' social capital and health, controlling for the base model.

Results:

Of the total sample (N = 2,909), 56.31% were male, 44.86% were married, 54.86% were employed, 37.37% reported no household income last year, 75.97% had educational attainment below the high school level, and 22.45% had at least one disabled household member. The average age was 59, and the average length of residence was about 10 years.

Residents living in better internal housing environments were more likely to have good health conditions, lower levels of stress, and higher levels of trust among neighbors. Safe areas and green spaces in the external housing environment were associated with residents' health, chronic conditions, and levels of stress. Facilities for disabled people helped improve health conditions and trust among neighbors. Neighborhood environments with greater accessibility to public transportation, convenience facilities, cultural facilities, medical facilities, and other amenities were associated with better health and chronic conditions as well as a lower level of stress. Those who lived in a neighborhood with accessible public transportation and convenience facilities were more likely to have frequent interaction with neighbors.

Implications:

Improving the quality of internal and external residential environments as well as neighborhood environments appears to be important for public housing residents' health and social capital. These findings warrant further attention to the environmental quality of public housing, not just the expansion of supply.

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Key Words: Health, Social capital, Public housing, Residential environment

ARE WE READY? ASSESSING THE PUBLIC'S ROLE IN THE EMERGENCY MANAGEMENT PLANS OF AMERICA'S TEN LARGEST CITIES

Abstract ID: 860

Individual Paper Submission

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In an era characterized by domestic and international terrorist attacks and mass shootings in large urban centers, the appropriate role of city planning in the creation of safer, more reliant communities is under increased scrutiny by the field. Understandably, design strategies and critiques have been utilized in adapting the urban form to provide greater security to people and the built environment. Colquhoun (2004) and Coaffee et al (2008) assert that modifications to urban designs can increase public security. Although urban users are often dissatisfied by the impact of security zones and the effective privatization of previously public space, Németh and Hollander (2010) argue that such design features are a new form of urban land use in global cities. Collectively, these design approaches can be largely understood as hierarchical decisions imposed within an emergency management framework by both public and private entities. By contrast, scholars such as Rohe, Adams & Arcury (2007) have argued for enhanced collaboration between planners and public safety officials improves the quality of life in urban neighborhoods. Such findings support the vital role of planners in nurturing a participatory planning process that encourages civic engagement (Forester, 1999).

These notable perspectives, however, have failed to adequately explore the ways in which city governments have developed and implemented their own methods for encouraging civilian participation in community safety processes within an emergency management framework. Analysis is vitally needed on how planners can facilitate creating more informed participants in public safety and/or in establishing volunteer roles that complement those of first responders and emergency management personnel. To date, there is little assessment on the quality of various approaches or the identification of best practices.

Recognizing the need for enhanced retaliatory civilian training methods, in 2014 the Department of Homeland Security adopted the motto, “Run, hide, fight” in their active shooter training. Numerous incidents in the last five years demonstrate the vital role engaged citizens (often with relatively little formal instruction) can play in preventing violence, mitigating dangerous situations, or apprehending responsible parties. Regular members of the public performed extraordinary acts of service in events including the Boston Marathon bombing (2013), the Charleston church shooting (2015), the San Bernardino attack (2015), the Las Vegas shooting (2017), the Sutherland Springs church shooting (2017), and the Marjory Stoneman Douglas High School shooting (2018), among many others.

Recognizing that urban centers are the likely targets of domestic or international terrorist attacks or mass shootings, municipal governments have responded with a variety of approaches that encourage citizen engagement in emergency management processes, such as first aid training, threat identification, and self-defense. My paper analyzes publically available emergency management plans (formal or otherwise delineated in print and/or online sources) of America’s ten largest cities (by population) and assesses the robustness of their civilian engagement strategies by classifying, comparing, and contrasting their approaches. I argue that because cities are frequently on the front lines of combatting acts of extreme violence, they are uniquely poised to be instructive laboratories on methods and approaches to encouraging civilian preparedness and participatory planning in community safety. My research finds that the strategies collectively reflect an ambiguous amalgamation of hierarchical approaches and participatory practices, legacies of Cold War civil defense planning and natural disaster mitigation planning respectively. As such safety planning matures, increased public participation will be vital towards encouraging the development of an informed, trained populous capable of assisting with the prevention and mitigation of violent incidents.

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Key Words: community safety, emergency management, public participation

EXPLORING COMMUNITY GARDENERS' ATTITUDES AND EXPERIENCES

Abstract ID: 864

Individual Paper Submission

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The role of urban agriculture is evolving with the dynamics of urbanization, green infrastructure and climate change (Austin, 2014; Beilin & Hunter, 2011). Community gardens can provide multiple benefits in alignment with sustainability and livable community goals (Barthel et al, 2012, Ferris et al, 2001). In addition, community gardens provide settings to explore people-nature relationships at both a personal and community scale, in what Bethany Turner (2011) terms “embodied sustainability”.

This research was conducted over a two-year period in Providence, Rhode Island, a post-industrial city in the northeastern United States. The study explored the relationships between the gardeners’ participation in community gardening and their perceived life changes due to community gardening. Areas of interest regarding participants’ attitudes and experiences in the garden included: (1) gardening practices; (2) knowledge acquisition and sharing; (3) motivations to garden; and (4) sense of attachment to the garden. Quantitative and qualitative survey data was collected from participants (N=112) within the Providence Community Garden Network.

The results suggest that for study participants, community gardening was highly valued as providing: (1) an opportunity to grow food; (2) a place to be immersed in nature and beauty; (3) a social space; (4) a place of learning; and (5) a place where participants felt happy and proud of their efforts. In addition, the importance of effective leadership in the garden and garden network was a recurring theme.

The complexities of creating healthier, sustainable and adaptive urban settings makes it critical to fully engage urban populations in understanding and participating in green infrastructure responses. In relatively small spatial units, community gardens have great potential on numerous levels for supporting more livable and sustainable cities. This research contributes to planning scholarship and practice regarding the value and challenges of urban community gardens and provides insights into supporting their success.

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Key Words: Community gardening, livable cities, green infrastructure, place attachment, sustainability

FOOD SOVEREIGNTY IN THE ARAB WORLD

Abstract ID: 865

Individual Paper Submission

Market liberalization in the developing countries has limited these countries' role in controlling exports which led to weakening their market power and restricting their local farming sector. Even though liberalization in the agriculture sector has made the local farmers better able to access foreign markets, it also exposed them to the global market shocks. While local farmers are the major players in the agriculture sector, producing more than 80 percent of the food consumed in the developing world (IFAD, 2013), they are the most vulnerable players in the food chain in the region.

This research aims at achieving food sovereignty in the Arab World by supporting smallholder farmers in the region. The primary research question is: How can a regional food system plan achieve food sovereignty at the regional level while improving the livelihood of smallholders in the Arab World? The goals of the research include improving the quality of life for smallholders, improving access to adequate nutrition for the whole population, and improving social justice throughout the region.

This interdisciplinary research contributes new insights into how a management-based regional plan that proposes food sovereignty as a practice in the Arab World can work toward solutions to strengthen livelihood of disadvantaged populations. This research will also outline the political, social, economic, and administrative systems needed to develop and manage natural resources to ensure equitable delivery of different opportunities

Smallholder farmers are marginalized through limited access to resources, information, technology, capital, and assets. The current international food politics tend to control the poorest rather than expanding their choices. Smallholder farmers' cooperatives find it challenging to compete with local subsidiaries of global trading firms. As governments retreat from the regulation of domestic markets, farmer organizations lose a political forum of negotiation at the global scale. However, a new role for smallholders could limit the power of government in shaping local and regional food systems, giving farmers greater control over their primary source of livelihood. This approach would address equity and social justice issues, help achieve household food security, and improved nutritional status for those who depend on agriculture for their livelihoods.

A regional food system will allow the Arab Countries to use and share their natural, economic, and social resources more efficiently and make these countries more resilient for three reasons; First, multiple agroecological zones can support the growth of diverse crops. Second, shared cultural and social connections could potentially limit conflict and increase the cooperation between these countries. Third, resource sharing agreements would decrease conflicts over the natural resources, especially water. Regional scale requirements will include improving extension services, transport, and planning services, improving storage and distribution facilities, increasing water access to boost agricultural productivity, and improving cost-efficient access to food. These actions will promote the well-being of smallholders, decrease inequality in the region, work to resolve problems of social justice, and achieve food sovereignty in the region.

I will employ a qualitative research design to investigate the research question. Exploratory research will be used to address food sovereignty status in the Arab World as well as to measure food production capacity in the region. I will examine secondary data that provides information about the challenges that the region faces in the agricultural sector. This research will also use an embedded multiple case study approach to understand the process of creating multi-national collaborative plans and agreements. Future research will also include semi-structured interviews to inform my case study approach that will target smallholders and other stakeholders in the Arab World to understand how government power dynamics may impact the regional food systems planning approach in the Arab Countries.

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Key Words: Regional food systems, food sovereignty, smallholders, social justice

ENHANCING COMMUNITY HEALTH WITH RESILIENT SOCIO-TECHNICAL NETWORKS

Abstract ID: 880

Individual Paper Submission

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Theme:

This paper describes an action-research project approach to enable latent trans-spatial and place-based adaptive capacity by working with community partners to identify innovative and localized strategies for building resilience. Our driving assumption (not testable as a hypothesis within the frame of this project itself, but perhaps evident over a longer timeframe) is that an adaptive-capacity-focused, social-technological approach enables communities to recover and emerge even stronger after a disaster by prioritizing preparedness measures that improve everyday well-being and quality of life regardless whether a disastrous event occurs. With a focus on wellness, we propose an expansion of telehealth services, using robust combinations of high- and low-tech communications infrastructure, to leverage community physical/spatial and social resources that can combine, adapt and take on new functions as needed in the case of an earthquake. Practical goals are to leverage existing community networks and build new social ties; overcome spatial distances and socio-economic gaps in access to health care; develop improved protocols and preparedness for disaster medicine. Academic goals include advancing theories of how social ties relate to place even when mediated through (Internet- and non-Internet-based) telecommunications; and how place-based social ties relate to wellness and disaster resilience.

Approach:

Working with urban and rural community partners in Western Washington State, we combine a previously tested and published appreciative inquiry approach to disaster preparedness planning and scenario building (Frietag et al. 2014) with a community self-assessment protocol to identify local assets, strengths, and values, including social capital and trust networks. The self-assessment allows the community to see how both telecommunications and transportation are related to match resources and needs on a regular as well as emergency basis; specifically, we focus on the distribution of medications and healthcare services as a type of resource needed both normally and in emergencies (Uscher-Pines, Fischer and Chari 2016). We integrate low-tech (e.g. community low-power FM radio and ham radio) and high-tech (Internet, cellular and Wifi direct mesh networks) telecommunications to leverage social and physical assets within and outside partner communities (Hampton 2016; Heinberg 2017). Integration of both vertical and horizontal socio-organizational structures in this process is key (Ingold and Hirschi 2010). Horizontal integration is determined by the unique configuration of each partner community's networks and resources. Vertical integration is achieved through partnerships with agencies and health care professionals at state, regional, county and local levels, including Seattle and King County Public Health's Community Resilience and Equity Program, the University of Washington Indigenous Wellness Research Institute, the Northwest Healthcare Response Network, Washington State's Emergency Management Division, and the City of Seattle's Office of Emergency Management.

Findings:

Previous studies and preliminary results suggest that asset-based approaches to disaster preparedness planning can help communities envision a broader range of potential mitigation strategies that also address non-disaster-related community goals. Opportunities to expand telehealth services were identified that can improve both everyday and disaster-related health care in urban and rural communities.

Relevance:

The increasing reliance of cities and urban-rural regions on complex and interdependent infrastructures has increased vulnerability to natural and man-made threats. The community adaptive capacity necessary to avoid or recover from a disaster is typically only apparent after a disruption. We propose that a locally-driven approach to whole-community resilience – one that helps communities deal creatively with both everyday challenges and potential large-scale disasters by leveraging place-based assets and values – is a transferrable and necessary part of an effective regional resilience strategy involving anticipatory transformation and a rebalancing of regional integration with local self-reliance.

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Key Words: adaptive capacity, disaster resilience, telehealth, community self-assessment, social trust

THE EFFECT OF SOCIAL CAPITAL ON POST-DISASTER RECOVERY: A CASE STUDY OF 2012 HURRICANE SANDY

Abstract ID: 909

Individual Paper Submission

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The recent decades saw increases in the number of severe natural disasters, many of which caused severe community damages, affecting the lives of vulnerable populations. The planning field faces the challenge of building and rebuilding resilient communities. Social capital has been recognized as a means to improve community resilience. Recently, a growing number of studies investigated the roles of social capital in disaster management (Meyer, 2018).

Social interaction and social network, as forms of social capital, can be beneficial in post-disaster recovery because people can potentially gain internal and external resources from such interaction and networks. Individuals could draw on the social resources and mobilize resources to address their collective concerns (Mayunga, 2007). Moreover, social capital can serve as an essential reason and emotional need for undertaking the significant costs of rebuilding (Chamlee-Wright & Storr, 2011). Communities with more trust, civic engagement, and stronger networks can better bounce back after a crisis than fragmented and isolated ones (Aldrich, 2008).

Many of the previous studies analyzed social capital at an aggregate scale, i.e. at regional, neighborhood, and community levels. Scant research studied social capital at the individual household level. For instance, Aldrich (2011) studied how stronger social networks accelerated disaster recovery by paired-comparisons of two similar neighborhoods after Kobe earthquake. Chamlee-Wright and Storr (2011) used semi-structured interviews to examine the role of social capital as community-level collective narratives, and they found that social capital

enhanced the community's capacity to recover after Hurricane Katrina. Many of the social capital studies are qualitative in nature; very limited amount of research employed a quantitative approach to measure social capital.

This paper fills the gap by conducting a quantitative analysis on the relationships among social capital, access to external financial assistance, and helpfulness of social groups reported by households. We studied these factors' direct and indirect effects on household recovery status, by applying structural equation model. Through a random sample survey of 1,795 households in New York City after 2012 Hurricane Sandy, we collected information on household's social capital and recovery status in 2015. We measured household's social capital, and empirically tested the causal relationships among social capital, access to external financial assistance, assessment of helpfulness of social groups, and self-reported recovery outcome. Our preliminary results show that social capital improves household's access to external financial assistance and therefore, enhances household's rating of helpfulness towards the social groups it interacted with. However, we did not find a significant correlation between financial assistance and recovery. Therefore, this research provides evidence that higher social capital could potentially enhance financial assistance received by households, however, it does not guarantee a better recovery outcome.

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Key Words: social capital, household recovery, disasters, structural equation model, Hurricane Sandy

RESIDENTIAL SEGREGATION, MIGRATION, AND FOOD ACCESS DISPARITY IN ATLANTA

Abstract ID: 911

Individual Paper Submission

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Disparity in food access is a continuing concern in many neighborhoods in the U.S. This paper examines food access disparity in relation to poverty, nativity, and race/ethnicity, with a particular focus on a spatial and temporal dimension, in the Atlanta Metropolitan Statistical Area (MSA), from 2003 to 2015. Specifically, we ask the following questions: 1) How has access to grocery stores changed in the last decade? 2) Do neighborhoods with higher minority share, foreign-born population share, and poverty rate have lower food access? 3) How does accessibility to grocery stores vary by different intra-metropolitan rings?

We use grocery stores as a proxy for food access because they are a conventional form of grocery shopping and sell a wide range of food compared to alternative sources of food such as convenience stores, restaurants, charitable nonprofit food assistance program, social safety net programs. Then, we calculate the distance to the nearest grocery stores and the number of grocery stores per census tract within 1 mile from a centroid using GIS and use both measures as dependent variables. And, several independent variables are included to capture the variation in spatial and sociodemographic characteristics of the study area.

Using regression analysis, the study finds not only substantial improvement in food access over time in terms of both the number of grocery stores and the distance to the nearest one, but also spatial variation in food access by different intra-metropolitan rings. Also, the results indicate that the access to grocery stores for minority or foreign-born neighborhoods is at least as good as that of white neighborhoods within the Atlanta MSA, with the exception of neighborhoods with a high percentage of African Americans in the inner-ring suburbs.

Much of the research to date has examined high-poverty areas or areas characterized by high concentrations of racial and ethnic minorities at a single point in time. By limiting the focus to high-need areas, research may overlook how place matters and may mis-estimate how different place-level factors shape food security status. Also, providing a snapshot of a food environment may not address the dynamics of rapidly changing neighborhoods where we live in today. Therefore, we hope that this study will contribute to the literature by adding a spatial and temporal dimension beyond race/ethnicity disparity in food access.

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Key Words: food access, spatial variation, racial disparity, Atlanta

REGULATORY FRAMEWORK AND SUPPLY SIDE ISSUES FOR FOOD RETAIL SYSTEMS IN MUMBAI, INDIA

Abstract ID: 926

Individual Paper Submission

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This paper explores the regulatory framework and the work environment for vendors of the informal food network in Mumbai, India. After providing a snapshot of the demand side and the culture of food purchase in the City, the research now focuses on the perception and attitude of vendors of fresh foods. These vendors form an intricate informal network of food systems in the City, one that comprises over 95% of purchase points for Mumbai residents.

This paper is the result of a study that involved over 100 interviews with various, randomly selected vendors of fresh produce from various street markets scattered throughout the City. The study aimed to discover the impetus behind the thriving informal food retail economic sector in the City. A myriad of factors have led to this “informality” – ranging from structural factors of the ever-present corruption and political red tape, to the more social factors of density, culture, and domestic structure.

In a time where the country is going through regulatory change with regards to the economy and formal governance structure, the informal food network is also beginning to demand a change. Time will tell if the current efforts to formalize the supply chain for fresh food items and create stronger and powerful unions that can be the voice of this set of contributors to the economy will bear any long-lasting results. The question being: Who wins? Bureaucratic and corruptive systems or the power of many – unified as an economic force.

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Key Words: Informal Systems, India, Food Retail

EXAMINING LOCAL FACTORS TO ENHANCE AGING IN PLACE

Abstract ID: 930

Individual Paper Submission

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Successful aging in place contributes to improved health and well-being in our communities as the post-WWII Baby Boom generation enlarges the population of US seniors. Policy makers, planners, architects, health care professionals, and older adults disagree on the ways to support the aging-in-place population. However, most stakeholders agree that there is a growing need for cross-sector collaboration to manage quality of life and health care costs for the aging population, while creating healthier, safer, and more equitable communities for older adults who desire to age in place.

This paper employs a case study approach that focuses on six mid-size Midwestern communities (in both Illinois and Wisconsin) grappling with how best to support local aging populations. Our research question asks “what community-controlled factors most support the local population’s ability to safely and successfully age in place?” The methods include an examination of local policies, plans and ordinances, building codes, physical infrastructure, health care infrastructure and county and municipal level resources available for built environment modifications for aging in place. Complementing this analysis is a series of interviews in each place, to include local officials, planning and building department employees, older adults and local home-repair contractors to better understand their concerns about their community’s physical and social environment and its support for aging in place.

Our case study communities represent a racially and socio-demographically diverse geography that is often overlooked in favor of larger, denser metropolitan areas. The results of this analysis will enable greater understanding of local knowledge, policies, and infrastructure supports addressing local factors linked to successful aging in place in mid-size Midwestern communities. Research findings will inform recommendations for participating communities which will help them modify their physical and policy environments and increase their support for those who want to age in place.

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Key Words: Aging in Place

THE IMPACT OF MICROCLIMATIC URBAN DESIGN ON HEAT-RELATED HEALTH

Abstract ID: 978

Individual Paper Submission

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Global climate change and urban heat island intensification are creating conditions that can be detrimental to health of city residents. The way a city is designed can either ameliorate or exacerbate those conditions through modification of the microclimate. The purpose of this study is to identify the impact of Microclimatic Urban Design on heat-related health and to suggest design elements to reduce heat-related damage in Cincinnati, Ohio.

To do this, we analyzed the neighborhood characteristics of the areas where the heat-related incidents occurred and compared it with Microclimatic Urban Design elements. We also analyzed the relationship between socio-demographic elements and heat-related health.

This study compared the relationship between two different situations: hot weather (June, July, August, and September) and normal weather (April, May, and October). To identify heat-related health outcome, we extracted only the heat-related types such as heat exposure, heat-related heart problem, headache, and breathing problem among various types of Emergency Medical Service (EMS) data in Cincinnati between 2015 and 2017. In this EMS data, they provide 25,547 heat-related incidents and their detailed time and location. For the Microclimatic Urban Design elements, we used area of vegetation, impervious pavement, water mass, and tree canopy after reviewing the literature. In addition, heat vulnerability index was used to analyze the impact of socio-demographical characteristics such as age, poverty, education, race, and house condition on heat-related health. Lastly, a linear regression model was used to identify their relationship.

A total of 16,782 heat-related incidents occurred during hot weather and a total of 8,765 heat-related incidents occurred during normal weather conditions. According to the result, there is an impact of increasing the amount of urban vegetation, tree canopy, and pervious surface on alleviating heat-related health. In particular, Microclimatic Urban Design elements are lacking in the area where the heat-related incidents occurred. Decreasing the distance from water mass and increasing the area of the water mass are related to the reduction of the heat-related health problems. When compared to normal weather, heat-related health during hot weather was more likely to occur in black individuals than in other races and more likely to occur among people living in areas that received less public support. These results suggest an imbalance in the efficiency of urban heat management strategies by age, income, and race. In order to address human health problems, we conclude that urban heat management should prioritize areas of greatest population vulnerability.

Global climate change and urban heat islands are getting worse and creating serious conditions that can harm human health, but there is a lack of empirical research related to Microclimatic Urban Design and its impact on heat-related health. This study suggests empirical evidence on the relationship between Microclimatic Urban Design and heat-related health, need for Microclimatic Urban Design, and what factors should be considered to address heat-related health problems. It may be useful for practice or education in related fields.

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Key Words: heat-related health, urban heat island, urban vegetation, microclimatic urban design

HEALTH IMPACTS OF FREIGHT ACTIVITY AND PLANNING

Abstract ID: 983

Individual Paper Submission

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A primary focus for planners is the consideration and mitigation of negative impacts and incompatibilities between urban activities. Freight transportation, while important for economic development also generates potentially harmful human impacts through noise air pollution, congestion, accidents and other risks (Forkenbrock 1998). Moreover, risks are spatially concentrated around freight activity centers, leading to

inequities in the magnitudes and types of exposure to freight-related health risks (Rowangould 2015; Karner, Eisinger, and Niemeier 2010). Planning shapes freight-related health impacts in several ways. The creation of infrastructure and designation of freight routes influences the geography of freight impacts and decisionmakers either accommodate or discourage freight activity. Finally, planners can support investments and policies to mitigate freight externalities. This study is an examination of the impacts of freight activity and freight-related planning outputs in two regions that are archetypal for inland freight hubs and international gateways Atlanta and Savannah, Georgia. The study team assessed the health impacts of freight in these regions, evaluated the extent to which the planning processes mitigate harm, and recommended planning strategies to balance costs and benefits.

The descriptive component of the study included use of a HIA framework to understand the connections between freight flows, emissions, vulnerable communities and health indicators. The analysis was conducted as a health impact assessment (HIA) of the City of Atlanta's Cargo Atlanta freight study completed in 2015, and Freight Plan of the Coastal Region Metropolitan Planning Organization (CORE MPO), which includes Savannah. The research team analyzed demographics, transportation patterns, land uses, and current health outcomes. This included identifying spatially, components of the transportation network that generate and enable freight traffic. Freight emissions were estimated using the Environmental Protection Agency's (EPA) MOVES model. Environmental justice (EJ) communities were also identified based on socioeconomic characteristics, and these communities were focal points of the analysis. Proximity and overlay analyses were used to synthesize the data and identify EJ communities at risk for negative health impacts as a result of freight activity.

A web-based tool was developed to visualize the correspondence between health impacts, socioeconomic/demographic vulnerability and pollutant concentrations along freight corridors. The study team also conducted fine-grained neighborhood-level analysis in each region to identify widely applicable policies, physical changes, and planning processes to mitigate health risks and improve freight activity's economic payoff. Among others, the recommendations include literature-derived buffers between sensitive land uses and multiple types of freight activity; physical changes to more safely mitigate the interaction between freight movement and multimodal passenger travel; identification of policies affecting truck cut troughs, truck routes and idling; and improvement of transit access to employment at warehouses. These recommendations are applicable and transferable to planners in many regions experiencing freight growth. The team also recommends next steps to include refinement of the model outputs and further specifications of recommendations to mitigate the negative impacts of freight planning.

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Key Words: Freight transportation, health, air pollution, equity

NEIGHBORHOOD AND HEALTH: A PATH ANALYSIS OF ENVIRONMENTAL DETERMINANTS OF CHRONIC DISEASE

Abstract ID: 1009

Individual Paper Submission

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Central theme or hypothesis:

The goal of this study is to investigate systematic relationships between neighborhood built environment and health. Few studies have examined systematic relationships between built environment characteristics, physical activity patterns, obesity, and chronic diseases (Ewing, et al. 2014). A growing body of research suggests that neighborhood built environment is positively associated with walking for transportation and recreational purposes (Saelens, et al. 2003). Living in walkable neighborhood with high access to parks has been found to correlate with higher rates of physical activity and lower body weight (Cauwenberg, et al. 2015). Studies have also found protective effects of neighborhood built environment on chronic disease outcomes, such as type 2 diabetes, high blood pressure, and heart disease (Li, et al. 2009, Ewing, et al. 2014). Furthermore, growing evidence suggest that natural built environment, such as parks and green space, is related to positive mental health outcomes (James, et al. 2015). To our knowledge, few studies have systematically examined the complex relationships between neighborhood built environment, travel behavior, physical activity, body weight, and chronic diseases. Because the pathways linking the built environment to chronic diseases can be either direct or indirect, a systematic evaluation of the pathways is needed.

Approach and methodology:

This study uses spatially-linked detailed built environment data and a large regional health survey (N = 33,000) to evaluate the association between neighborhood built environment and chronic diseases. The objective measures of neighborhood walkability and number of park within 1 km network buffer at postal code level were linked to the data from the My Health, My Community (MHMC) study. The MHMC study is a collaborative effort between Vancouver Coastal Health, Fraser Health, and the University of British Columbia to collect detailed information about health, lifestyle choices, community involvement, and neighborhood characteristics. The data are analyzed using a series of generalized linear models to examine direct relationship between neighborhood built environment, physical activity pattern, and chronic disease outcomes. Income and age stratified analysis was also conducted to examine if the relationships varied by age and income. A set of path models was also developed to identify direct and indirect links between the built environment and chronic disease outcomes.

Findings:

The preliminary analysis suggests a significant positive relationship between neighborhood walkability and physical activity pattern. We also found significant protective effect of neighborhood walkability on body mass index, diabetes, high blood pressure and heart disease. Perceived daily stress was also found to be significantly inversely associated with neighborhood walkability. We found similar pattern of results for park count. However, our results did not show significant variations of the relationships by age and income. We are currently developing path models to examine whether the observed relationships are direct or indirect.

Relevance to planning scholarship, practice, or education:

The results will help explain the complex links between neighborhood built environment and various chronic diseases. Moreover, results of the path analysis will help policy makers develop more effective strategies to improve population health through interventions in built environment.

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Key Words: Built environment, Physical activity, Body weight, Chronic disease, Path analysis

CORNER STORE ROBBERY? INTERROGATING THE THEORY BEHIND ZONING FOR ALCOHOL OUTLET DENSITY REDUCTION

Abstract ID: 1010

Individual Paper Submission

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While the aggregate relationship between alcohol consumption and violence has long been established, recently a host of peer reviewed research has advanced the relationship between density of alcohol outlets and violent crime at the neighborhood level. In Los Angeles, Yu et al. (2009) found that a reduction in outlets over a nine-year period was associated with a statistically significant reduction in assaults. Scribner et al. (2010) predicted that increasing alcohol outlets in New Orleans by 10 percent would lead to a 2.4 percent increase in homicides.

Statistically significant relationships between alcohol outlet locations and density and rates of violent crime have now been established in Philadelphia (Branas 2009), Camden (Gormen et al., 2001), Washington DC (Fanklin et al., 2010) and Chicago (Crandal et al., 2015) at the community level as well as across American municipalities (Parker et al., 2011) even when controlling for poverty, age, ethnic background and a host of other variables.

These findings have encouraged urban planning and public health officials to consider novel interventions to alter the distance, density, and existence of alcohol outlets as a method to build safer communities. In fact, the Center for Disease Control and Prevention Task Force now specifically recommends zoning as a tool to prevent alcohol related public health problems.

In October 2016, the Baltimore City Council approved a comprehensive zoning code which included a resolution, Alcohol Outlet Density Reduction (AODR) that eliminated certain non-conforming alcohol stores and reduced potential for future development of alcohol stores in residential neighborhoods. The legislation made Baltimore City the first jurisdiction in the country to successfully incorporate alcohol outlet reduction measures into a zoning rewrite.

While causality has been implied, the theoretical explanation for the relationship between density of alcohol outlets and neighborhood violent crime is tenuous at best. On one hand, the relationship is explained via alcohol consumption: alcohol outlets are determinants of alcohol consumption and thus determinants of alcohol induced behaviors that include drunk driving, alcohol related illness, assaultive violence, and other undesirable outcomes and behaviors. On the other hand, the appearance and perception of alcohol outlets alone may attract and promote criminal activity and social disorder.

This paper uses corner stores as a natural control to interrogate these explanations. In Baltimore, corner stores resemble alcohol outlets in their urban design and nature, they proliferate in African American and lower income neighborhoods, and they often function in comparable non-conforming locations. However, they don't sell alcohol.

Employing a multivariate regression analysis to examine the relationship between corner store density and violent crime, this analysis provides a convenient control to investigate the legitimacy, intimacy, and theory of the established relationship between alcohol outlets and rates of violent crime now advancing municipal policy. The hypothesis: neighborhood corner store density increases neighborhood violent crime.

This paper finds a statistically significant relationship between density of corner stores not permitted for alcohol sales and rates of violent crime. The correlation is in fact higher than the correlation between alcohol outlets and rates of violent crime when both variables are placed in the same model and with the same controls.

AODR is well-intentioned and premised on accepted research findings but it may be a misleading zoning policy; the relationship between alcohol outlets and rates of violent crime may not be as unique to alcohol consumption or sales as researchers and urban planners have professed. Policies that reduce and remove alcohol stores may not achieve their intended consequences — especially if rezoned locations simply revert to corner stores.

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Key Words: Zoning, Crime, Community Health, Alcohol, Public Health

ACTIVE AND SAFE COMMUNITY - CONDITIONS OF RESIDENTIAL ENVIRONMENT AND PLACE-BASED SOCIAL EFFECTS

Abstract ID: 1044

Individual Paper Submission

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The paper analyzes the interconnectedness of physical environment and place-based social effects in a neighborhood. The physical condition of a neighborhood significantly affects the quality of life for residents. How neighborhood environment is designed and managed can have both positive and adverse effects on physical activity, social activity patterns and social climate. Theoretically, safe, healthy and walkable neighborhoods are expected to increase the chance of social interactions and enhance the sense of community, which leads to the activation of social capital, informal social control and civic engagement. This paper empirically examines the associations among conditions of built environment and neighborhood social outcomes such as physical/social activity, social capital, safety, and crime.

The research method includes a wide array of objective measures available for city-wide analysis as well as field observation methods for the analysis at a parcel level and a street segment level. GIS provides useful analytics to analyze environmental inventory of neighborhood features and community design types. A novel approach is introduced to create the social effect composite index to contain spatial dimensions of place based social activities. In addition, this work also developed and used community assessment platform to collect crucial information on housing conditions, street qualities, and other environmental characteristics. Barriers and facilitators of walking and physical activities are identified and analyzed. More than 15,000 cases are collected and evaluated. The field observation method provides detailed measures of both physical conditions and social activities along street segments. The study area is the city of Lincoln, Nebraska.

The findings show that built environment conditions are strongly associated with place based social capital and neighborhood social outcomes such as civic engagement, safety and crime. To identify implication of our findings for policy and planning, the paper discusses environmental strategies to promote positive social effects.

Citations

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Key Words: Active and Healthy Community, Community Development, Safety, Built environment & Social effect, Housing and residential conditions

ADDRESSING FOOD INSECURITIES AND WASTAGE IN A SHARING ECONOMY FRAMEWORK

Abstract ID: 1053

Individual Paper Submission

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Food insecurity, defined by the USDA as people living in households that have difficulty providing enough food for all their members due to a lack of resources, has grown at an alarming rate in the U.S. From 2000 to 2016, the number of food insecure households increased from 11.1 million to 15.6 million, and those with very low food security nearly doubled (Coleman-Jensen et al., 2016). This disparity hinders low-income households to fully participate in society (Elmes, 2016) and can have lasting and negative impacts on well-being and development caused by hunger (Bapuji, 2015). The U.S. government is spending over \$70 million every year on the Supplemental Nutritional Assistance Program (SNAP). Meanwhile, \$218 billion worth of the food supply is wasted and disposed of annually (ReFed, 2016). Just 30% of wasted food could have fed all the food insecure Americans for their entire diet (Leib et al., 2017). System-wide innovation for resource allocation and materials management are needed.

This study has mutually inclusive goals of reducing food insecurity and wastage. Specifically, we propose focusing on a “sharing” economy framework (SEF) that unlocks the idling capacity found in the untapped social, economic, and environmental value of underused assets. Although the concept of sharing is not new, evolving technology has greatly facilitated the adoption of SEF in terms of both geographical scope and the range of goods and services. Theoretical discussions have argued that the SEF framework offers an alternative to traditional business models and presents significant potential to generate new economic opportunities, reduce waste, and enable more affordable, convenient access to goods and services (Pluess et al., 2016). Empirical studies on the impact of SEF are limited, however, especially in quantitative terms.

This study aims to provide regional planning insights and data references regarding the role of a SEF in addressing socioeconomic inequalities and resource inefficiencies, particularly in the case of food. By referring to existing and emerging practices that aim to increase food access and/or reduce food waste, our study has focused on three main strategies: (1) government food assistance program, such as SNAP; (2) promoting food donation; and (3) collecting surplus or recoverable food for value-added products (e.g., cooked meals). Financial, social, and environmental impacts of each program are explored. Drawing upon data from the BLS Consumer Expenditure Surveys and the USDA Thrifty Food Plan, this study includes a cost effectiveness analysis of the three strategies, in terms of the average cost per meal delivered to a needed household. The anticipated impacts of SEF on households in varying income groups are also discussed.

As expected, our numerical analysis found that diverting food from landfills to tables can be more cost-effective than monetary assistance programs. From the perspective of regional planning, however, there could be some trade-offs in terms of socioeconomic and environmental benefits (e.g., opportunities of job creation vs. increases in local trips for food collection, transportation, and distribution). For individual households, monetary assistance programs still require them to purchase food at market prices. Additionally, they reinforce the demand for new food production, often of less healthy options, which may further exacerbate the food waste problem. Notably, the household participation rate and benefits from participating in SEF can vary across income groups. Accordingly, applicable metrics are proposed in evaluating the impacts of a SEF at both the regional and participant/household levels. This study concludes by discussing the importance of engaging communities and households to maximize the potential benefits of SEF, the sharing potential of other commodities in comparison to food, and planning strategies that balance environmental, social and economic goals when implementing a SEF.

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Key Words: food insecurity, food waste, sustainability, sharing economy

CIRCULAR (AND JUST?) FOOD SYSTEMS

Abstract ID: 1057

Individual Paper Submission

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Emerging from environmental justice movements and food advocacy movements, food justice, has been defined as an equitable distribution of the benefits and risks of the food system (Gottlieb & Joshi, 2013). Gottlieb and Joshi identify key entry points to engaging with a food justice framework through "challenging and restructuring the dominant food system, and [by] focusing on equity" (p. ix).

Like many food systems scholars, however, this conceptualization of food justice ends at the point of consumption, precluding food waste as a component of food systems and a key arena within which to combat the socio-ecological degradation of linear food systems. While prevention and redistribution of edible food is crucial, so too is ensuring the nutrients embodied in inedible food waste are transformed to nourish the soil or generate clean energy via anaerobic digestion (AD). Creating this circular urban metabolism (Kennedy, Cuddihy, & Engel-Yan, 2007) in which nutrients are 'recycled' will depend on significant shifts in infrastructure, institutions, and socio-psychological arenas (Bulkeley & Askins, 2009). Yet however technical this effort may seem, planners must recognize their politicized role in shaping the urban waste landscape, and so the conceptualizations of, and stakeholder access to resources.

For instance, decisions to contract food waste management to corporate haulers often occurs to the exclusion of, and without the input of, community-based efforts. One such effort in Southern California was ordered to cease its bicycle-based transport of residential food waste to community garden compost piles because the materials had been contracted to a waste hauling company.

This paper contributes to critical linkages between scholarship on food justice (Gottlieb & Joshi), food systems planning (Pothukuchi & Kaufman, 2000; Brinkley, 2013) waste governance (Bulkeley & Askins, 2009), and sustainable urban agriculture (McClintock, 2010).

Examining food waste and circular food systems through a food justice framework enables an interrogation of the dominant food (and waste) system with attention to the "struggles of vulnerable populations" (Gottlieb & Joshi, 2010). Indeed, when linked with sustainable agriculture, community food waste management can be a force for disrupting industrialized agriculture, strengthening urban sustainability, and promoting economic resilience (McClintock, 2010). The food justice framework draws attention to the power relations in the equitable distribution of food system resources, including food waste. As new narratives redefine food waste as a resource rather than a risk, (Corvellec & Hultman, 2012), its extraction to remote facilities under exclusive contracts increasingly becomes a question of power and equity.

Research on closed-loop metabolic systems (Wachsmuth, 2012) or circular economies (Gregson, Crang, Fuller, & Holmes, 2015) highlight opportunities to reduce urban ecological footprints by transforming food system outputs into new inputs. However, the emergent systems of provision (Bulkeley & Askins, 2009) reflect broader trends of corporate consolidation of waste management (Rogers, 2005) through state-subsidized, large-scale facilities (Platt & Goldstein, 2014). I argue that these arrangements (re)produce both the power relations between communities, food, and waste management, and the distancing of people from their waste (Princen, 2002) and their food.

Indeed, alternative, community-scale food waste management may flourish where "the local food movement [has] triumphed [in] direct marketing such as farmers' markets, farm shops, box schemes, community-supported agriculture, home delivers, and urban gardening" (Ilbery & Maye, 2005, as cited by Brinkley, 2013 p 248). However, just as "local food production does not equate with local food access" (Brinkley, 2013 p 255), planners, activists, and scholars must be vigilant against conflating local food waste management with access to the benefits of community-scale composting and AD by the communities who need it most.

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Key Words: food systems, waste, justice, urban metabolism, urban agriculture

GRASSROOTS DISASTER RESPONSE, SOCIAL INFRASTRUCTURE, AND LOCAL RESILIENCE

Abstract ID: 1098

Individual Paper Submission

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How do everyday people make a difference during and after an extreme weather event? This study examines the role that local grassroots relief efforts play in disaster response and recovery. Drawing on findings from a multi-year research project on the experience of Hurricane Sandy in New York City since 2012 as well as new data from more recent hurricanes and other events, it demonstrates how ad hoc volunteers, community-based organizations, and activist groups often play an important role in both immediate response and longer-term recovery efforts. Many communities hit hard by Sandy and other disasters were significantly aided by locally organized and 'informal' responses, often from groups that initially had nothing to do with emergency preparedness (community centers, neighborhood associations, even activists affiliated with Occupy Wall Street,

as well as regular folks with trucks and boats), yet often in ways that compliment or even fill in for state actors. These grassroots interventions have been lauded by FEMA and other official relief providers, and they offer important lessons for how we think about community resiliency. The findings presented here demonstrate how informal efforts, preexisting social infrastructure, and everyday innovation made a difference. The paper argues not only that local and informal efforts are an important aspect of disaster response in and of themselves, but that they can serve as guides for planners, policymakers and other officials working to build more physically and socially resilient communities for what is likely to be the increasingly common collision between extreme weather and large coastal cities. In particular, the concept of social infrastructure is engaged in the paper as a way of thinking through what we can do to enable everyday people to better organize and provide relief.

This study is based largely on data from a multi-year team research project based out of New York University, focused on Hurricane Sandy, the response and longer-term recovery that followed, and the implications of all of these for how we think about cities and climate change. This paper draws on many dozens of interviews and countless hours of conversations, meeting notes, and participant observation conducted by members of the Superstorm Research Lab mutual aid research project in communities hardest hit by Sandy and among the grassroots relief providers working in them. The author individually undertook additional targeted fieldwork and interviews with community group leaders in parts of Brooklyn, Staten Island, and more recently with Cajun Navy volunteers from Louisiana. The study also considers official data and reports on the storm from a variety of sources, including numerous “after action reports” from city, state, and federal agencies, the published assessments of a variety of non-governmental actors, and data and meeting minutes made available by Occupy Sandy and local community groups, and accounts from the local and national press.

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Key Words: disaster relief, social infrastructure, community, climate change, grassroots

JUSTICE AND THE ECONOMICS OF URBAN FOOD ACCESS AND PUBLIC HEALTH

Abstract ID: 1135

Individual Paper Submission

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Across the social sciences, a persistent question in the ongoing discussion of food access is whether food insecurity in urban spaces arises as the result of structural social inequality, or rational decision-making on the part of consumers. This debate has significant implications for policy discussions as to how to improve food access in these contexts (Phaneuf 2013). This paper contributes to this dialogue by estimating a structural model of consumer preferences in residential markets in Milwaukee, WI. Housing markets provide a useful context for study, as if food access is an amenity valued by households, it should be reflected in higher demand and prices for housing in neighborhoods with a high level of food access. To this end, I estimate a horizontal residential sorting model, as illustrated by Bayer et al (2016), in which households choose a neighborhood as a bundle of housing

goods, including food access. The horizontal sorting model allows for the identification of heterogeneous consumer preferences for housing characteristics based on household demographics, such as race and income. The model is estimated in a two-step process, similar to that found in Berry, Levinsohn and Pakes (1995). The first stage recovers the interaction parameters between household demographics and preferences for housing characteristics. Second stage instrumental regression recovers average preferences. Using fifteen years of publicly available land use and residential transaction data, I find that households of color, namely African-American households, have a significantly higher willingness-to-pay for an additional grocery store than white households, after controlling for income. Further, I find that poor households of color have a willingness-to-pay for an additional grocery store roughly equivalent to those of white households in the richest neighborhoods in the city. These results suggest that existing inequalities are not a reflection of consumer preferences. Instead, the findings here align with previous work suggesting that these inequalities reflect decisions by firms to not locate in low-SES neighborhoods (Scheutz et al 2012), or other structural factors which prevent communities from investing in local food themselves (The New York Law School Racial Justice Project 2006). The findings of this project also illustrate the importance of simultaneously considering multiple demographic factors, here race and income, in economic and quantitatively studies of environmental justice.

The use of a horizontal sorting models allows for the construction of counterfactual policy analysis to determine the welfare impact of a change in the amenity space on consumers, both in the short and long term. Further, the spatial structure of the model facilitates the identification of which households receive the benefit of a policy change. I develop three simple policy proposals to improve food access within Milwaukee. Welfare analysis then suggests that increasing the number of grocery stores in neighborhoods with a large concentration of poor households or households of color yield significant welfare increase for affected households, in contrast with negligible gains for the same policies in whiter and/or richer households. However, these gains are also accompanied by significant price increases in the long term, raising concern about the possibility of gentrification in the long run. This illustrates the tension in address food insecurity or other environmental injustices in contemporary housing markets, and highlights the importance of continued research within urban planning and economics to develop sustainable economic policies.

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Key Words: Urban Economics, Food Security, Public Health, Affordable Housing, Quantitative Methods

RETHINKING ENVIRONMENTAL GOVERNANCE TO ADDRESS AMERICA’S LEAD POISONING EPIDEMIC: PLANNING TO TRANSFORM OUR TOXIC COMMONS

Abstract ID: 1276

Individual Paper Submission

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Lead exposure remains the foremost legacy problem of our built environment in the United States. Lead is a highly toxic multisystem poison for people of all ages. Its widespread presence in old paint remaining in buildings built before 1978 still poses the existential threat of permanent cognitive impairment, neurological damage and

behavioral problems to children in American cities in 2017, as it has for the past century (Lanphear et al., 2016; Rosner & Markowitz, 2016).

During the decades of rapid expansion of American cities in the early twentieth century, a commonly used household product, paint, contained up to 70% lead (Rosner & Markowitz, 2016). Today, lead exposure may be America's foremost environmental injustice, disproportionately injuring children in low-income and communities of color and children living in older housing (Lanphear et al., 2016). From 2007-2010, "approximately 2.6% of U.S. preschool children had a blood lead concentration $\geq 5 \mu\text{g/dL}$ ($\geq 50 \text{ ppb}$), which represents about 535,000 US children 1 to 5 years of age (Ibid, p4)." The risk of lead exposure is not evenly distributed across and within cities and states; wide disparities in lead poisoning rates exist within cities such as Philadelphia, Milwaukee, and others (McClure et al., 2016).

This paper examines the multiscale institutional evolution of American efforts to prevent lead poisoning, as rules and programs were developed by the federal, state and municipal agencies responsible for health and housing in recent years, and summarizes their current successes and failures. We use the qualitative methods of directed content analysis and historical analysis to describe the development and status of lead protection programs, focusing especially on the US EPA's Renovation, Repair and Painting (RRP) Rule. After April 2010, the EPA's RRP rule required contractors to use lead-safe practices during renovation and construction work in housing and child-occupied facilities built before 1978. As dust from lead-containing paint in older buildings is the major source of childhood lead exposure, the RRP program addresses a critical lead protection goal (Kennedy et al., 2014).

Federal government documents on lead exposure and regulation from the past four decades, and data from recent (2012-2018) journalism, government, and non-governmental articles and reports on the status of local lead policies, rules, and programs in 65 cities and 45 states were reviewed and coded to evaluate current governance challenges and to describe the major issues in their implementation. Our results indicate that financial and capacity shortfalls now often undermine the local implementation and enforcement of the EPA's RPP rule and other municipal lead protection policies, reducing the effectiveness of these programs, e.g., through lack of awareness and educational outreach. Insufficient funding for state and local programs for training inspectors, communication with families at risk, screening children and building inspections is a problem identified by urban actors as preventing better results in lead protection programs. The contemporary urban experience with lead strongly reinforces the idea of poverty, housing, and racial and spatial relationships, as fundamental social determinants of health (Benfer, 2017).

Our results suggest that a restructuring of the economic governance of lead programs, with a renewed and multilevel political commitment for lead protection for all, is needed for cities and states to protect the millions at risk of lead exposure and to prevent future tragedies. We next use case studies of adaptive collaborative management approaches and models of the governance of "the commons" to identify principles and practices that may provide opportunities and new funding mechanisms to address obstacles forestalling progress in lead poisoning prevention (Dietz et al., 2003) and to address "our toxic commons" – the over 40 million homes, institutional, and commercial buildings that retain toxic lead paint.

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Key Words: Healthy housing, Environmental governance, Hazard mitigation, Lead-based paint

THE CONCEPTUALIZATION OF ACCESSIBILITY: TOWARDS A COMPREHENSIVE MEASURE OF FOOD ACCESS IN URBAN AREAS

Abstract ID: 1277

Individual Paper Submission

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One of the greatest challenges to creating a healthy urban community is ensuring its citizens have access to nutritious food. The concept of access has evolved from an emphasis on “food deserts” to more nuanced approaches that evaluate store-level attributes, transit options and other aspects of the food environment. Nevertheless, an agreed upon definition of “food access” remains elusive, creating an inability to compare research across sites. This paper compares previously used measures of food access and presents a more comprehensive conceptual model to support more robust research on food access in the policy and planning fields.

Research on food access has shifted from a focus on “food deserts” to a more comprehensive understanding of the food environment. Initially, research focused on identifying specific geographic areas not serviced by supermarkets or “food deserts.” While the measure uncovers certain spatial barriers to access, the numerous assumptions underlying the concept have been problematized by various researchers. For example, Raja et. al (2008) found that while certain areas of Erie County, New York lacked supermarkets, a network of smaller grocers provided access to food for underserved communities (Raja et al., 2008). In addition to looking at an array of store types, research has expanded to include additional attributes such as the quality of the food available. Martin et al. (2014) provides a multidimensional construct that examines accessibility, availability, affordability and quality, where accessibility is a distance measure, availability relates to the nutrition of the food and affordability relates to price (Martin et al., 2014). While these constructions begin to address the complexity of food access, there are still several aspects missing. For example, density of healthy versus non-healthy food retail, SNAP acceptance and the cultural relevancy is often missing from evaluations.

Building on previous research, this paper puts forth a more comprehensive construct of food access. This new model of food access includes the following three dimensions: accessibility, availability and affordability. Accessibility is comprised of the density of stores in an area and the transit modes available at the stores. Availability refers to the nutrition of the food, the quality of the food and the cultural relevancy of the food. Lastly, affordability refers to the price of food, along with the acceptance of SNAP. This model represents a compilation of previously conducted research on food access in an effort to strengthen the studies conducted in the planning and policy fields. As pointed out by Caspi et al. (2012), “Continuing to cultivate a discussion around the underlying constructs contained in measures seems a worthwhile endeavor given the continued need for research on disparities in food access” (Caspi et al., 2012). This paper seeks to strengthen the research on food access by providing a more comprehensive model of food access.

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Key Words: Food, Food access, Food systems planning, accessibility measures

PLANNING AND WELLBEING? MAYBE PLANNING DOES NOT MATTER

Abstract ID: 1305

Individual Paper Submission

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A large literature—much of it from scholars in Planning—has emerged that addresses how spatial patterns affect health. The most widely studied health outcome is with regard to obesity, with many studies finding a relationship between spatial patterns and obesity (e.g., McLaren 2007; Flegal et al. 2012; Ogden et al. 2012; Mohamed under review).

In this paper, I argue that obesity is a myopic view of residents' health and that researchers should take a broader perspective about whether spatial patterns really matter to wellbeing. Thus, the central concern of this paper is to examine the relationship between micro-level spatial characteristics and residents' wellbeing. I hypothesize that if planning is important then we should see relationships between wellbeing and spatial characteristics that discourage healthy living.

This study utilizes primary data collected from 370 participants in and around a revitalizing downtown and midtown of Detroit. I used optimal scaling in SPSS to reduce a number of factors related to wellbeing to a single variable. These factors consist of questions related to general health, respiratory health, the presence of major diseases (high blood pressure, heart disease, high cholesterol, asthma, and depression), and respondents' self-declared quality of life. (For another example of factor reduction, but related to all interval- and ratio-level variables, see Mohamed et al., 2014)

I use this reduced variable to predict the importance of socioeconomic characteristics; spatial patterns such as distance to supermarkets, fast food restaurants, liquor stores, and gas stations and dollar stores; transportation habits (particularly time spent each day in a car); and neighborhood measures of walkability, population density, and crime. Contrary to what the planning literature would suggest, I find no relationship between wellbeing on the one hand and spatial patterns, transportation habits, and neighborhood measures on the other hand. Only socioeconomic characteristics predict wellbeing.

I conclude that planners are overselling the relationship between health and spatial patterns. Instead, what matters are the traditional determinants of wellbeing: socioeconomic status. I suggest that planners' focus on spatial patterns and health is a manifestation of planning's quest for relevance.

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Key Words: Obesity, Health, Wellbeing, spatial patterns

ENCOURAGING A PLAN(E)T-BASED DIET AND BUILDING URBAN RESILIENCE

Abstract ID: 1308

Individual Paper Submission

Livestock production systems use one quarter of the Earth's land for pasture, one-third of global cropland for feed crops, and nearly a quarter of global freshwater; furthermore, they are one of the largest drivers of biodiversity destruction and may contribute more to greenhouse gas emissions than any other sector of the global economy. Antibiotics used in the rearing of livestock pose health risks of antibiotic-resistant bacteria, and the consumption of red and processed meat is associated with chronic non-communicable diseases, such as type II diabetes, cancer, cardio-vascular disease, and obesity. Because the consumption and production of animal-based foods so negatively affect human and environmental health, the need for dietary change is one of the greatest challenges facing humanity. Yet, despite this, efforts and evidence for managing demand of animal-based foods are largely absent from policy and scholarship.

Guided by a theoretical framework situating eco-feminist perspectives (which inform empowerment of disadvantaged groups and ethical considerations for animals and environment) within urban resilience theory (which addresses building capacity for sustainable, healthy communities in the face of changing climatic conditions), this paper explores a case study example of local policies addressing urban agricultural systems and community health.

Specifically, this research addresses the following questions:

1. Have local food policies bolstered urban resilience by improving economic, social, and environmental capacity to adapt to social and environmental risks?
2. How do stakeholders view the policy process in establishing these diet-related and food purveyor programs, and what are their recommendations for scaling up, expanding, or improving upon current practices?

The aims of this research are to better understand how to implement policies addressing dietary change and to determine their impacts on individuals (e.g., student dietary preferences); community characteristics (e.g., consumer purchasing, community gardens, and plant-based food access); local agriculture (e.g., farming practices, wages for farm workers, and animal welfare); and/or community health indicators (e.g., diabetes and obesity disease rates).

Using a mixed methods approach, this paper draws from analysis of 1) publically available community data, including food access and preferences, health outcomes, environmental conditions, and economic growth indicators, and 2) interviews with initiators and stakeholders of local policies meant to support local agriculture, environmental sustainability, animal welfare, wage equity, plant-based diets, and nutrition education (e.g., the Los Angeles Good Food Purchasing Policy, the Los Angeles Unified School District Meatless Mondays program, and the Sustainable Economic Enterprises of Los Angeles programs).

As cities are increasingly seen as sites of social change and climate change policy innovation, addressing our urban food systems clearly falls within the purview of urban planning scholarship. Utilizing a critical ecofeminism lens challenges environmental policy and planning scholars to look deeper into the sustainability of urban food systems, by evaluating how structural inequalities can be addressed to not only benefit society, but also to bolster ability to adapt to climate change. Furthermore, we need to examine the opportunities for resilience in cities, while also acknowledging that adaptive capacity differs within the physical and social urban context. This presentation will discuss how these urban food programs in Los Angeles might build capacity for improving environmental conditions and health outcomes, through implementation of local initiatives to influence dietary change, shape agricultural practices, build equity, and transform the urban community.

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Key Words: food, policy, health, urban, resilience

SEEKING FOOD ACCESS WHEN “MARKET” FAILS: CASE STUDIES FROM THREE CINCINNATI NEIGHBORHOODS

Abstract ID: 169

Poster

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In most medium and large US cities, many low-income neighborhoods only have limited access to affordable, healthy food (Raja, Ma & Yadav, 2008; Block, Chávez, Allen & Ramirez, 2012; Libman, 2015; Horst, Raja & Brinkley, 2016). This limited access is especially prevalent and troublesome for low-income urban neighborhoods with few public transit options and where few residents own a private vehicle. Such disadvantaged neighborhoods often have a disproportionate number of minority residents, and an area's highest rates of chronic disease and lowest life expectancy (Walker, Keane & Burke, 2010). In Cincinnati, Ohio, (2016 municipal pop.: 298,800; pop. density 3,760 residents /mi²; 2016 metro pop.: 2,161,400) six neighborhoods have seen their last remaining supermarket close over the past decade. This study examines three of those neighborhoods to assess their very different strategies for attempting to prevent and then respond to the loss of their last nearby supermarket.

This study has extensively used archival information found in local histories, census data, technical reports, periodical articles, and organization documents. In addition, this study has utilized direct observation and GIS analysis of neighborhood physical context; and organizational responses to short questionnaires. Also, to address the challenges of construct validity and reliability inherent in case studies, a local neighborhood development expert with more than 25 years' experience working in the city's neighborhoods with extensive knowledge of their food access issues, has been made part of the study team.

The findings of case studies show that one neighborhood used political connections to secure subsidies for a replacement chain supermarket. A chain supermarket committed to opening a store and then reneged, reflecting the structural biases against poor neighborhoods. The neighborhood is now exploring other options. The second neighborhood worked for eight years to preserve its last remaining supermarket asking residents to increase their purchases despite concerns about merchandise quality and public safety. Ultimately, corporate owners closed the store and redirected customers to a larger supermarket in an adjacent neighborhood. When the third neighborhood's last supermarket closed, a replacement supermarket, shuttle service and home delivery were pursued. When those efforts proved unsuccessful, the neighborhood pursued a worker- and community-owned grocery cooperative. The neighborhood organizations are still raising funds to start constructing the grocery coop.

In short, the results show that conventional market-based responses to the loss of a neighborhood supermarket are unlikely to overcome structural forces working against low-income communities. When markets fail to provide food access in low-income neighborhoods, collective political action and public sector leadership is necessary but not sufficient for implementing long-term solutions. Planners focused on assisting these communities need a better understanding of why supermarkets in low-income urban neighborhoods close, and which planning approaches are likely to produce positive longer-term outcomes for neighborhood residents. Using the experience in Cincinnati as a basis, this research seeks to contribute to that much-needed knowledge base.

Citations

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Key Words: Urban Food Access, Supermarket Closures, Neighborhood Organizations, Public Policy

PLANNERS ROLE IN DESIGNING SUPPORTIVE COMMUNITIES FOR HIV-POSITIVE FORMER INMATES

Abstract ID: 903

Poster

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In the early 20th century, urban planning and public health partnered to design cities that slowed the spread of disease. As the two fields diverged, disease prevention was lost as a central tenet of planning practitioners. Today planners recognize their role in designing healthy communities with a focus on chronic disease prevention through active living rather than the spread of contagions. While rapidly transmittable diseases like TB and yellow fever are no longer threats to U.S. cities, the continued rise of HIV, especially in African American communities, should be of concern to the modern planning profession. While there are multiple reasons for escalating HIV rates in the African American community, the criminal justice system poses the biggest threat. People of color cycle in and out of prisons at a higher rate than whites and many jurisdictions do not test inmates before or after incarceration. All former prisoners face challenges as they re-enter society but HIV-positive individuals are especially burdened as they often return to communities that lack resources to support their health needs. This paper looks at the modern criminal justice system as a pipeline of transmission, the role of planning practitioners in slowing the spread of HIV, and curates a list of recommendations and best practices. Planners have an ethical duty to recognize and support marginalized communities, and those living with HIV/AIDs are often furthest on the fringes.

Citations

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Key Words: Health, Criminal Justice

TRACK 9 - PLANNING EDUCATION AND PEDAGOGY

ROUNDTABLE: ART AND URBAN PLANNING - POTENTIALS FOR THEORY, PRACTICE, AND PEDAGOGY

Abstract ID: 132

Roundtable

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The arts, which have been implicated within urban planning at least since the public funding of art which began in earnest in the 1960s, has seen a recent resurgence in the discipline. Conversations around the arts as a driver of economic development, new ideas about creative placemaking, and concerns about the arts' role in the process of gentrification have been prevalent over the past 5-10 years. Yet many other avenues of debate are only just opening up. What, for example, are the potentials of the arts in generating equitable community development and public participation? Or how can new media practices enable fora for communication between planners and publics, and how might this generate social cohesion in cities? Moreover, some of these discussions have sidelined the perspectives of artists themselves. What are the priorities, values, and practices of artists who engage with the city or with public practice, and how might we reconsider the relationship between artist and planner? What is the role of the arts and studio practice within planning pedagogy? Are there particular artistic projects which have shed new light on our understandings of the urban? These questions, and a broader discussion about the relationship between the arts and urban planning, will be raised in this roundtable, which brings together urban planners, designers, and artists to talk about art and/in/of/for the city.

Citations

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Key Words: artists, art practice, creative placemaking, public participation, planning theory

ROUNDTABLE: DIVERSITY, EQUITY AND INCLUSION IN PLANNING & URBAN STUDIES DEPARTMENTS

Abstract ID: 147

Roundtable

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SERVON, Lisa [University of Pennsylvania]
RAJA, Samina [University at Buffalo, The State University of New York]
RIVERA, Danielle [University of Colorado Boulder] dzt118@gmail.com
KIM, Anna [Georgia Institute of Technology]
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HOWELL, Kathryn [Virginia Commonwealth University] klhowell@vcu.edu

In this roundtable we will discuss social justice, equity and inclusion in planning education, and/or significant department-level initiatives on these topics. Topics to be discussed include: curriculum, classroom/school climate, student and faculty trainings, recruitment & retention of historically marginalized faculty students, and staff and more. We will specifically focus on planning education and department initiatives that bring an intersectional approach to confronting racism, white supremacy, patriarchy, classism, nativism, and other forms of oppression. The roundtable will include a discussion of findings from a recent survey by POCIG of students at ACSP member schools about school climate.

Citations

- Sen, S., Umemoto, K., Koh, A., & Zambonelli, V. (2017). Diversity and Social Justice in Planning Education: A Synthesis of Topics, Pedagogical Approaches, and Educational Goals in Planning Syllabi. *Journal of Planning Education and Research*, 37(3), 347-358.
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- Sweet, E. L., & Etienne, H. F. (2011). Commentary: Diversity in urban planning education and practice. *Journal of Planning Education and Research*, 31(3), 332-339
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Key Words: curriculum, pedagogy, social justice, equity , inclusion

ROUNDTABLE: PEER REVIEW AND JOURNAL PUBLICATION - TAKING THE TEMPERATURE OF AN ACADEMIC PRACTICE

Abstract ID: 199

Roundtable

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INCH, Andy [University of Lisbon /University of Sheffield]
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Peer review has long been regarded as vital to academic practice. It acts as a safe-guard ensuring the validity and reliability of published material as well as a means of driving up intellectual standards, the rationale being that only academic peers are in a position to assess the soundness and originality of potentially publishable work. This approach lies at the heart of the practices which underpin scholarly (international) journal publication. Perhaps due to the 'blind' nature of the process, however, reviewing practices are seldom opened up to critical reflection. This means that there is little explicit consideration of the role of peer review and the reviewer within the discipline. Such reflection might allow us to ask the questions, how do we review and how we might do it better?

The purpose of this roundtable, hosted by the journal *Planning Theory and Practice*, will be to debate the current nature and health of peer review practices in planning. Experience suggests that while the pressures for individual academics to publish grow by the day, commitment to undertake paper reviews, which yield no direct personal benefit, diminishes at much the same rate. The fundamental paradox caused by the competing demands of individual publication over the enhancement of the collective knowledge base of the discipline, provides the starting point for the discussion.

In the course of the roundtable a range of issues concerned with peer review will be surfaced from the fundamental to the practical. Questions to be addressed include the following:

- What is the future of peer review, given academic pressures, and how do perspectives vary in different parts of the world?
- Does double-blind peer review remain the best and only approach?
- Do non-traditional forms of academic writing pose a challenge to the role and status of the peer-reviewed journal article?
- How can we ensure that reviews are appropriately constructive?
- Where do the responsibilities of reviewers stop and editors begin?
- How might we create a disciplinary culture that values peer review and encourages reflective learning about how to do it well?
- Does a new era where knowledge is co-produced between researchers and non-academics call for a different approach to reviews and reviewers?
- Should recognition and awards for reviewers be celebrated or be a matter of concern?

The roundtable will bring together experienced and early career authors as well as editors and editorial board members, with the purpose of initiating a critical dialogue about the future of peer review practices in planning. Planning Theory and Practice intends to continue the conversation started during the roundtable in the pages of the journal.

Citations

- Campbell, H. (2012) Editorial: Lots of words.... but do any of them matter? The challenge of engaged scholarship, *Planning Theory and Practice*, 13(3): 349-353.
- Benson, L., Harkavy, I., Puckett, J., Hartley, M., Hodges, R. A., Johnston, E., and Weeks, J. (2017) *Knowledge For Social Change: Bacon, Dewey, and the Revolutionary Transformation of Research Universities in the Twenty-First Century*. Philadelphia: Temple University Press.
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Key Words: Peer Review, Academic practice, Publication, Transformational change

ROUNDTABLE: TEACHING WHEN THE SUN GOES DOWN - STRATEGIES FOR ENHANCING EVENING GRADUATE EDUCATION

Abstract ID: 223

Roundtable

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Evening graduate planning programs provide a path to the profession for those who cannot attend traditional daytime planning programs. They support ACSP goals to enhance enrollments and increase diversity in the profession. As well, the students in these programs bring desirable life and work experience along with an inspiring level of commitment to their education, and for some programs, evening offerings are a key market differentiator in their service area.

There are also challenges in offering evening programs. They are less visible to administrators and require innovative strategies to providing advising and student services. Special efforts are needed to create informal peer-to-peer learning, a sense of community, and to support student organizations. Class scheduling and conducting community-based field work can be a challenge. And finally, students (and their professors) can be experience fatigue.

Evening programs in the ACSP community have been developing innovative responses to the challenges. This roundtable will bring together those involved in evening planning program to share strategies and approaches. The participants will kick off the discussion and open it to the group. The session will conclude by assessing whether there is interested in having regular dialogues on evening program issues and opportunities.

Citations

- ACPS/APA Joint Task Force. 2017. Joint Task Force on Enrollment Report. Accessed at <http://c.ymcdn.com/sites/www.acsp.org/resource/collection/954F9DA0-9F8A-497C-B651-ECFDD57626CE/Planning%20Enrollment%20Trends%202015.pdf>
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Key Words: evening graduate programs, access to graduate education, program administration, non-traditional student

ROUNDTABLE: NAVIGATING CHALLENGES AND BUILDING INFRASTRUCTURE TO SUPPORT COMMUNITY ENGAGED PARTNERSHIPS

Abstract ID: 277

Roundtable

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Planning by definition involves engaging with communities and building partnerships. Within a planning program, students need opportunities to learn about community engagement and work for clients and community partners. Despite the obvious benefits of community-university engagements, which can teach students to be reflective practitioners (Sletto, 2010; Winkler, 2013), building such engaged learning opportunities into courses can be demanding for even the most experienced professors. Furthermore, assessing student learning outcomes in a studio or community engaged course can also be a challenge (Németh and Long, 2012). Various planning technologies, mapping methods and digital tools can add value, but also complexity to teaching community engaged courses (Minner, Evans-Cowley, and Afzalan, 2018).

This roundtable focuses on the overarching question: What strategies have faculty found effective or successful in creating a career built around engaged community partnerships? Core discussion questions will focus on approaches to assessing outcomes, strategies for maintaining a publication record, and assessing and strengthening community partnerships. These include:

What distinguishes client-based from community partnership models? How does one build strong community partnerships?

Intensive engaged learning opportunities often trigger student anxiety, as students face the necessary uncertainties involved in community engagement. How can pedagogical approaches and the design of studios and workshops help students to manage and thrive in this environment? How does one measure student learning?

How might faculty not only maintain, but build a publication record while teaching intensive studios or workshops with an engaged component? What strategies might generate publishable faculty and faculty-student research?

International projects often have unique circumstances and challenges. What are course design and partnership strategies for engaged work outside the US?

How are participatory and analytical mapping techniques incorporated into engaged learning opportunities?

How can departments build university infrastructure to support engaged learning in the curriculum?

Citations

- Minner, Jennifer, Evans-Cowley, Jennifer, & Afzalan, Nader. (2018, forthcoming). Technology to Deepen and Expand Planning Education. Draft book chapter submission for International Handbook of Planning Education, to be published by Routledge. Editors Nancey Green Leigh, Steven P. French, Subhrajit Guhathakurta, and Bruce Stiftel.
- Németh, Jeremy and Long, Judith Grant. 2012. "Assessing Learning Outcomes in U.S. Planning Studio Courses" *Journal of Planning Education and Research*. 32(4): 476–490.
- Sletto, Bjorn. 2010. "Educating Reflective Practitioners: Learning to Embrace the Unexpected through Service Learning." *Journal of Planning Education and Research*. 29(4): 403–415.
- Winkler, Tanya. 2013. "At the Coalface: Community–University Engagements and Planning Education" *Journal of Planning Education and Research*. 33(2): 215–227.

Key Words: Pedagogy, Community-University Engagement, Engaged Learning and Research, Studios

ROUNDTABLE: PLANNING EDUCATION IN A GLOBALIZING WORLD - CHALLENGES OF CAPTURING AND DELIVERING DYNAMIC LESSONS

Abstract ID: 354

Roundtable

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FRANK, Andrea [Cardiff University] franka@cardiff.ac.uk

AMBORSKI, David [Ryerson University] amborski@ryerson.ca

This roundtable invites discussions that address planning education in a rapidly changing environment that the profession faces today. While globalization itself has been a topic of myriad scholarly debates in the field, planning pedagogy needs to more effectively engage with the range of issues evident in the dynamic political, economic, and social environments that planners encounter in the field. Thus, the goal of this roundtable is to facilitate discussions as to teaching content and methods that address these pressing global challenges, including growing inequality, mass migrations, and technological advancements. These changes have not only reshaped the content of planning pedagogy but also student composition, learning modes, and content delivery. Specifically, the first half of the roundtable will center on “what” planning should teach. For instance, should more weight be given to planning in the U.S. or internationally, and if so, how should that international focus be directed? Are there new values, practices, or theories that should be taught today? The second half will facilitate dialogues on “how” planning education should be delivered. How has globalization and migrations changed the classroom

settings in planning education? To what extent has technology permeated and affected teaching modes and learning outcomes? How far can planning education use technology? The last 10-15 minutes will be devoted to wrapping up the dialogues and discussing the future of planning pedagogy.

Citations

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- Dawkins, C. J. (2016). Preparing planners: The role of graduate planning education. *Journal of Planning Education and Research*, 36(4), 414-426.
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Key Words: Pedagogy, Planning Education, Online Learning

ROUNDTABLE: LEARNING SCIENCE, GAMING, AND CITIZEN ENGAGEMENT

Abstract ID: 976

Roundtable

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SCHENK, Todd [Virginia Polytechnic Institute and State University]

KAUFMAN, Sanda [Cleveland State University]

ZELLNER, Moira [University of Illinois at Chicago]

Literature on game design suggests that of the myriad of games available for play, those that are semi-cooperative in nature have the greatest potential for creating opportunities for learning (Gordon & Baldwin-Philippi, 2014). Furthermore, role-playing and simulation games allow participants to practice interacting according to rules of play (Cecchini & Rizzi, 2001; Ellis et al., 2008; Gordon & Baldwin-Philippi, 2014; Poplin, 2012; Schirra, 2013). This practice interaction and practice inhabiting and communicating perceptions and roles that are in conflict can train participants to interact more productively (Susskind, Mnookin, Rozdeicer, & Fuller, 2005). Role-playing games have been used in a wide variety of contexts where negotiation between parties with perspectives that are at odds is required (Cecchini & Rizzi, 2001; Desouza & Bhagwatwar, 2014; Guhathakurta, 2002; Susskind et al., 2005).

The gaming environment can also create opportunities for participants to engage in social learning—a critical intermediary part of the process of collaborative planning. The availability and proliferation of ICT tools and the use of these tools by planners to engage the public requires additional research and evaluation to understand how these might be more effectively deployed to create opportunities for social learning and to leverage this social learning to enhance the capacity of participants to engage and deliberate on complex tasks. Collectively, these impacts of game playing can help planners design more collaborative processes.

Examining the potential of games to create opportunities for social learning in public engagement activities is of critical importance to the planning field. There is for potential games to address critical challenges to effective public engagement. Social learning and learning science can also be used to understand how games, both digital and non-digital, synchronous and asynchronous, virtual and face-to-face, can create educational opportunity in both the planning classroom and the public planning process.

This roundtable will complement a pre-organized paper session, Simulation and Gaming for Engagement, Experimentation and Learning. The roundtable will be used to stimulate conversation between game researchers and educators who use games both in the classroom and in their community engagement and research to discuss the dimensions of game design and implementation as they relate to learning science and collaborative planning theories. Questions to be considered include:

1. Are games really meeting objectives?

2. What are the pros/cons of various games?
3. What are the pitfalls of digital/virtual games in the planning process?
4. How might we better evaluate the use of games in the educational and planning process context?
5. How can planners collaborate with game designers, learning scientists to create gaming platforms that serve our objectives of citizen engagement?

Citations

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- Poplin, A. (2012). Playful public participation in urban planning: A case study for online serious games. *Computers Environment and Urban Systems*, 36(3), 195–206. <http://doi.org/10.1016/j.compenvurbsys.2011.10.003>
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Key Words: games, planning process, education, collaborative planning, simulations

PRE-ORGANIZED SESSION SUMMARY

UNIVERSITY-COMMUNITY PARTNERSHIPS PART 2: INVOLVING STUDENTS IN ENGAGED SCHOLARSHIP

Summary ID: 23

Abstract ID: 511

Abstract ID: 512

Abstract ID: 513

Abstract ID: 514

As higher education continues to confront claims that it is no longer honoring its longtime commitment to serve the public good, colleges and universities are seeking ways to be more relevant to society and responsive to the needs of communities in which they are located. Some universities have responded to this call, encouraging faculty to invest in scholarship and teaching that addresses critical societal issues. What has emerged is an emphasis on community-engaged scholarship, anchored by university-community partnerships. This session will focus on the theory and practice of community-university research partnerships. This session will touch on roles, approaches (i.e., co-learning, collective impact), outcomes (i.e., impact, dissemination) and lessons learned. Specifically, this session will discuss how students are involved in engaged scholarship. Papers will address the role of the instructor in setting norms for students in a community context, measures to capture student outcomes, and strategies to identify university support for community-engaged work.

Objectives:

- Audience members will be able to identify potential strategies to seek university resources to design courses that involve community partnerships.
- Audience members will be able to strategically position the community-engaged course (activity) for scholarly dissemination
- Audience members will be able to identify approaches to working with students in a community context as future and current practitioners

"THE ROLE OF A SERVICE-LEARNING COURSE IN SHAPING PERCEPTIONS OF HOMELESSNESS"

Abstract ID: 511

Group Submission: University-Community Partnerships PART 2: Involving students in engaged scholarship

The way community members (i.e., residents and local leaders) think about homelessness matters because community members can influence what local decision-makers continue to do about this urban issue. This study will present an innovative framework for connecting graduate students (i.e., local community members, current and future professionals and decision-makers) with local non-profit service providers within the context of a 10-week course. This setting will foster the environment for students to begin practicing effective engagement with communities different from themselves (Lung-Amam, Harwood, Sandoval, & Sen, 2015). The pedagogical logic rests on the principles akin to collaborative, iterative, and communicative planning approaches that not just capture the voice of the community but also transform the thinking of decision-makers (Sager, 1994).

The research will describe the course sequence where students serve as an external resource for a program within a service provider's organization. The paper will discuss how I intend to assess the effect of the service-learning course (offered as part of a Master of Arts in Community Planning) on students' views of homelessness. The partner organizations contribute mentors to help students understand their experiences and in turn the students create and present a process evaluation plan to the organizations' leaders (Mather, Marvel & Melson, 2014). Students bring the resources of the campus and their professional experience to community organizations. To assess if students' perceptions of homelessness shifted throughout the course, I will use a pre-test post-test research design (Frank, 2008; Knapp & Stubblefield, 2010). Students will select which organization to work with, in doing so, students will sort themselves into two groups: a treatment group (students that will work with homeless service providers) and a control group (students that will work with organizations not focused on homelessness). Throughout the course I will systematically gather data from students. I will do so by asking students to complete three reflections. Data gathered through the reflections will then be coded and analyzed to assess whether perceptions of homelessness shifted over time.

The project will foster the development of a professional relationship between the graduate students and the organizations. Among the students, the project will develop a commitment to future community engagement and service (Kotval, 2010). The course responds to the growing desire for comprehensive, creative, multidisciplinary approaches to civic problem solving. This project is supported by the University of Washington Tacoma because it is aligned with the strategic plan's impact goal: to build transformational and synergistic partnerships.

This service-learning experience can make a meaningful difference to this societal concern. Students in the program are not only community members of the region, but also current and future professionals and decision-makers. The potential of this approach in shaping students' understanding of homelessness may contribute to the region's effort to reduce or eliminate chronic homelessness (Crane & Takahashi, 1998).

Citations

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Key Words: service-learning, homelessness

CONSTRUCTING GROUNDED PRACTICE: ROADMAP TO CIVIC ENGAGEMENT, UW LIVABLE CITY YEAR, AND THE COMMUNITY PLANNING STUDIO

Abstract ID: 512

Group Submission: University-Community Partnerships PART 2: Involving students in engaged scholarship

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One of the challenges facing urban regions in a time of pronounced political conflict and spatial inequality is how alternative paths forward might be imagined and pursued. University-based planning programs are at the forefront of a movement to build partnerships with various urban publics involved in governance, planning, and policy. This paper considers one of the planning courses that comprised 2017-2018 Livable City Year, a yearlong partnership between the University of Washington and the City of Tacoma. The course, a two-term graduate planning studio, was paired with a city-defined project entitled “Roadmap to Civic Engagement.”

The project brief included “an accounting of existing methods of community outreach and civic engagement,” “that documents existing and recommends innovative ways to connect with residents.” As the culminating project for masters students in Community Planning, this involved taking a grounded theory approach to interviewing city staff, coding interview transcripts, identifying emergent themes and categories, and participating in city and community events as additional field study. The deliverable for the city includes a typology of existing civic engagement practices, the articulation of a shared narrative or imaginary, and recommended areas for investment or innovation. This paper considers the practice of conducting qualitative, community engaged research as part of graduate professional training in community planning; including challenges with establishing project expectations, encountering and selectively resisting path dependencies on both university as well as the city side, and guiding and enacting an exercise in grounded theory development within the time limits and organizational bounds of a traditionally rational governance setting. The potential and limitations for such an approach to impact the city’s civic engagement practices is examined, as well as the role of qualitative research methodology in professional training - to expand student learning, organizational sensemaking, and normalized forms of knowledge and representation in community planning practice.

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Key Words: civic engagement, grounded theory, community planning studio , co-production

PLANNING WITH ADULTS WITH AUTISM

Abstract ID: 513

Group Submission: University-Community Partnerships PART 2: Involving students in engaged scholarship

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People who are autistic have particular needs that planners should consider as autism has become increasingly prevalent in our society. [Autistic Spectrum Disorder (ASD) affects millions in the United States, including families and friends of people with ASD. Depending on the source, as many as 1 of 68 children are identified with ASD[1].] Planners can learn to improve the lives of people with autism by understanding Autism Spectrum Disorder rather than depending on stereotypes.

The purpose of this study is to understand challenges adults with ASD face in their everyday lives, especially in the public realm. We present findings from two focus group studies and a policy and design charrette conducted in Columbus, Ohio. We have interviewed 23 parents who have children with high-functioning ASD and 19 adults with high-functioning ASD, inquiring about their daily activities. Their answers provide information and insight about their particular needs which are within the control of city and regional planning and urban design.

The preliminary findings suggest that adults with ASD have particular needs related to housing, transportation, and recreational accommodation, as they are more prone to stress, anxiety, and sensory overload. In our study we identified six paradigms: sensitivity, safety, clarity, inclusivity, autonomy and privacy. These paradigms inform our design and zoning solutions related to housing, transportation and recreation needs of adults with ASD. For example, adults with high-functioning ASD face particular barriers that prevent them from using public transportation and recreation facilities (such as lack of way-finding signage, special areas to pace or collect themselves to abate sensory overload, and unpredictable changes on bus routes to name a few).

Relevance of Work to Planning: This work is particularly relevant to professional planners who are becoming increasingly aware of underserved populations who are overlooked in the planning process. It should also be of interest to planners in academia who teach social justice topics and planners who want to learn more about engage atypical citizens with mental disabilities. Our research contributes to the current research literature that applies planning tools to engage citizens, in particular those with ASD.

Our findings provide an insight on how experimental ideas from the academy can bridge to the city and regional planning practice. It includes the tools and methods of creating more inclusive public participation through a literature review of health- and disability- related scholarly work, focus groups with underserved populations, a three-day charrette, and design-based zoning codes. This work expands our understanding of the debates related to the just city and provides theoretical implications for advocacy.

[1] Data from Centers for Disease Control and Prevention <https://www.cdc.gov/ncbddd/autism/data.html>

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Key Words: planning process, Autism Spectrum Disorder, universal design, public participation, inclusion

ENGAGED SCHOLARSHIP ACROSS CAMPUS - LEARNING FROM PEOPLE, INSTITUTIONS, AND SHARKS.

Abstract ID: 514

Group Submission: University-Community Partnerships PART 2: Involving students in engaged scholarship

LOWERSON BREDOW, Victoria [University of California, Irvine] vlowerso@uci.edu, presenting author

Engaged scholarship is seen to create knowledge that is useful for both practitioners and academics (Van de Ven and Johnson 2006). This orientation to engaged scholarship emphasizes these dual outcomes (for practitioners/communities and scholars). This focus on research outcomes may hold universities accountable especially those with commitments to the surround communities, but it can also oversimplify engaged scholarship as a means to an end. One way to think about this focus on dual outcomes is that it reflects an orientation towards performance rather than service (see Denhardt & Denhardt 2000). Focusing on engaged scholarship as a means to an end or in this dichotomy of community and researchers has ramifications for the transformative nature of engaged scholarship (see Peterson 2009); it also plays out and has consequences for how engaged scholarship is taught. This paper explores the expansion of a university center that currently supports graduate students across disciplines that conduct community-based research. With a desire to practice engaged scholarship in a way that

supports process and outcome as a duality (see Quick & Feldman 2011), the center began to think about its expansion by first learning from its participants, the graduate student fellows.

This paper presents findings from a survey that asked the graduate student fellows to describe: how they conducted their projects; who or what constituted the community that they engaged with; who mentored them in conducting said research and how this mentorship took place; what did they learn through the research; and then the kinds of supports would have been helpful in helping them to be even more successful in their projects. Findings focus on projects that define engagement with and between human and non-human actors, between institutions and individuals, and across periods of time beyond the scope of the project in order to bring cross-disciplinary learnings and disrupt typical imaginations of engaged scholarship into the planning field. Implications of (what-I-now-call) a relational view of engaged scholarship for its pedagogy and its implementation administratively is also discussed.

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Key Words: Engaged Scholarship, Pedagogy

PRE-ORGANIZED SESSION SUMMARY

University-Community Partnerships: Innovations and challenges for higher education

Summary ID: 24

Abstract ID: 240

Abstract ID: 241

Abstract ID: 243

Abstract ID: 244

Abstract ID: 1333

As higher education continues to confront claims that it is no longer honoring its longtime commitment to serve the public good, colleges and universities are seeking ways to be more relevant to society and responsive to the needs of communities in which they are located. Some universities have responded to this call, encouraging faculty to invest in scholarship and teaching that addresses critical societal issues. What has emerged is an emphasis on community-engaged scholarship, anchored by university-community partnerships. This session wrestles with the implications of this renewed higher education agenda, examining the approaches universities are adopting to reconstruct their commitments to serving the public good through investment in infrastructure for engaged scholarship. Papers in this session will investigate innovative university programs and approaches to foster university-community partnerships, the impacts of university incentive and reward structures, and the implications for the evolving role of the engaged scholar.

Objectives:

- Audience will understand how to develop university-community partnerships
- Audience will be able to differentiate between international examples of engaged scholarship

- Audience will be to recognize organizational structures that support community engaged scholarship

UNIVERSITY PARTNERSHIPS WITH RURAL COMMUNITIES

Abstract ID: 240

Group Submission: University-Community Partnerships: Innovations and challenges for higher education

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Because of large acreages, sparse populations, and different socioeconomic dynamics from urban areas, many rural communities are beginning to assemble their own sets of indicators that fit their unique policy agendas. There are particular challenges to such policy exercises. Often, publicly available data does not neatly fit rural-specific jurisdictions. America's rural areas contain historic, economic, cultural, and agricultural resources that benefit residents, visitors, and broader local and state communities. Unlike their urban counterparts, policy objectives are markedly different. Instead of focusing on population growth, many rural areas prioritize land preservation from development, increasing agricultural economic vitality, and bolstering visitor-ship to natural and scenic areas. For these reasons, rural areas are subject to the vagaries of cyclical economies dependent on food, tourism, and housing construction. At any given time, one of these sectors is vulnerable to global pricing changes. The temptation to convert idled farmland to urban development during such agricultural market recessions is great. In the past 40 years, university-community partnerships have helped reveal such dynamics, fit community planning values with indicator benchmarks for policy success, and aid policy formation. This review summarizes practical efforts from six rural economic development report series. A nested case study on University of California, Davis' Center for Regional Change reveals how community - university partnerships change not only the policy landscape for participating communities, but research and education experiences in higher education for students.

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Key Words: rural, environmental justice, affordable housing, socio-economic indicators

LAYING THE GROUNDWORK FOR THE ENGAGED CAMPUS: INNOVATIONS AT TWO RESEARCH UNIVERSITIES

Abstract ID: 241

Group Submission: University-Community Partnerships: Innovations and challenges for higher education

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As higher education institutions evolve in the 21st century, research universities are increasingly interested in conducting community-engaged scholarship that is grounded in community needs, but the infrastructure required to build viable, mutually beneficial partnerships is often insufficient. Their historical relationships with community frequently complicate university attempts to build partnerships; anchor institutions commonly exacerbate local inequities in the adjacent communities, compounding existing trauma and distrust of higher education. When partnerships are successfully established, inequitable power dynamics, incompatible organizational structures and limited communication often make long-term partnerships difficult to sustain.

At the foundation of these challenges to university-community partnerships is the reward system of many research universities, which rarely incentivizes engaged scholarship. Responding to calls for greater relevance and impact of research, some university leaders are investing in the development of innovative programs and structures to support engaged scholarship through university-community partnerships. These innovations might include developing and implementing new organizational structures, professional development opportunities, and policies that contribute to a climate supportive of community engaged scholarship.

This study analyzes two innovative research university initiatives focused on supporting engaged research that informs solutions to societal problems. As part of these cases studies, we investigate university readiness, approaches and policy innovations developed to support partnership development and to community-engaged scholarship, and the pre-conditions necessary to build mutually beneficial and equitable long-term community partnerships.

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Key Words: partnerships, higher education, engaged scholarship, innovation

DELIBERATIVE WORKSHOPS ON AFFORDABLE HOUSING: ISLANDS OF SAFE DISCURSIVE SPACE WITHIN PROBLEMATIC PARTNERSHIPS

Abstract ID: 243

Group Submission: University-Community Partnerships: Innovations and challenges for higher education

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Central Theme/ Relevance of work to Planning Scholarship and Practice

Access to affordable housing is a critical issue in many cities and regions. In Australia as in other countries governed under neoliberal ideals, growth in dwelling prices has far exceeded growth in wages since the 1980s. Government investment in social housing has decreased, as central city gentrification has pushed lower income households to the under-serviced urban edge.

Increasing polarisation of housing outcomes – with some households owning multiple properties while others face homelessness - is part of a larger shift, from strong government provision of essential services to a greater focus on partnerships between government, not-for-profit and private sectors. Partnerships for affordable housing in Australia are constrained by the relative immaturity of the social housing sector, small and weak local governments, and the absence of senior government programs to support private sector investment in affordable rental housing (Milligan & Tiernan, 2011).

The Transforming Housing Research Partnership was formed in response to the lack of intersectoral discussions about affordable housing in the state of Victoria, Australia. Transforming Housing is a Participatory Action Research project led by researchers at the University of Melbourne. The partnership is comprised of

representatives from local and state government, academia, philanthropy, not-for-profit housing, professional bodies and private development. Its goal is to improve the housing outcomes for very low to moderate income households in Melbourne. It has four areas of focus; 1) policy reform, development and advocacy, 2) innovative project development and evaluation, 3) industry capacity building and 4) research capacity building.

Under the aegis of industry capacity building, Transforming Housing has hosted two Housing Summits and a community event aimed at influencing Public Housing Renewal in Melbourne. Members of the research partnership also attended and contributed to a State-run affordable housing co-design workshop, inspired by the Housing Summit approach.

This paper seeks to answer the question: To what extent have deliberative workshops influenced affordable housing policy, practice, advocacy and partnerships within Greater Melbourne?

Approach and Methodology

This paper investigates the role of a University-led research partnership as an instigator of intersectoral partnerships, advocacy and action. As a partnership with no formal, state-accepted mandate, it is an example of 'networks and channels of energy flows outside of formal planning processes in search of certain economic, ideological, or other benefits' (Hillier, 2000, p. 34). Rather than creating a formal platform for influencing policy, the deliberative workshops hosted by TH function more as a 'safe space' to form coalitions and support social learning, generate creative ideas and identify decision-making opportunities (Jordan, 2016).

This paper draws upon 12 interviews with people deeply involved in the affordable housing sector in Melbourne to examine the role of deliberative workshops in shaping policy, practice, advocacy efforts and partnerships for affordable housing provision.

Findings

We find that University-led partnerships can provide a neutral space for sharing knowledge and can lend legitimacy to advocacy messages. However, the partnership itself is suffering from some of the perils and pitfalls described above: weak local government, senior governments without a consistent framework to address affordable housing, non-profit providers without stable funds, and investors and private developers with reasons to invest in affordable housing.

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Key Words: Affordable Housing, University-Community Partnerships, Deliberative Planning, Australia

DESIGNING A FIELD SCHOOL: NAVIGATING UNIVERSITY STRUCTURES AND POLICIES

Abstract ID: 244

Group Submission: University-Community Partnerships: Innovations and challenges for higher education

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Experiential learning (EL) is an increasingly popular teaching tool and program marketing strategy. This applied act or real-learning experience is becoming a standard practice and a marker of excellence and innovation. Higher

institutions of education have a spectrum of engaged practices at the undergraduate and graduate level with the most popular being Service-Learning, internships, study abroad and exchange programs, and client-based research projects. EL cultivators are navigating a complex landscape of curriculum assessment, program accreditation, and resource extraction to create these opportunities. In many instances, they are recruiting community partners and creating third-sector planners where the enrolled students are helping communities build capacity and the communities are helping students develop or apply their skill sets with various outcomes and levels of trust and delivery. Simultaneously, there is another trend and higher education conversation and push to build interdisciplinary programs to reflect and support problem-based learning particularly for applied areas of study, which raises some opportunities to think about how EL and interdisciplinary practices connect and diverge.

In this paper, I ask how interdisciplinary programs use experiential learning to reinforce problem-learning and what structures, resources, and cultures at the universities that support or inhibit this connection or application. To answer this question, I evaluate and assess the development of a new Urban Field School at Boise State University that is a core experiential learning opportunity for three interdisciplinary programs in the School of Public Service including Urban, Global, and Environmental Studies and also relies on foundational curriculum in several different colleges and schools across the university. In design, the Field School follows a “deep interdisciplinary” approach that creates an opportunities for skill development, community partnerships, public communication, comparative site experiences, and a multilayered reflection process. Through curriculum assessment and elite interviews with project faculty and community partners, I evaluate capacity at the program, school, and university levels and consider the different ways that the nexus plays out with interdisciplinary and EL initiatives. This research is valuable in that it adds to a broader conversation to create more robustness and understanding around the concepts of EL and interdisciplinary activity that are becoming central to planning and urban studies programs.

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Key Words: experiential learning, university-community partnerships, field school

DEVELOPING A COMMUNITY ENGAGED SCHOLARSHIP AGENDA

Abstract ID: 1333

Group Submission: University-Community Partnerships: Innovations and challenges for higher education

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This paper draws on three main sources to derive lessons for a community-engaged scholarship agenda. First, it reflects on my own two decades of efforts to develop and hone a community-engaged scholarship agenda at Wayne State. I discuss three major rationales for these efforts—personal, professional, and academic; illustrate linkages to research, teaching, and service; and highlight key successes and challenges. The bulk of these efforts related to community food systems planning which were initiated at a time when the field was still nascent. Thus, innovations and continuing challenges are examined with reference to efforts’ specific relationship to Detroit’s recent history, connections between local and national actions, and trajectories that have evolved for urban planning scholarship over time as a result. Second, the paper draws on a survey of a dozen planning faculty engaged in community partnerships in teaching and research, in food systems and other topics. This survey identifies themes common to community-engaged scholarship across contexts. Third, I discuss these themes in reference to the literature on community engaged scholarship within planning and allied fields. Despite the specific and contingent nature of the food system engaged scholarship experiences reported here, a few broad lessons emerge for developing a community engaged scholarship agenda for both new faculty and those seeking to expand activities post-tenure.

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Key Words: Engaged scholarship, University-community partnerships

CURRENT ENROLLMENT TRENDS IN GRADUATE PLANNING PROGRAMS: UNDERSTANDING A TRANSFORMATIVE MOMENT IN PLANNING EDUCATION AND IMPLICATIONS FOR PROFESSIONAL PRACTICE

Abstract ID: 105

Individual Paper Submission

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Enrollment in graduate programs in planning has declined consistently since 2010, with programs accredited by the Planning Accreditation Board (PAB) posting a decrease in full-time students of more than 15 percent from 2010 to 2017. While the underlying causes of changing enrollment patterns are not fully understood (Diversity Committee, 2016; Joint Task Force on Enrollment, 2016), it is clear that both the quantity and composition of planning students has changed rapidly during the 2010s and may have significant implications for planning education and planning practice.

This study examines enrollment in PAB-accredited graduate programs in planning (N=69) from 2009 to 2017 using data from PAB's Annual Report Online Database (AROD), including the analysis of enrollment trends by gender, race, citizenship, and program region.

The findings indicate that changing enrollment patterns are characterized not just by a persistent decline in total enrollment levels, but by a historic shift to a student body that is both majority-female and where white domestic students are no longer a dominant majority. The dynamics of this "triple shift" in enrollment decline, gender, and race/citizenship, are used to develop a typology of programs facing varied qualitative changes in their student bodies.

The implications of this "triple-shift" are potentially transformative for both planning education and the planning profession. In terms of planning education, a sustained change in the composition of the student body is likely to bring increasing numbers of students with non-traditional and diverse perspectives into planning programs, challenge faculty to address new student interests and employ new pedagogical approaches (Harris 2015), and necessitate the use of enrollment management, recruitment, and retention strategies at both the program and industry level in order maintain the sustainability of accredited graduate programs in planning.

Moreover, a long-term "triple-shift" may impact the future of the planning profession by diminishing the pipeline of persons entering the planning profession and contributing to the challenges faced by Millennial-era minority-race and women planners in professional practice (Thomas, 2008). It is not insignificant that the "triple-shift" presents a simultaneous set of challenges that may have broadly intersectional consequences, such as a broadened paygap observed in occupations that transition to majority-female (Miller, 2016) combined with potential limitations on professional advancement for planners of color (Thomas, 2008).

Citations

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Key Words: diversity, race, gender, #paygap, #millennials

RECOMMENDATIONS FROM A PILOT OPINION SURVEY FOR USING PROGRAM EVALUATION PRAXIS IN PLANNING EDUCATION EVALUATIONS

Abstract ID: 150

Individual Paper Submission

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Opinion surveys have long been an influential method of assessing planning education performance. Yet, despite having paid insufficient attention to formal program evaluation praxis and competencies associated with justice and equity, evaluators assert their results demonstrate planning education is performing properly. A pilot survey utilizing performance measurement principles administered to two state APA chapter memberships and the faculty and students of the accredited graduate planning programs in those states found communication skills retain their prime importance. Students ranked justice and equity competencies more highly than did faculty and much more highly than did practitioners. Recommendations include modifying accreditation standards and criteria to require 1) the development of specific performance goals - especially for justice and equity competency provision and use, and 2) the administering of annual opinion surveys of faculty, students, and alums by every accredited planning program to inform their future operation and evaluation.

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Key Words: Planning Education Evaluation, Program Evaluation, Performance Measurement, Social Justice and Equity, Planning Competencies

THE MOST FREQUENTLY CITED TOPICS IN CURRENT PLANNING SCHOLARSHIP

Abstract ID: 151

Individual Paper Submission

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Planning scholarship commonly takes the form of books, book chapters, journal articles, and other types of reports and documents. Traditional quantitative measures of academic output have been used to assess performance, especially in terms of academic promotion and tenure. The refrain of “publish or perish” within academia stresses the importance of scholarship for maintaining professional status. Productivity is a critical factor when arguing for scarce resources, comparing academic programs, and competing in global education and research markets (Goldstein and Maier 2010; Linton, Tierney, and Walsh 2011). The traditional means of assessing academic productivity and reputation has been citation analysis. Citation analysis for scholarly evaluation has an extensive literature that weighs appropriateness within and across disciplines as well as offering nuanced discussion of metrics. Analyses of faculty citation activity usually focuses on output by characteristics such as rank, years of experience, and other factors influencing productivity. However, because urban planning is multi-disciplinary, which includes consideration of social, economic, technological, environmental, and political systems, it can be expected that some topics are more “popular” and have larger audiences, therefore being cited more often. Using over 18,000 planning publications, this paper presents an analysis of which topics have the highest levels of citation activity. The classification of publications was performed using machine learning (ML), which resulted in 30 categories. The average citation levels for these categories as well as cases of multi-category topics are presented.

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Key Words: scholarship, bibliometrics, citations, research

ILLUSTRATING PLANNING HISTORY: TEACHING VISUAL LITERACY IN TEXT-BASED DISCIPLINES

Abstract ID: 185

Individual Paper Submission

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Though we exist in a media- and image-saturated culture (Debord, 1967), a surprising few undergraduate and graduate planning students possess basic visual literacy (Berger, 1972), the ability to unpack the messages behind the media (McLuhan, 1995). That is, only with rare exception can students assess an image's authorship, social context of production, intended audience, and consequent argument (Rose, 2012), much less produce a visual illustration of their own. This paper examines my effort to combine the pictorial turn (Mitchell, 1994), visual culture (Sturken and Cartwright, 2001), and spatial and textual investigation into a DIY assignment (Talen, 2015) in three undergraduate and graduate planning history classes. The objective is to get students to develop alternative approaches to “seeing” the city.

Since students will often need to evaluate projects to establish the image of the city (Lynch, 1960) as well as produce reports and plans that could be more rhetorically persuasive with strong, clear visuals (Shannon and Banerjee, 2017), I have conducted assignments in my undergraduate and graduate planning history classes that require them to experiment with creating a conceptual, Situationist-styled map of their neighborhood, developing

a visually compelling brochure of the history section of a community plan, and producing an illustration of moment/person/event/idea in planning history.

The earliest of these assignments, the creation of a neighborhood map, draws upon the fantastical stories of Italo Calvino's *Invisible Cities* (1972). I used Calvino because his book stands apart as fully merging the physical, social, spatial, and culture into prose that students can, mostly, grasp. Using Calvino's rich visual language as a guide, students were required to draw or otherwise produce a map of their home or school neighborhood. The resulting maps ranged from moated suburban streets to urban basketball courts linked only by the safest streets, illustrating key social planning concerns, such as spatial segregation and safety.

In a graduate planning history course, groups of students were required to portray a community's history in a short, visually sophisticated brochure that hypothetically replaced the existing history section of a community/city plan. Strikingly, the revisionist histories often portray local history more soberly and have a stronger social justice perspective than the original plans.

The third assignment asked most students to move out of their comfort zone and produce an artwork depicting some element of planning history. Projects comprise a wide-ranging mixture of conventional poster boards filled with historical photographs, elaborate paintings, ventricular photographs, collages, and three-dimensional assemblages. Barriers to success are intriguing: the more visual students struggle to include history and the more textual students struggle to produce an effective aesthetic. The results provide ample opportunity to discuss why some visuals work and others fail, and principles to effectively producing a persuasive and (most challengingly) analytical illustration.

In the 30 years I have been assigning these projects, three findings have emerged. First, poorly designed and text heavy drafts provide an opportunity to reinforce the principles of visual literacy. Second, students' works often are more sophisticated, including issues of racial conflict, gender bias, and regulatory barriers than the plans they replace. Finally, assignments have become increasingly elaborate as succeeding classes build on earlier examples, highlighting the opportunity of iterative design in planning pedagogy.

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Key Words: Visual literacy, Visual pedagogy, Planning history , Design for planning history

TOPICS OF TRANSPORT ACCESSIBILITY (FOR PERSONS WITH DISABILITIES) IN PLANNING EDUCATION

Abstract ID: 297

Individual Paper Submission

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Transport planning education has the responsibility to provide students with knowledge of various transport topics; the ability to work with the public; understanding of the political context they will work in; and technical and technological skills required for practice (Khisty & Kikuchi, 2003; Handy, Weston, Song, & Lane, 2002; Turnbull, 1993; Wu, Lu, Lirn & Yun, 2014). In the face of changes in transport-planning practice, education of planners is an important consideration for the planning field (Khisty, Kikuchi, 2003; Handy, Weston, Song, & Lane, 2002). In order to prepare students to solve new planning challenges effectively, planning education needs to be cognizant of policy changes that impact practice and incorporate them in knowledge and skills training. In her seminal work, Turnbull (1993) identified the Americans with Disabilities Act (ADA) as one of the policy initiatives that would impact transport planning and highlighted that education needed to respond to these changes. Our study focuses on the effect on transport-planning education of ADA requirements in transport service delivery a quarter of a century after the passage of the ADA. It examines how planning schools prepare students, if at all, to work effectively in a system that aims to respond to transport needs of persons with disabilities. The study does so by asking: What is the state of planning education in US universities on the topic of accessible transport? We surveyed 102 planning programs and 14 affiliate members of the Association of Collegiate Schools of Planning. Our study followed a similar approach to that of previous research work of the same theme (e.g. Turnbull, 1993; Handy, Weston, Song, & Lane, 2002; Khisty & Kikuchi, 2003; Wu, Lu, Lirn & Yun, 2014). Transport-related graduate, undergraduate, required, and elective courses offered in the last three years are identified and their course syllabi assessed through content analysis for topics in accessible transport. We also examine transportation centers affiliated with universities to evaluate their focus in relation to transport accessibility for persons with disabilities. One of the preliminary findings of our analysis shows that inadequate attention is given to accessibility as a transport issue in planning education. The purpose of the study is to (a) shed light on the current state of planning education in the US in relation to transport accessibility for persons with disabilities (b) to bring to the fore questions of transport accessibility in planning education (c) to suggest recommendations for improvement if and where there are gaps regarding accessibility topics.

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Key Words: Planning education, Topics in transport education , Transport accessibility for persons with disabilities

UNDERGRADUATE STUDENT EXPOSURE TO PLANNING ISSUES AND DESIRED LEVEL OF CIVIC ENGAGEMENT: DOES TAKING INTRODUCTION TO COMMUNITY PLANNING INCREASE STUDENT INVOLVEMENT IN COMMUNITY ISSUES?

Abstract ID: 419

Individual Paper Submission

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The U.S. has seen a decline in civic engagement, partly owing to factors like decline in social capital, worsened by widespread use of the internet and smart phones (Mcharg 2018). If people do not interact socially, or are unaware of issues pertaining to their communities, they may not be able to identify issues of public concern and work together as citizens to impact change in their communities. Planning has acknowledged the importance of civic engagement for the planning process and the planner's role in facilitating community involvement. Given the important role to planning plays in shaping communities, a lack or lessening civic engagement is of concern and planners seek to understand and implement more ways to increase such engagement. Our research explores the question of whether planning educators can impact undergraduate students of a variety of academic majors and specifically their interest in civic engagement. We aim to understand if exposure to planning issues in the classroom can impact student community involvement, regardless of the student's particular academic interest.

A body of research exists on the impact of service learning on student's civic engagement. (Ashley 2011) (Bowman 2011). For example, the relationship between college diversity experience and civic engagement has been explored, showing that exposure to diversity activities increases civic attitudes. Within the planning field, there has been a breadth of exploration into civic engagement and public participation, including recent topics such as how digital methods for civic engagement impact building social capital (Mandarano, Meenar and Steins 2011) and fostering green communities through civic engagement (Shandas and Messer 2008). However, what is lacking in the research is an exploration of impact that introductory planning courses may have on the civic engagement of students, and specifically undergraduate students. This research explores this issue by aiming to understand how introductory-level classroom exposure to planning topics such as methods of public participation, how to access a community's comprehensive plan online, the workings of city government, accessing the U.S. Census FactFinder, and other related topics can impact student attitudes towards and participation in a variety of types of civic engagement.

Students enrolled in the course Introduction to Community Planning were surveyed at the beginning of the semester to gauge their level of civic engagement across a number of levels including interest in attending public meetings, regular viewing of the local news, and reading the newspaper and others. After the semester's exposure to the aforementioned community planning topics in class, they were surveyed once again to observe whether the class had an impact on their desired level of civic engagement. Findings can relay the importance of introductory planning education for students across a variety of majors, and potential impact on communities if we educate students on such planning issues that impact the communities in which they live. Findings can also help inform planning educators where we lack, and where we stand strong, so that we can design courses to get students more exposed to such issues and hence aware and inclined to make a difference to their communities as citizens.

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Key Words: civic engagement, undergraduate pedagogy

IF YOU CAN'T BEAT 'EM, JOIN 'EM: NURTURING UNDERGRADUATE SCHOLARSHIP AND COLLABORATIVE KNOWLEDGE CREATION THROUGH EDITING PLANNING-RELATED WIKIPEDIA ARTICLES

Abstract ID: 520

Individual Paper Submission

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How can undergraduates better learn to use scholarly resources to research topics of interest? A traditional research paper assignment challenges students to seek, evaluate and synthesize information from scholarly sources. Today's undergraduates were yesterday's high school students. In 2013, Pew surveyed 2500 middle- and high-school teachers about their students' research habits. The sources professors prefer—academic databases such as EBSCO or JSTOR, research librarians, books and student-oriented research websites—filled out the bottom of the list, with teachers estimating that less than 20% of their students were likely to use any of them. First and second on the list, respectively, were Google (94 %) and Wikipedia (75%). The maxim “if you can't beat 'em, join 'em” motivates this research.

Students in an upper-division urban planning core course on infrastructure have submitted research papers responding to an assignment that included extensive scaffolding—a proposal, a session with a university librarian followed by a library assignment, an annotated bibliography, a hands-on plagiarism workshop, a draft to which extensive feedback was given, and a final revision. Students submitted their papers to Turnitin.com and could revise after seeing the score generated by that site (turnitin.com scores range from 0 to 100 percent of text “matching” other text known to turnitin.com). Nonetheless, a large share of the students submitted papers relying on too few scholarly sources and too many inappropriate internet sources. Wikipedia, although discouraged, was heavily used if not heavily cited.

This paper reports on an experimental departure from the research paper assignment. Collaborating with a University Librarian, and supported by content and platform experts from Wiki Education's Classroom Program (WECF), the instructor created an assignment requiring students to expand on a Wikipedia article. Students chose from a list of infrastructure-related “stubs” (Wikipedia's name for articles needing expansion) curated by the instructor. WECF supported the course, providing guidelines for assignments and scheduling, and online training for students about how to work on an article in a “sandbox,” engage with others in wikipedia's “talk” platform, and eventually move their revision to the Wikipedia encyclopedia.

The criteria for Wikipedia content differs slightly from the content for the more traditional research paper. Both assignments ask students to manage scholarly and factual information. The traditional paper included a requirement that the student articulate ideas for improvement in the infrastructure area. Wikipedia articles must not indulge in opinionating, so that part of the assignment was shifted to elsewhere in the course. Wikipedia's five “pillars” focus on building the online encyclopedia in the spirit of respectful collaboration with other “wikipedians,” and from a neutral point of view. Edits need to be based on verifiable, credible published sources. Editing involves conversations among contributors. Engaging students in this process has perils—they may end up preparing an article revision to which some other wikipedian or editor objects—but also rewards in nurturing future planners and scholars in the practice of collaboratively creating knowledge.

This paper reports on the outcomes of students' learning about their topic and other aspects of their experience as wikipedians. The paper discusses more generally the notion of “wikis” in planning education and practice. Wikis provide platforms for collaborative collection, synthesis and dissemination of knowledge about anything, and allow anyone with internet access to be invited to participate. Wikipedia represents a grand project in the social construction of knowledge: its 33 million registered users (you must register to edit), 3.1 billion words in 5.6 million content pages represent “participation” on an unmatched scale. Engaging students in a supported wiki model of knowledge creation has some advantages over the traditional research paper.

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Key Words: Wikipedia, undergraduate research, knowledge creation

IMPLEMENTING A WRITING-ENRICHED CURRICULUM IN A PLANNING PROGRAM

Abstract ID: 562

Individual Paper Submission

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While all planning programs have a writing component to assess student learning, most planning programs do not have an actual strategy to implement and assess writing throughout the entire curriculum. Oftentimes, writing standards in one class may differ from another class, and writing becomes course-specific as opposed to curriculum-wide. Writing-enriched curriculum provides a systematic process to implement and assess writing outcomes in a consistent manner across multiple courses. Whereas many planning programs are accredited based on what is taught in the curriculum, a writing enriched curriculum enhances that accreditation based on writing better, rather than writing for the sake of a single assignment in a single course.

The origins of writing-enriched curriculum are from the University of Minnesota. Surveys and focus groups over five years led to the realization that university-required writing-intensive courses may not be the optimal way to teach writing to students. Moreover, writing tends to be discipline-specific, meaning that general undergraduate English courses may not necessarily teach writing appropriate for that major. Writing-enriched curriculum enhancement was identified as the best way to strengthen writing within majors, enabling discipline-specific writing to be assessed across a major curriculum. Between 2007 and 2012, a five-year pilot program initiated the implementation of writing-enriched curricula in 23 different academic units. Since 2012, the writing-enriched curriculum concept has been adopted by several universities, including Florida Atlantic University.

The School of Urban and Regional Planning at Florida Atlantic University is the fourth program at FAU to go through this process, and the first school at FAU to implement this program at the undergraduate and graduate level. The first step of the process requires identifying discipline-specific writing characteristics through faculty, student, and stakeholder survey input in addition to faculty meetings. The second step revolves around defining desired writing abilities. The seven desired writing abilities for students to attain by graduation were identified as: 1) integrating graphics with text to ensure that graphic materials illustrate and support ideas in the text; 2) using correct grammar to consistently and clearly phrase thoughts; 3) creating concise summaries to present key details; 4) synthesizing information such as determining importance, deriving implications, and creating recommendations; 5) correctly incorporating information that is appropriate and correctly cited; 6) evaluating others' work critically, including the ability to read, listen, understand, and assess work by others in the classroom and in the field; and 7) describing 3D environments through the visualization and articulation of proposed changes in the built environment. The third step focuses on integrating writing into the various major program curricula for assessment over time, which requires identifying at least one course in the first semester, an intermediate course, and a course during the last semester to gauge writing improvement over time. This step resulted in a curriculum mapping exercise similar to PAB, but with a focus on which courses had multiple writing assignments throughout the curriculum. The fourth step involves creating a way to assess student writing. The fifth step is the creation of multi-year implementation plan for seven years, similar to a writing-based strategic plan for the program.

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Key Words: Planning education, Planning pedagogy

EVALUATING INTENSIVE EXPERIENTIAL LEARNING: LESSONS FROM CLIENT, STUDENT AND ALUMNI EVALUATIONS OF SATISFACTION

Abstract ID: 615

Individual Paper Submission

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For over 40 years, the University of Oregon has run Community Planning Workshop (CPW) to help train graduate students in an experiential learning, workshop setting. CPW utilizes paying clients supported by a staff or professional planners to engage in real world practice integrated with professional development. Research on the skills required for professional planners has emphasized skills such as communication (Guzzetta and Bollens 2003), but planning programs have found it challenging to integrate these kinds of competencies into the core curriculum (Seltzer and Ozawa 2002). This study utilizes feedback from clients, alumni and students over a several years of projects to assess its community and student impact. We examine the short and long term competency outcome from planning students. We also examine the benefits and qualities of the outcomes for the client organizations. The findings reveal that these kinds of projects can provide a specialized niche in the planning profession that serve clients well and offer significant learning opportunities.

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Key Words: planning education, experiential learning, community service

ENTREPRENEURSHIP AND VENTURE-FOCUSED PEDAGOGIES: THE CASE-STUDY OF MIT DESIGNX FOR URBAN TECHNOLOGIES DEVELOPMENT

Abstract ID: 679

Individual Paper Submission

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The recent popularization of urban technologies in the marketplace reflects a groundswell of interest at the nexus of open government, technology and data, and innovation and entrepreneurship (Patel, Sotsky, Gourley, & Houghton, 2013; Ratanarawaha, 2012). Paradoxically, while interest in urban planning within the innovation community is high, many programs have not incorporated the teaching of entrepreneurial skills in planning curricula. That is not to say there has not been interest: Frank (2007) assessed entrepreneurial skills found across existing curricula and Albrechts (2005), among others, have argued that planners need to think more creatively, with less emphasis on the regulatory aspects of planning.

Concomitant to this impetus for entrepreneurship, practice-based education reemerged in planning programs in the 1990s and made commonplace through the 2000s (Long, 2012). Long argues that the studio remains an opportunity to “do more than teaching practice, by deliberately accommodating new kinds of learning” and “investigate new modes of practice.” The studio offers a valuable space to consider venture-based approaches despite the inherent challenges in entrepreneurship. There remain few pedagogical assessments on venture-based learning within the context of today’s digital and technological accessibility or the consideration of scalability.

This paper considers designX, a program at the MIT School of Architecture and Planning, as a pedagogical case study. In Spring 2017, designX was launched as the school’s innovation and entrepreneurship program and the first student-faculty venture accelerator created within such a school. The program focuses on concepts that have the potential to sustainably scale with positive impacts on communities and the built environment. DesignX is unique in its integration into the academic environment with a venture studio course, taken for credit, that guides students through a formal curriculum that spans five months. Teams are selected through a competitive application process. Chosen groups receive mentorship, legal support, access to a dedicated workspace for one calendar year, and \$15,000 equity-free pre-seed funding.

These student-led ventures have ranged from sensors measuring the presence of opioids in sewers to peer-to-peer housing, to data-fusion platforms for development, and have spanned across scales of intervention and both domestic and international contexts. Thus far, the program has matriculated 18 ventures teams and approximately 65 students.

This paper describes the approach of the designX venture studio as well as an evaluation of its pedagogical mechanisms, based on weekly surveys and end-of-class interviews. These instruments assessed the technical and collaborative skills development of each student, the resource needs of the venture, and progress in the evolution of their concept and/or prototype. Together, these offer a longitudinal picture of how students achieved specific learning objectives over the development of their ideas. The results highlight challenges faced by the teams of market validation and technical expertise, and the intensity need for mentorship within and beyond the academic program across many skills domains including team dynamics, collaboration skills (especially with multidisciplinary or distance-based teams), user empathy and hypothesis testing, and finance and investment. The paper highlights insights relating to team dynamics and organization, and the unique challenges of student-student, student-mentor, and student-community interactions within this context.

The paper also discusses the material and financial resources needed by the teams, and the importance of having dedicated workspace and time on the survivability of their ventures at this early stage. The results show that despite the \$15,000 investment being an enticement to apply, few teams used the funds entirely and most were able to catalyze the award to obtain more grants and prizes. The results show the overall success of the program in achieving both entrepreneurship and community-focused learning outcomes, and the opportunities for self-employment after graduation as a viable path to practice.

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Key Words: entrepreneurship, pedagogical assessment, Studio-based education

LEARNING ABOUT PLACE AND PROFESSIONALISM- TOWARDS A FRAMEWORK FOR PLANNING STUDIO ASSESSMENT AND CURRICULUM REFINEMENT

Abstract ID: 892

Individual Paper Submission

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Studio courses are increasingly important in city and regional planning program curricula, providing opportunities for students to build upon and integrate prior learning. Studio courses can reveal the complexities associated with distinct place identities and place-making approaches (Arefi and Triantafillou, 2005). They can also help students learn how real world conditions temper theoretical models (Senbel, 2012). Moreover, studios help students create “a ‘professional voice’ and planner identity” (Shach-Pinsley and Porat, 2016). This paper builds on the above and other prior work examining how students learn about place-making, the intersection of real-world and theoretical knowledge, and the development of a professional voice. It proposes a framework for teaching and evaluating student learning in studio courses through two conceptual lenses: authenticity and professionalism. This conceptual framework draws from an actual studio class experience developing a consulting report for Santa Maria, a city on California’s central coast of over 100,000 people with a growing majority of Latino and immigrant residents.

Santa Maria has a complex place identity, as both an agricultural community and regional retail hub for the central coast. It has continued to expand through the addition of big box retail outlets outside its downtown core, and is now undertaking its own efforts to regenerate its downtown. During the two-term Santa Maria studio, 17 undergraduate students were asked to: conduct statistical and site-based research on existing conditions; engage with the general public as well as distinct community groups; and to propose recommendations for preserving and enhancing Santa Maria as an authentic community. This focus on authenticity sought to reinforce learning on place identity. Some of this work was done in partnership with a sister studio class. The latter shared the client and some outreach work, but focused on different learning outcomes and was led by a separate instructor. The studio class in question packaged its recommendations on authenticity into a consulting report, and reflected a definition of authenticity that combined both place identity and social inclusion (Tate and Shannon, 2018; and Zukin, 2010). While delving further into what authenticity meant, as well as getting to know the community, students also wrestled with what it meant to be professional planners, and were challenged with developing their own understanding of professionalism. Over both terms of the studio, students explored ideas relating to authenticity and how it might be operationalized in a planning context –initially with mixed results, but with significant improvement over the second term. During the second term, specific learning activities associated with unpacking professionalism were introduced. These activities built upon learning from a separate professional practice course in the first term, and included weekly monitoring of individual students’ professional performance, as well as class discussion and individual exercises on how students might operationalize both authenticity professionalism in their studio project. In addition, students were asked during the second term to prepare and facilitate five policy charrettes for their fellow classmates, to explore and brainstorm preliminary proposals that would eventually be presented to planning department and other professional staff at the City of Santa Maria.

In order to better appreciate how students learn about place-making, the intersection of practice and theory, and building a professional identity, results from the Santa Maria studio will be analyzed, and used to propose an assessment and curriculum refinement framework for future studios. Data to inform the framework will include analyses of student assignments, responses to some exercises focused on professionalism and authenticity; and the final consulting report. They will be supplemented with instructor observations and anonymous course evaluation data. This framework will eventually be calibrated using pre-class and post-class testing for a future studio in another community.

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Key Words: planning studio, professionalism, authenticity, evaluation framework

BUILDING BRIDGES: EXAMINING THE ROLE OF “CIVIC TECH” IN PREPARING PROGRESSIVE PLANNERS

Abstract ID: 994

Individual Paper Submission

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As planning educators, we are always mindful about the need to prepare new generations of planning students to become ethically and socially responsible practitioners of the craft. Yet, integrating the use of civic technologies into planning curricula can be challenging. What digital technologies should be included when technologies are constantly changing? How much technical proficiency should be required from all students? What if these technologies and methods create further disconnects between planners and the communities they serve? I struggle with these and other related questions, despite being a tech enthusiast. In this context, I will discuss the curriculum and content of a successful course that I have taught for several years, called Public Participation and Geographic Information Science - a graduate course that engages students simultaneously in the theory and practice of participatory planning using digital technologies. In this course, students participate in a conventional seminar discussion in the classroom. They develop and implement a project in partnership with a community organization that integrates the use of digital technologies to support civic engagement. The data that I will use are completed projects from several generations of the course. The themes that I will examine are how digital technologies are used in pre-planning, crafting a vision and goals, designing a planning process, fostering civic engagement, managing data collection and analysis, synthesizing findings and communicating the findings to diverse audiences. Ultimately, the overarching purpose of the paper is to begin a conversation between progressive planning scholars who are skeptical about the relevance and use of digital technologies and the tech sector (tool developers, civic hackers, etc.) who are using “technology for good”. We need to have these conversations in our academic community so that we can better engage with other sectors of the economy that are charging ahead with the creation and deployment of a wide range of digital technologies that have the potential to dramatically alter planning processes, the quality of our civic engagement, and our lived environments.

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Key Words: participatory planning, PPGIS, curricula, civic tech, case studies

REFLECTIONS ON AN INTERDISCIPLINARY URBAN DESIGN STUDIO: OPPORTUNITIES AND CHALLENGES

Abstract ID: 1259

Individual Paper Submission

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This paper is a critical reflection on an interdisciplinary urban design studio involving city planning and architecture students at the University of Manitoba. While the course was structured within the curricula of the two programs to address accreditation requirements, its outcome was also intended to play a boarder more public role, raising concerns about the quality of urban environments in downtown Winnipeg and challenges faced in attempting to revitalize the core of a slow-growth city.

The studio has evolved over a period of several years. Initially, it was offered as an undergraduate design studio. Students worked in groups to determine how development might be concentrated to create a critical mass of population and public places where residents could feel comfortable. Over four years, students developed and improved these ideas, building on the proposals of the previous years. Studio groups employed an array of graphic tools to illustrate their proposals, but attention most often focused in a 1:500 analogue wooden model of the city centre. This model caught the attention of a larger audience, including the business association, City and Provincial planners, and politicians. Students presented their work to mixed audiences in downtown shopping malls, attracting media coverage.

With each iteration, the methods have evolved. Over the first few years, students imagined good, vibrant public realms and the functions that would be needed to support it, with little programmatic limitation. However, many of the proposals appeared more appropriate to larger metropolitan centres with rapid growth, unrealistic for a mid-sized, isolated, slow-growth city. While developers were grabbing the public's attention with 20-40 storey condominium proposals, we realized that attempting to rebuild downtown with an eye for the skyline, given the low residential absorption rates, would leave many of the surface lots untouched. The challenge shifted to imaging development that might create livable, walkable environments with more modest interventions. We developed a density visioning exercise using blocks on the wooden model. It illustrated that more modest building heights (4-10 storeys) spread across the whole of downtown, would provide the population base required.

In its most recent iteration, the scope of the studio has been expanded, including architecture and planning students. Each disciplinary group has its own responsibilities, and conforms to the different pedagogical cultures of its home department. However, they come together in different configurations for specific assignments. While the architecture students were responsible for the design of individual buildings, interdisciplinary teams determine the overall design approach for specific urban blocks and the public realm. Planning students undertook analysis of the context and provided maps and GIS data that determined the programmatic elements. They proposed urban design guidelines, studied the appropriateness of housing types, and examined the financial/real estate and regulatory challenges that this lower scale vision might present. Over the course of the term, the architectural propositions tested the limits of the urban design guidelines, but city planning students challenged the architecture students to think beyond their own building projects to better understand how they contributed to the production of urban space. The outcome will be discussed a public roundtable with a range of stakeholders in early April.

My reflections on this are fueled by the special edition of the *Journal of Urban Design* (2016, 21:5) about urban design pedagogy. In particular, I draw on Neuman's (2016) discussion of "interdisciplinary service-based urban design" and Carmona's (2016) "call for inter-disciplinarily." I also refer to Gordon's discussion Urban design

pedagogy in smaller cities and schools, for context and discussion about the range of roles that a design studio might play in and beyond the university.

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Key Words: urban design, planning pedagogy, interdisciplinarity

COMMUNITY ENGAGEMENT AND COMMUNITY PLANNING STUDIOS: THE CHALLENGES AND LEARNING OUTCOMES FOR ENGAGEMENT IN MULTICULTURAL COMMUNITIES

Abstract ID: 1283

Individual Paper Submission

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This study assesses the learning outcomes produced by community engagement efforts of students in comprehensive planning studios in the City and Regional Planning Program at California Polytechnic State University in San Luis Obispo, California. The comprehensive planning studio at Cal Poly, San Luis Obispo, is the capstone experience (twenty to twenty-two week studios) in a planning program with both undergraduate and graduate programs emphasizing a “learn-by-doing” education. Learning outcomes resulting from the community engagement efforts undertaken by students in seven studios, with more than 2,000 community members, spanning from 2007 to 2018, are assessed through surveys and individual extended interviews of students from these studios. The students’ learning outcomes focus on the students’ experiences with community members and groups, not staff or local decision-makers such as planning commissioners and city council members.

Rapid globalization has produced communities of diverse cultural and ethnic backgrounds in the U.S. Many of these communities experience social and economic marginalization that, in turn, negatively impacts civic participation (Derr, Chawla, Mintzer, Cushing, and van Vliet, 2013; Hum, 2010; Main & Rojas, 2015; Umemoto & Igarashi, 2009). There is clearly a growing recognition of the need to address challenges to community participation in multicultural communities. The multicultural and marginalized communities in which we plan pose significant challenges for professional planners. To what extent can planning programs, through planning studios, prepare students for these challenges?

Student perceptions of the following are described and evaluated: 1) the knowledge and skills gained from studio lessons and experiences of community engagement techniques, 2) the relevance and use of these skills and knowledge in future professional experiences (Edwards & Bates, 2011), and 3) the efficacy of these knowledge and skill sets in addressing challenges to community participation in multicultural communities. This study concludes with implications for methods of teaching, conducting, and evaluating the learning outcomes of community engagement with community members and groups in multicultural communities.

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Key Words: community engagement, multicultural communities, pedagogy, planning education, studio learning

TRACK 10 - PLANNING HISTORY

ROUNDTABLE: REMEMBERING THE LEGACY AND LIFE OF ROBERT F. YOUNG, 1959-2018

Abstract ID: 285

Roundtable

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This past January 6, our community of planning scholars lost an esteemed colleague, Robert F. Young, a true original who left us much too soon at the age of 58. His career was marked by an unusually lengthy and robust career as a practitioner prior to entering academia, and by an insatiable appetite for intellectual cross-fertilization and unconventional and contrarian thinking. Throughout his PhD studies at Cornell and during stints as a faculty member at the University of Oregon and most recently at the University of Texas at Austin, Young came to be known for a variety of ideas that spanned across his interests in urban ecology, economic development, and planning history. These ideas include a revival of the legacy of Sir Patrick Geddes; promoting the notion of ecological wisdom, or the use of ancient and holistic land management practices to address modern-day problems; and a provocative and original argument that a city intertwined with nature and greenery is an image of earthly paradise that recurs across the world's faith traditions. In addition to his scholarly activity, Young is also remembered as a lively educator, mentor, conversationalist, and friend to so many, known for "filling the room" with his ebullient personality and trademark blend of energy, erudition, wit, and hearty sense of humor. Young was also a devoted husband and father to three school-aged children.

Participants in this roundtable session are invited to gather in Buffalo. That city, which Young knew well, lies a short distance from his childhood home in Niagara Falls, New York, whose juxtaposition of awe-inspiring nature and a rapidly deindustrializing economy made a profound impact on his career as a planning practitioner and scholar, so much so that he often led public lectures by referring to his childhood experiences there. The session will include some brief prepared introductory remarks but will be primarily devoted to allowing participants to share their own remembrances and reflections on Young's life and work. In addition, brief written statements provided by colleagues unable to attend this year's ACSP will be read to those present.

There could be no more fitting way of honoring our dearly missed colleague and friend Robert F. Young than to gather and exchange ideas amidst lively conversation drawn from observation, books, articles, hard-won real-world experiences, and all that life itself has to offer—just as he himself did throughout his 58 years of a life well lived.

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Key Words: Robert F. Young, Urban ecology, Economic development, Sir Patrick Geddes, Ecological wisdom

PRE-ORGANIZED SESSION SUMMARY PRESERVATION IN THE RESURGENT CITY

Summary ID: 5

Abstract ID: 47

Abstract ID: 48

Abstract ID: 49

Abstract ID: 51

This session will comprise papers that will explore the various dimensions of historic preservation that are driving or are contributing to the resurgence of cities or parts of cities that have struggled in the past. Today, historic preservation is a recognized tool for revitalizing cities, often in conjunction with allied fields like architecture, planning, economic and real estate development, community development, urban design, archaeology, sustainability, and public policy. Different cities, and struggling cities in particular, have utilized various aspects of historic preservation to not only preserve their past, but to also drive the development of their future. Examples of adaptive reuse, rehabilitation, restoration, and in some cases, reconstruction, from numerous cities show that historic preservation is no longer just about landmarks; it is also a recognition of the historic urban built environment as an invaluable asset that gives cities their character and definition, and therefore allows for new and interesting intersections with the field.

Objectives:

- This session will allow participants to identify and discuss the various ways in which historic preservation is a driving force in the resurgence of cities
- This session will allow participants to employ concrete preservation strategies in different kinds of contexts
- This session will allow participants to argue for the use of historic preservation as a tool for development in struggling areas of cities

SERENDIPITOUS PRESERVATION THROUGH URBAN TRANSFORMATION: FAITH-TO-FAITH REUSE OF HERITAGE CHURCHES IN BUFFALO'S EAST SIDE

Abstract ID: 47

Group Submission: Preservation in the Resurgent City

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U.S. cities with shrinking populations have faced tremendous challenges in preserving their built heritage, brought on by population loss, demographic shifts, and consequently, a large number of vacant properties. Places of worship, particularly churches, are some of the most threatened of these vacant properties types. It has been repeatedly seen that as Christian congregations suburbanize, as new generations do not identify with the same religion as their parents, as fewer people attend church, and as operating costs rise, more and more inner-city churches across U.S. are facing a crisis: stay open or close. It is estimated that between 5000-10,000 churches are today either underutilized, abandoned, or empty across the United States. Buffalo, NY is no exception to this phenomenon, with sections of the city facing severe blight and vacancy. Some parts of the city, however, have experienced a slow resurgence in recent years, fueled by developer and market-driven preservation and rehabilitation of historic properties through tax credits and other incentives. While preservation and rehabilitation of a plethora of building types, including churches, has been a big part of Buffalo's recovery and success in parts of the city in recent years, the process has not been a priority in areas of the East Side, an area comprising neighborhoods where severe blight, poverty, and crime are still an issue. In some sections of the East Side, however, there are signs of a slow resurgence spurred on by recent immigrants and refugees, and long-term

African-American residents. In most cases, this has not been market or developer-driven resurgence. Instead, distressed areas within the East Side are experiencing a different kind of evolution through distinct urban transformation patterns that are taking place in the area. These transformations have been taking place for decades through the efforts of the area's African American community; in recent years, however, further demographic changes, brought on by refugee and immigrant communities settling in the area, have given further visibility to the transformative processes. This paper examines these population and demographic changes taking place in the East Side area of Buffalo, NY, and the relationship of that transformation to the adaptation of the area's Catholic and other churches. The paper examines case studies that illustrate how community-led preservation has allowed for Buffalo's rich architectural and cultural resources to be saved from demolition, and be converted into use by Baptist congregations, Islamic mosques, and Buddhist temples. These changes have not been developer-driven, as seen elsewhere in the city, where many former churches have been converted into market-rate lofts and apartments. Instead, residents settling in the area have made use of available built resources and adapted them for use as a place of worship. They have become anchors for the community, leading to further settlement by members of the same faith. We call this process serendipitous preservation: a preservation process that was not intentional, but resulted in saving several iconic examples of the city's built heritage, and saving the neighborhood and community in the process as well. This paper shows that this serendipitous preservation process can be a viable regeneration tool for other U.S. cities experiencing similar demographic changes.

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Key Words: historic preservation, urban conservation, preservation planning, community development, adaptive reuse

LESSONS IN ADVOCACY: HOW ADDRESSING DIFFICULT HISTORY IS CHANGING PRESERVATION PRACTICE

Abstract ID: 48

Group Submission: Preservation in the Resurgent City

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As our understanding of how best to move towards a more equitable and just nation evolves, people increasingly seek a more comprehensive representation of the past to frame today’s political discourse. Preservation, as a field strongly tied to advocacy, is uniquely suited to promote social justice by giving voice and physical presence to these ideas through education, interpretation, and community outreach. Although in the past the profession has been firmly rooted in maintaining the historic fabric, it is evolving, in part as a response to the advocacy work of allied fields, into preserving community and promoting cultural awareness and understanding.

In the mid-20th Century, historic preservation transitioned from the “old preservation,” focusing mainly on the protection of landmark structures and sites of national significance, to a broader “new” preservation. Prompted by auto-centric urbanism, disinvestment, and urban renewal that were destroying the historic urban fabric,

preservation advocates successfully shifted the field to address the issues that they saw as important. This reimagined more vernacular architecture and districts of multiple properties significant for local, state, or architectural history as worthy of protection. This increasingly situated preservationists within local governments and made them much more relevant to conversations about land use, housing, economic development and other areas typically associated with city planning (Minner, 2016).

In the early 21st Century, a third wave of preservation is again adapting to a changing society, refocusing on the need to recognize and protect different types of resources (Page and Miller, 2016). The modern challenges, however, represent something in many ways more complicated than simply preventing the physical destruction of a standing structure, though that is still a core part of preservation practice. Advocates today are trying to shift the field beyond its historically narrow focus on the built environment to develop a more complete picture of our collective heritage.

Embracing this new direction presents a challenge for many preservationists because the sites associated with much of this history have been erased or left minimal evidence that could be the focus of traditional preservation. Only vacant land, memories, stories, or archaeological evidence remains. As a result, the tools typically employed in the field produce at best a fragmentary picture of the significant historical events that define the nation's history. In order to address this mismatch of societal needs and the tools available, preservation must revisit its activist roots and recognize that the future of the field is defined by the work being done at its edges.

This research will address how interpretation and community engagement have been utilized at three sites to address aspects of history that have been underrepresented in preservation. The first case study, the Memorial to Peace and Justice (also known as the Lynching Memorial) being developed by the Equal Justice Initiative in Montgomery, Alabama represents an effort to make visible the practice of lynching in America – something that would be nearly impossible using traditional preservation tools. The second case study is the ongoing controversy surrounding memorialization practices in the Lexington, KY Courthouse Square, which draws significance from both its legacy as a slave auction site and as the (now former) home of two statues celebrating two former Confederate leaders. The third case study is the working-class Davis Bottom neighborhood, also in Lexington, KY. Davis Bottom is unique because while much of the neighborhood was recently destroyed by a through-road, it has benefitted from the development of a community land trust to ensure housing affordability, as well as a major public history and archaeology initiative. Funded in part by Section 106 funds, it demonstrates that even old tools can be used in progressive ways.

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Key Words: Preservation, Advocacy, Social Justice

NEW FACES IN HISTORIC PRESERVATION: EXAMINING THE ROLE OF THE “YOUNG PRESERVATIONIST MOVEMENT” IN RUST BELT CITIES

Abstract ID: 49

Group Submission: Preservation in the Resurgent City

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Historic preservation advocacy is connected to grassroots, community-based efforts to save individual historic buildings, oppose urban renewal projects prioritizing demolition, or protect historic landscapes from damaging environmental interventions, among other examples (Datel, 1985). Many of these efforts resulted in the creation of local preservation organizations during the 1960s and 1970s as part of the surging national preservation movement that gained steam behind the passage of the National Historic Preservation Act (1966) and in response to demolition-based approaches that guided mid-century urban renewal projects. However preservation is also closely linked to neoliberal urban development agendas and elements of growth machine politics (Barthel, 1996). Historic districts, for instance, are widely associated with protecting and increasing property values (e.g. Thompson, Rosenbaum, & Schmitz, 2011) and are sometimes used as NIMBY tools to fight off unwanted development or increased density (Listokin, 1997). Gentrification is also linked to historic preservation practice, based on the connections between rising property values and other preservation-based activity that directly resulted in the displacement of low-income and minority residents (Silver, 1991). In processes that some have compared to mid-century urban renewal, cities in the U.S. Rust Belt are facing intense pressure for demolition, stemming from the combination of population loss and economic restructuring that has resulted in an oversupply of buildings and weak demand for their reuse. Within this context, a new set of preservation organizations have begun to emerge in Rust Belt cities, a so-called “young preservationists movement.” The purpose of this research is to examine the emergence of these young preservationists groups through the lens of the longstanding tension between growth machine/neoliberal and grassroots/community-based approaches to historic preservation. This paper asks the following questions: (1) Why are these new, young historic preservationists groups forming in Rust Belt cities? (2) Who are leaders in these young preservationists groups? (3) How are these groups affecting change in historic preservation planning or processes in Rust Belt cities? To answer these questions, we use a combination of participant observation, semi-structured interviews, and content analysis of key documents to triangulate key themes across these data streams. Our preliminary findings indicate that these groups differ from preservation organizations of 1960s and 1970s in that their formation is not a response to individual building losses, but a broader confluence of socioeconomic and physical changes occurring in Rust Belt cities. While the leaders of these organizations are often preservation professionals, those participating in the programming and events organized by these groups tend to be non-professional preservationists. Finally, the ability of these groups to affect change is directly linked to their relationship with more well-established preservation organizations. This research fills a gap in the existing historic preservation planning discourse through its analysis of emerging forms of preservation organizations and deepens scholarly understanding of how these groups are affecting urban change.

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Key Words: historic preservation, Rust Belt cities, young preservation movement

PRESERVATION PLANNING FOR DOWNTOWN REVITALIZATION: CLEVELAND, OHIO'S WAREHOUSE DISTRICT

Abstract ID: 51

Group Submission: Preservation in the Resurgent City

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From the late 1960s through the 1970s in Cleveland, Ohio, racial unrest ripped through neighborhoods, white flight escalated rates of population decline, vacancy rates skyrocketed, manufacturing plants closed leaving hulking industrial ruins, and a spiraling fiscal crisis loomed large. Amid this dire landscape of escalating decline that has generally continued through the present day, a number of local leaders and grassroots activists launched concerted efforts to save the city's historic built environment. Contemporary historic preservation in Cleveland took root in the 1970s, with motivations rooted in economic development and urban revitalization. During this era, Cleveland's preservationists worked to stave off further demolition, reverse decline in key neighborhoods, and stabilize the city in the face of an increasingly uncertain future. This paper chronicles 1970s and 1980s-era efforts of the Cleveland Landmarks Commission to revitalize and adaptively reuse the city's Warehouse District, a former commercial and industrial area. The CLC was the first such preservation commission in the State of Ohio (established in 1971) and adopted an ambitious and entrepreneurial approach to historic preservation. This research explores the CLC's efforts to spur revitalization in key downtown areas, which coalesced into meaningful action and long-term success in the Warehouse District. The findings show that the Landmarks Commission was a key advocate for place-based downtown revitalization and physical planning, particularly in the 1970s when the city's well-known planning commission (under the leadership of Norm Krumholz) was emphasizing neighborhood development. The CLC's 1977 Warehouse District plan set in motion a long-term process of additional plans, design guidelines, zoning code revisions, state building code revisions, and ultimately one of the city's most concentrated districts for reinvestment and adaptive reuse. The paper provides insight into one aspect of the rise of historic preservation within the context of Cleveland's 1970s-era urban crisis. It informs contemporary debates about the future of the built environment in shrinking cities, such as Cleveland by complicating past and present narratives that prioritize demolition as a remedy for decline and illuminating the role of preservation in restoring America's rustbelt. Understanding the history of preservation in Cleveland contributes a nuanced historical perspective to an ongoing urban dilemma: What should we do with urban historic resources in an age of decline?

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Key Words: Historic preservation, Downtown revitalization, Cleveland, Ohio

REGULATING WEEDS

Abstract ID: 95

Individual Paper Submission

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Despite theoretical positions that assert a place for the "unintentional" and the non-human in planning (Beauregard 2015; Gandy 2016), wild and weedy natures disrupt attempts at enforcing order in cities. This paper examines planning and regulatory actions in Washington, D.C. at the turn of the twentieth century, when the District's Health Officer struggled to enforce the 1899 weed removal act. Through archival research of government reports, newspaper articles, photographs, cartoons, and other materials in the National Archives and the Historical Society of Washington, D.C., this paper asserts how urban weeds complicate discourses of "urban nature" in planning visions and practice.

In 1899, the U.S. Congress passed an Act to remove weeds from vacant lands in the District of Columbia. Contemporaneously, a team of famous planners and landscape architects were formulating a report to envision the city's future that would become one of the most famous plans in United States planning history, the McMillan Plan. Though the Weed Removal Act and the McMillan Plan emerged from different sources, both charted visions for an orderly city, with revered buildings and tame "nature" to support them. The plan aims for aesthetic

grandeur and systematic control of the entire city. “Nature” is treated in the manner of the time as something beautiful to be celebrated, something to experience as separate and distinct from “the city.”

While the McMillan Plan’s primary concerns were aesthetic, discourse leading to the 1899 Weed Removal Act’s passing vilified weeds as threatening public health and public safety. In the years after the Weed Removal Act was passed, complaints of weeds on lands throughout the city abounded, but the city’s Health Officer charged with enforcing the law repeatedly expressed that it was an impossible task, and one not likely to actually improve public health conditions. In his 1906 report, the Health Officer stated outright that weeds were not a public health issue, in defiance of the previous discourse and the law itself. This assertion did not meet his desired goal for the law to be altered or repealed; the law still inspired a “war on weeds” just under a decade later, and is still on the books today.

The discourses surrounding both the plan and the legislation reveal a disconnect between both top-down and bottom-up visions for order, beauty, and dignity and the uncontrollable conditions on the ground throughout the city. In Washington, D.C. at the turn of the twentieth century, planning visions were for an ordered built environment flanked with orderly “nature,” but the weedy realities of the on-the-ground city thwarted attempts to keep “nature” in its “proper” place and maintain curated experiences of urban vegetation. The volume of complaints and intensity of discourse that weeds offended aesthetic sensibilities, interfered with public health and threatened public safety suggest that weeds thrived at the time, and constituted a significant part of people’s everyday experience in the city. This is still true today, and while urban weeds have inspired some high profile urban design projects, they are still considered a nuisance in many cities, and they continue to challenge planners’ and community members’ attempts to enforce order and keep neighborhoods and cities safe and “clean.” Washington, D.C., at the time of the Weed Removal Act was still a relatively “new” city, a living paradox of thwarted visions for control and order in the face of wild weediness that resisted regulation, not unlike many cities in the United States and throughout the world today.

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Key Words: Weeds, Urban nature, Regulations, 20th Century Planning, Vacant land

A STRATEGY FOR THE SEVENTIES: CIRCULAR A-95 AND THE LONG HISTORY OF POSTWAR REGIONAL PLANNING

Abstract ID: 484

Individual Paper Submission

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On July 14, 1982 United States President Ronald Reagan issued Executive Order 12372, one of many policy changes that were part of a broad effort to rebalance how power was shared between the federal government, the states, and municipalities. The order “discouraged the reauthorization or creation of any planning organization which is Federally-funded, which has a Federally-prescribed membership...and which is not adequately representative of, or accountable to, State or local elected officials.” In doing so, Regan also unceremoniously “revoke[d]...Circular A-95.”^[1] Though Circular A-95’s sunset passed with limited notice, for many planners it

had been a critical piece of urban policy during the 1970s.

The idea for Circular A-95 originated in President Lyndon Johnson's 1960s Great Society programs, when federal assistance to state and local governments in support of domestic policy increased significantly. The expansion of domestic programs pushed state and local governments to undertake a greater range of planning activities, though officials often complained of the difficulty of managing the range of requirements the different federal programs put in place. This hampered efforts to develop and implement plans, frustrating federal officials. Contemporary analyses of the situation concluded that a major problem was coordination, between different levels of government but also between neighboring political jurisdictions.[2] In response, Congress passed two key pieces of planning legislation: 1) the Demonstration Cities and Metropolitan Development Act of 1966, and 2) the Intergovernmental Cooperation Act of 1968. Both were designed to streamline policies and improve coordination among federal, state, and local governments. To implement these laws the Bureau of the Budget issued Circular No. A-95 in the middle of 1969.

This slim booklet established a new coordination and review process that state and local governments receiving federal funding for development projects would be required to follow. Hopeful that the program would spark greater regional coordination but skeptical that it actually could, researchers who examined A-95 during its short life struggled to produce solid evidence of its effectiveness. The "regional intelligence" many observers had believed the program would generate proved difficult to measure.[3] Absent a clear metric of the program's success or failure, the history and legacy of the A-95 program has since been largely neglected.

Based on primary documents and secondary literature, this paper explores the history of Circular A-95. We argue that we should understand the A-95 program as part of a larger effort to create a national framework for regional planning, that extends from the late 1940s through the early 1980s. Its revocation in 1982 signaled the end of an identifiable era of federal support for regional governance. In this context, the A-95 program succeeded. We conclude that the program should be re-read as a critical (but overlooked) outgrowth of the "creative federalism" of the 1960s, and as an important attempt to use federal power to establish a national planning policy in the United States in the second half of the 20th century.[4]

[1] Reagan, R., 1982. Executive Order 12372 - Intergovernmental Review of Federal Programs, July 14. [online] Available at Gerhard Peters and John T. Woolley, The American Presidency Project. <http://www.presidency.ucsb.edu/ws/?pid=42735>

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[3] Rothenberg, I. F., 1983. "National support for regional review: federal compliance and the future of intergovernmental coordination." *Publius*, 13(4), pp.43-58

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Key Words: Planning history, Regional planning, Federalism, Metropolitan development, 1970s

FORKS IN THE ROAD: COMPARATIVE CRITICAL JUNCTURE ANALYSIS IN PLANNING HISTORY

Abstract ID: 577

Individual Paper Submission

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Social, political, and economic change sometimes occurs during periods of major change in which previously relatively stable institutions are replaced with new approaches. Historical institutionalists refer to such major turning points as critical junctures (Berins Collier & Collier, 1991; Capoccia, 2015; Mahoney, 2000). Not all change occurs in this way, as processes of incremental revision and evolution are also important, but as such critical junctures exist and sometimes generate enduring pathways of institutional development, these periods of dramatic change are an important topic for research and theory-building. Planning history offers many examples of such relatively short periods of significant institutional change that produced very different and lasting approaches in different jurisdictions.

This paper develops a conceptual framework for analysis of critical junctures that is tailored to the study of planning history. It reviews the core components of the critical juncture conceptual framework and research methods, including analysis of antecedent conditions, timing and sequencing, permissive and productive conditions of institutional change, process tracing, and counterfactual analysis (Bengtsson & Ruonavaara, 2017; Falleti & Mahoney, 2015; Mahoney, 2012; Soifer, 2012). One conclusion is that compared to the national governance processes that are the usual focus of institutional scholars, planning and local governance institutions associated with urbanization processes are characterized by distinctive types of critical junctures, whether these are prompted by urban growth, post-disaster recovery, major infrastructure investments, or new planning laws or mandates imposed by senior levels of government that require local implementation. The suggestion is that branching processes of institutionalization are a major generator of institutional differentiation between jurisdictions.

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Key Words: Critical junctures, process tracing, comparative analysis, timing and sequencing, counterfactual analysis

BEYOND PLANT-CLOSING FIGHTS: FIRR'S COMMUNITY AGENDA FOR NATIONAL INDUSTRIAL POLICY

Abstract ID: 854

Individual Paper Submission

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The question of how (and whether) to plan our economy, and for the benefit of which industries, regions and populations remains an ongoing debate. Federal policy discussions of industrial policy reached a fever pitch in the early 1980s, only to have the term become politically infeasible even before the 1984 presidential election, when Democratic candidate Mondale backed away from making it a campaign issue (Graham 1992). Reagan's re-election virtually assured that for the time being, there would be no explicit planning of a federal industrial policy.

However, in contrast, on the state, regional and local levels the decade of the 1980s marked some of the most prominent experiments with economic development planning (Clavel 2010). Eisinger (1988) writes that while there were distinct phases of local economic development practice over the last century, policies were guided by a "structural framework" that has remained relatively constant. This framework defined preferred approaches and set the outer boundaries for what constituted appropriate public sector engagement in the economy and the parameters of public private partnerships.

And yet, Eisinger also noted a category of local government practices that emerged through the 1980s that stood outside this tradition - challenging the typically friendly relations between economic developers and firms. Born of a reaction against the plant closings that were sweeping the nation, these state and local strategies included required advance notice of plant closings, threatening use of eminent domain to seize departing factories and other contract or litigatory strategies to mitigate some of the worst damages of capital flight. Eisinger termed these "protective strategies".

This paper uses a case study of the emergence in 1987 of a national network of local anti-deindustrialization organizations, the Federation for Industrial Retention and Renewal (FIRR) to argue that by the end of the 1980s these formerly reactive strategies had evolved into something more: an organized, multi-scalar movement capable of creating and sustaining a national policy platform. Frustrated with the limitations of fighting industrial decline on the local scale when the policy decisions that most affected their communities' fates were being decided elsewhere, community labor coalitions came together to argue for a revival of the national industrial policy conversation.

Built by member organizations coming on a decade of plant-closing organizing, coalition-building and community economic planning done on the local and regional scale; FIRR's national industrial policy agenda was distinct. The network sought ongoing feedback on their policy statements and such luminaries as Bennett Harrison and Staughton Lynd weighed in. "Grass-roots led doesn't have to mean small scale economic development," they argued.

Approach & Methods: The paper reconstructs the development of the network's national policy platform and explores the significance of this project to the history of progressive economic development. Research methods include use of original sources from the Tri-State Conference on Manufacturing collection from the University of Pittsburgh, where the executive director of FIRR (Jim Benn's) papers are housed. Other sources include interviews with and documents from individuals who led FIRR membership organizations.

Relevance: Today there is once again increased attention to the discussion of "industrial policy" and economic intervention in areas such as trade policy. However, the relationship between federal economic policy and struggles around local economic development is not always clear. The history of an industrial policy agenda with its roots in community economic development can help contextualize contemporary policy discussions. This paper also contributes to the literature on urban social movements and progressive planners "scaling up" (in order to pass progressive legislation at the state or federal level) by providing an early case study of this strategy (eg Doussard 2015).

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Key Words: economic development history, industrial policy, industrial retention, policy movements, policy networks

THE PLANNER AS MOTHER, CULTURE AS CONVERGENT, AND OTHER DISCONCERTING IMPLICATIONS OF PATRICK GEDDES' THEORY OF PLANNING

Abstract ID: 915

Individual Paper Submission

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Can we reconstruct from Patrick Geddes' repetitive and disorganized corpus a practical planning theory that fits contemporary sensibilities, despite his intellectual reliance on primitive evolutionary biology? From close reading of his work and abundant references even to less commonly read pieces, this article argues that we can, with results that are both inspiring and disconcerting. Start with Geddes' simple idea that animals are consigned to habitats over which they have no say, but human beings inhabit cities (within regions) that they can shape; hence, they can improve their environments through planning. Via broad investigation called "survey," planners can understand how cities interrelate with ecological regions. Also to Geddes, animals are trapped by heredity, but human beings also have heritage, and their settlements arise in relationship between region and heritage. The planner should investigate how the city came to be as is, from the convergence of heritages, ancient and recent, from near and far. She must plan—startlingly for modern eyes—not for diversity of cultures standing apart, but for convergence among heritages bound to share the place. What is more, she should investigate emerging possibilities for the future, as revealed by massive technological change—once electricity and the internal combustion, and now new energy sources, or the ever expanding sequelae of information technology. Such ideas Geddes held for years, but during consultancies later in his life in India, he decided that for any specific neighborhood or street, such investigation is too broad. It threatens to mislead the planner into becoming the change engineer who will clear away the intricacy of place to impose something radically new. Instead, the wise planner should use herself as the medium of sympathetic understanding to conduct a diagnostic survey of the immediate locality. From this situated knowledge, she should design limited surgery by which to excise pathologies, say to preserve an ancient tree or insert a plaza, an educational program, or public pageant, thereby to guide the place to grow toward health (within possibilities that new technologies provide). To do all this, the planner should become a teacher, who can lead citizens up a tower of learning from which they can appreciate place as a whole; gardener, who patiently tends her plot, to cultivate a finer landscape; or mother, as Geddes would think of her. The planner as mother devotes lifelong love and care, not to laying down a fixed template to which the city wrenchingly conforms, but to nurturing the city toward the good, the safe, the livable, and the moral. However we take Geddes's quaint analogies, he provides ideas with which thoughtful planner should grapple.

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Key Words: planning theory, Patrick Geddes, ecological wisdom, regenerative planning, history of planning ideas

METROPOLITAN PLANNING INSTITUTIONS AND THEIR LIMITS IN THE POSTWAR ERA: THE CASE OF DETROIT

Abstract ID: 991

Individual Paper Submission

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The United States has struggled to develop institutions for metropolitan planning and governance, despite periodic waves of advocacy for such institutions (Rusk 1999; Orfield 2002). The primary institutions serving that purpose are metropolitan planning organizations (MPOs), which are federally mandated to prepare regional transportation plans. However, most MPOs are relatively weak organizations, even in the field of transportation planning (Lowe 2014). Weir (2000) has argued that racial segregation and political polarization seriously impaired the development of metropolitan institutions in Chicago and Los Angeles in the second half of the 20th century. In a historical study of the Atlanta Regional Council, Basmajian (2013) observed that its development was deeply influenced by broader political shifts in the region during the postwar era. Yet the contentious politics of postwar metropolitan planning reform have been largely forgotten. Why was metropolitan planning reform so contentious? What factors stymied the development of metropolitan planning institutions, and what are the implications for regional planning today?

This study employs archival research to examine how racial and political polarization affected debates over metropolitan governance reform in the Detroit region in the postwar era. In the early 1960s, metropolitan Detroit could claim to be a leader in the national movement for new forms of metropolitan planning and governance. The Detroit Region Metropolitan Planning Commission (DRMPC) was one of the nation's best-known such agencies. The Supervisors Inter-County Committee (SICC) was one of the first efforts to establish an institutional linkage between county governments in a metropolitan area. When the groups merged to form the Southeast Michigan Council of Governments (SEMCOG), some officials expected a new era of voluntary regional cooperation, but the growing racial and political polarization of the region dashed such hopes. SEMCOG struggled to gain legitimacy with city and suburbs alike, and ultimately assured its survival by facilitating continued suburbanization and avoiding controversial issues of regional inequality.

The Detroit region forms an extreme case of city-suburb segregation and central-city decline, but the history of metropolitan planning reform in Detroit holds important lessons for other regions as well. It suggests the limitations of voluntarism in regional cooperation, and highlights the challenges to metropolitan institution-building in racially and economically polarized regions. In these regions, stronger incentives by federal and state governments may be needed for meaningful regional planning to occur on an equitable basis.

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Key Words: Regional planning, Metropolitan politics, Metropolitan planning organizations, Detroit, MI

START AND STOP: A HISTORICAL COMPARISON OF REGIONAL TRANSIT EFFORTS IN SOUTH-EAST MICHIGAN, 1967 - 2016.

Abstract ID: 1142

Individual Paper Submission

In 1967, the State of Michigan Legislature passed the Metropolitan Transportation Authorities Act, creating the South East Michigan Transportation Authority (SEMTA). The agency was tasked with overseeing disconnected transit in the region, and coming up with a transportation plan that spanned Detroit's Wayne County, as well as the nearby suburban counties of Oakland and Macomb. After ten years of failed negotiations between city and suburban leaders, no funding was approved for SEMTA, and transit opportunities tapered off. SEMTA originated at a time when the region was adjusting to a new metropolitan reality, and Detroit's transportation company, the Department of Street Railways (DSR), was struggling to balance budgets with drastically reduced ridership. One possible solution for solvency was to extend transportation options across municipal and county lines into the suburbs, but was constantly waylaid by fragmented regional politics and racial tension. For over ten years, SEMTA and three different Detroit mayors sought deals with the surrounding suburbs to meaningfully fund some type of tri-county transit that integrated the majority city with the majority white suburbs. Across these ten years, a wealth of archival documents, including meeting minutes, personal letters, draft plans, and press reports, outlined various strategies used to try and secure funding.

In 2012, the State passed Senate Bill no. 909, authorizing a new regional entity, the Regional Transit Authority (RTA) to oversee cross-county transportation in Southeast Michigan, and included a funding provision that let the RTA itself put tax increases to a popular vote. By the summer of 2016 the new RTA had come up with a comprehensive plan for the region, and proposed a ballot initiative for the 2016 general election in November to levy an additional property tax to fund the proposal. It failed to receive funding, falling short by 18,000 votes, in a metropolitan statistical region covering approximately 3.8 million residents. In the 50 years since creating a regional transportation body, measures for funding have failed 27 times. This leaves Detroit, a city supposedly in the midst of a triumphant urban revival, as one of the lowest funded metropolitan regions per-capita, spending only \$69, compared to Cleveland's \$177, Atlanta's \$119, or Seattle's \$471. These narratives of revitalization clash sharply with the continued transportation inequity in the greater Detroit region, and deserve a deeper look by planning scholars.

This paper analyzes the political methods, language, structure, and justification that were used in a failed 2016 ballot measure to fund a regional transportation system in the greater metropolitan Detroit area. This contemporary case study draws historical comparison with the region's first failed attempt fund a tri-county transportation system in the late 1960s and early 1970s. My research asks the question of why repeated attempts at reaching consensus for funding remain elusive to the region. The methods for addressing this question will be historical, case-study based, and rely on a combination of archival and newsprint material. This study will also pay close attention to the contextual history of Detroit, weaving the complex narrative of racial inequity, suburbanization, deindustrialization, and population decline into the debates around transportation funding. The significance of this research directly addresses issues of regional cooperation and transportation infrastructure and uses a historical lens to conduct analysis for lessons that can learned.

As of March 15th, 2018, a new regional plan has been proposed for the November 2018 ballot, pending approval by the RTA board to be submitted to a popular vote. These contemporary debates around regional transit have deep historical roots. Understanding the planning history of the region can reveal insights into crafting meaningful, equitable, and comprehensive regional policy moving forward.

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Key Words: Transportation History, Regionalism, Detroit, Suburbs, Racism

BLACK CITYMAKERS: MAPPING BLACK WOMEN'S LEGACIES OF COMMUNITY BUILDING IN THE PROGRESSIVE ERA

Abstract ID: 1155

Individual Paper Submission

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One of the most significant stories in American urban history is the transformation of African Americans from a population rooted in the rural South to one overwhelmingly located in the cities of the North and West. Unfortunately, much of the writing about the relationship between African American communities and urban planning has focused on black communities as passive victims of public policies and private actions; re-arranged in space by whites, rather than builders of place. Indeed, African Americans documented their situation, built institutions, and undertook initiatives designed to improve community life. For a long time, these planning efforts were undocumented in the annals of planning history.

In recent decades, planning historians have recognized the work of African American women within the black women's club movement and mutual aid societies as vital contributions to planning practice. This scholarship frames the work of black women's club movement leaders and white female reformers as predecessors to the social welfare state, while highlighting racial conflicts between the two groups and the unique contributions of African American women dedicated to moral and economic progress under the banner of a racial uplift ideology in the late nineteenth to early twentieth centuries (Scott; Dubrow and Sies). This paper builds upon that scholarship by adding the work of the Phyllis Wheatley Club of Buffalo, New York. Formed in 1899, the Phyllis Wheatley Club created community social programs to address issues of housing and food insecurity, sanitation and health. In an age when women had no right to vote and African Americans had few rights at all, the Club was a testament to how community development was shaped, constrained, and resisted by African American women's experience and thought. Through an in-depth case study of the organization using published histories, newspapers and periodicals, and autobiographies, this paper aims to understand the role of physical and social forces, as well as interracial and intraracial tensions, in the construction of African American women's activism against urban inequality. The paper sheds light on the racial justice, people-based, and class-informed approach to planning practice employed by the Club.

The paper also complicates popular assumptions about similar Progressive Era movements and racial uplift groups. Contrary to the twentieth century focus of much planning history, the significant contributions of African Americans to the material fabric and cultural life of Buffalo and other American cities cannot be adequately represented by concentrating on post-1900 people, places, and events. The community development work of the Phyllis Wheatley Club was forged by African American women who were active in abolitionist movements against slavery, lynching, Jim Crow and other forms of racial terror. An examination of the Club's activities illustrates African American women's organized response to the harsh urban inequalities that also inspired settlement house movements and public health campaigns, as well as their racist exclusion from participation in those concurrent movements. Finally, while some African American women in Buffalo and cities across the country made a place for themselves in the white- and male-dominated institutional and social life of their communities through the formation of women's clubs, the women that comprised the leadership and ranks of these clubs were overwhelmingly middle class and well educated. In contrast, the primary beneficiaries of club programs and activities were lower-class women with little formal education. As a result, activities tended to emphasize morality over inequality and social service delivery over place-based transformations. The case study helps to trouble spatial, temporal, conceptual, and communal bounds in planning history and to suggest more complex ways of how community members imagined both community and city.

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Key Words: planning history, multicultural planning, African American, women's clubs, community development

A PLAN OF THE SYSTEMS THINKING: CONCEPTUALIZING ECOLOGY IN THE NEW JERSEY MEADOWLANDS, 1965-1970

Abstract ID: 1374

Individual Paper Submission

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The regional resiliency discussion in New York metropolitan region, following the Superstorm Sandy in 2012, is not a new one. The policy makers today are discussing how the region can prepare better for a new environmental calamity by mobilizing its safety valves, namely its ecosystem assets. These assets, sometimes wetlands other times waterways in the New York harbor, are continuous beyond jurisdictional divisions of the states in the region. The recent shift in policy approach demands new land use definitions and governance strategies for region's ecological planning. Amidst this, the study of a historical plan document that was made for New Jersey Meadowlands, one of the sites where resiliency building efforts concentrate today, sheds light on how policy makers and planners conceptualized this urban ecosystem problem at the crux of the environmental movement in 1960s. The 1970 Comprehensive Land Use Plan (CLUP) of New Jersey Meadowlands was not only a land use plan but was also a manifesto reflecting a new planning ethos for a network of wetlands that were deemed ecologically "unworthy" for almost a century. Although partially implemented, the plan document and the vision behind it, not only prepared a future strategy for the Meadowlands but it also formed the basis for a one-of-a-kind eco-governance model in the United States. This paper situates this comprehensive planning effort in the regional history, raising larger questions about governance issues in interconnected ecosystems and the possibilities of land use negotiations in a regional alliance with multiple political jurisdictions.

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Key Words: resiliency planning, systems approach, New Jersey Meadowlands, Rebuilding Post-Sandy, regional planning

THE PLAT OF ZION AND ITS CONTINUED RELEVANCE IN UTAH CITY PLANNING

Abstract ID: 89

Poster

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The Plat of Zion, based on an adaption of the American grid system, was an urban system created by Joseph Smith, founder of The Church of Jesus Christ of Latter-day Saints to organize the kingdom of God on Earth based on principles of agrarianism and communal order. Adaptations of this Plat of Zion were used as the foundation for early urban development in the state of Utah. The purpose of this paper is to examine whether the Plat of Zion is presently used as the basis of urban planning and development decisions in Utah cities. Five case study cities were chosen, and through an examination of urban planning documents, GIS reconnaissance, and interviews, it was determined that while the Plat of Zion was viewed as an important historical antecedent to modern urban planning in these cities, most urban planners either follow the Plat of Zion plan very loosely or not at all.

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Key Words: Mountain West Settlement, Plat of Zion, Historic Preservation, Modern Relevance of Traditional Planning, Mormon Town Planning

WHAT HAPPENS WHEN VILLAGES GET SWALLOWED BY CITIES? HOW HAVE URBAN VILLAGES BEEN STUDIED SINCE HERBERT GANS?

Abstract ID: 845

Poster

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Introduction:

In this Urban Anthropocene, one spatial form stands on the cusp of rapid urbanisation globally – urban villages. This phenomenon has been studied across disciplines and over time. This has an impact on the way in which urban planning plans for and tackles population growth in urban villages. In this paper, I ask how various disciplines have studied urban villages and what kinds of solutions have been put forth by planners to either plan for, or deal with existing urban villages.

Methodology:

In this paper, I begin by exploring the evolution of 'urban villages', and the rich lexicon that has been generated to describe UVs. In doing so, I present the disciplines exploring UVs across time, and in concert with one another. This includes literature from urban planning, sociology, geography, and economics. The second section explores specific geographies that have given rise to a typology of UVs that most studies use as their case studies. Examining the geographical locations studied is particularly useful in understanding how the tensions between rural and urban are understood and planned for. In the third section, I propose a definition of urban villages. Finally, I highlight questions that have not been explored as possible avenues for future research

Findings:

I find several entry points to the analysis of urban villages. These include the first mention of urban villages by Herbert Gans in 1962, to studies of the rural fringe and peri-urban developments, small towns, and *desakota*. Early scholarship on urban villages lay with the discipline of urban planning focusing on planned villages in Europe and America. From 2000 onwards, the geography shifts to rapidly urbanising developing countries, dominated by China and the study of 'villages in the city'. Additionally, urban villages are also studied in Vietnam, Indonesia, East Asia, and India. The scholarship on urban villages is dominated by urban planning, including many studies of the spatial form by architects and urban designers. Other disciplines include geography, sociology, and economics.

I find that it is possible to aggregate a definition of modern urban villages as follows: spaces where rural settlements are being (or have been) engulfed by urban settlements, whether by organic growth or planned development, and in the process, are experiencing (or have experienced) transformation from rural to urban life, often at a pace much slower than the urbanisation that surrounds it. I discuss its typical characteristics, distinguish between formal and informal growth, and present three stages of unplanned urban village development.

Relevance to planning scholarship or education:

In 2016, UN-HABITAT organised the HABITAT III conference which called for a stronger role of urban planning as a discipline and practice to help achieve the New Urban Agenda. Internationally the role of urban planners is being recognised in development contexts that are characterised by rapid urbanisation. Urban villages in developing contexts represent one spatial form that cities and regional development authorities will have to grapple with in the future. This paper presents an overview and understanding of what is known and unknown about urban villages, and the focus of various disciplines studying it across geographies. It will be useful to plan for future urban growth in situations where organic growth proceeds planned development.

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Key Words: urban villages, *desakota*, villages in the city, rapid urbanization, rural to urban transformation

TRACK 11 - PLANNING PROCESS, ADMINISTRATION, LAW AND DISPUTE RESOLUTION

ROUNDTABLE: "THE FIRST THING WE DO, LET'S KILL ALL THE SIGN REGULATIONS"

Abstract ID: 802

Roundtable

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In Shakespeare's Henry VI, a rebel character proclaims "The first thing we do, let's kill all the lawyers," thinking that by disrupting law and order, the king could be replaced. As such, the statement is a compliment to the attorneys and judges who instill justice in society. In a similar fashion, those who would implement poorly tailored sign regulations may be espousing the need for and benefits of carefully researched signage restrictions.

Signage serves a critical role in human settlements for free speech, public and private communication, wayfinding, economic development and creating place identity. Virtually every US city has sign regulations of some type, yet many are seemingly based on little more than whims and opinions, and seemingly unaware of the benefits of research-based sign code approaches. As a consequence, a number of ACSP schools are adding signage topics to their curriculum, and there is a growing body of signage-related planning research published in journals such as the Interdisciplinary Journal of Signage and Wayfinding. A relatively new organization, the Academic Advisory Council for Signage Research and Education (AACSRE) is composed of faculty from ACSP schools and elsewhere, dedicated to providing independent leadership for the development of new knowledge and educational experiences in order to advance the science, technology, art/advertising, and regulation of on-premise signage.

This roundtable will bring together planning faculty from four ACSP-member planning schools to discuss the emerging planning research on the evolving legal, design and technical issues of sign regulation, and the need for more informed understanding of context and place in the design and regulation of on-premise signage.

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Key Words: Signage Regulation, Wayfinding, Placemaking, Urban design, Legal aspects

PRE-ORGANIZED SESSION SUMMARY

SIMULATION AND GAMING FOR ENGAGEMENT, EXPERIMENTATION AND LEARNING

Summary ID: 47

Abstract ID: 1033

Abstract ID: 1034

Abstract ID: 1035

Many contemporary planning challenges are complex or 'wicked' in nature, with multiple social, environmental and economic dimensions. Planners have a responsibility to effectively engage stakeholders in efforts to address these challenges, yet often struggle with how to facilitate shared understanding and consensus around how to move forward. Simulations and serious games are not new to planning; they have been employed for at least 45 years in a wide variety of situations with mixed success. Yet, the state of practice in using simulations, serious games, and other visualization techniques is ever evolving. Technological innovations like sophisticated game engines and the use of virtual and augmented reality are providing new possibilities. Traditional paper-based games and visualization and simulation methods are constantly improving as we learn from experience. Papers in this session will examine the various ways in which we are using simulations and games to engage communities for deliberation, experimentation, and social learning.

Objectives:

- Survey the state of practice in using simulations and games with communities, highlighting the variety of applications.
- Explore opportunities and challenges associated with using simulations and games, including identification of best practices.
- Demonstrate the application of simulations and games in real-world planning contexts, using examples to explore practical and theoretical dimensions of their use.

TILTING AT WINDMILLS: USING SIMULATIONS AND GAMES TO SUPPORT RENEWABLES SITING

Abstract ID: 1033

Group Submission: Simulation and Gaming for Engagement, Experimentation and Learning

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The adoption of renewables—including wind and solar—is integral to satisfying energy demands while meeting our greenhouse gas and air quality targets. Renewables are largely viewed positively or as benign in principle but can become 'locally unwanted land uses' (LULUs) when actual facilities are proposed in communities. Common reasons for opposition include altered viewsheds and soundscapes, depressed property values, disparities in compensation, potential health impacts, and impacts on wildlife. Neighbors often complain that they will suffer the consequences while receiving no benefit, and that infrastructure is being forced on them with little or no consultation.

Opposition can halt or delay projects for years as cases move through the courts, and/or political and regulatory approval processes. Even if ultimately successful, projects imposed on communities can leave lingering feelings of resentment and degrade support for renewables over time. There is also risk that projects will be disproportionately placed in marginalized communities that have historically shouldered unfair LULU burdens.

Fortunately, experience suggests that the application of best practices in multi-stakeholder engagement and process facilitation can lead to outcomes that are broadly accepted as 'fair, efficient, stable and wise' (Raab, 2017; Meyers et al., forthcoming). Such processes can result in agreements that creatively meet various stakeholders' interests by facilitating shared understanding and devising creative solutions. Yet, uncertainty and disagreement around 'the facts' of projects can be persistent challenges as groups deliberate.

A common point of contention in deliberative processes organized for proposed renewables siting projects is uncertainty and disagreement around exactly how the facilities will look and sound. Proponents minimize these impacts while opponents and skeptics fear the worst. The traditional methods of illustrating visual impacts—like Photoshopping turbines into pictures—are often insufficient. They provide an inherently limited range of perspectives, are static in nature, and typically do not account for sound. The hypothesis for this paper is that more immersive simulation tools utilizing state-of-the-art virtual reality technologies, married to best practices in stakeholder engagement and the provision of supporting scientific information on issues like impacts on endangered species will lead to more robust deliberative processes and more stable, broadly supported agreements.

This paper will introduce and share results from the Sustainable Renewable Energy Facilities Siting Project at Virginia Tech, which is developing and implementing models to test this hypothesis (Meyers et al., forthcoming). Drawing on best practices in the use of simulations in planning and facilities siting (e.g., Whyte & Nikolic, 2018; CGIT, 2018), the approach for this project involves developing simulated environments (i.e., visual and aural landscapes) that multi-stakeholder groups can immerse themselves in to better understand the parameters and impacts of proposed facilities. The project team is currently developing a pilot process and associated simulation for a potential wind farm on Virginia Tech land, with an initial proof of concept to be completed this summer.

This paper will share findings and reflect on lessons learned from the pilot. It will also outline potential paths forward around using simulations—and associated serious games—to immerse multi-stakeholder groups in shared environments to maximize their collective learning and facilitate decision-making. The wider implications will be informative not only in the context of renewables siting, but more broadly to the use of simulations and similar tools and approaches to help groups better understand the implications of proposed interventions in their built environments and surrounding landscapes.

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Key Words: simulation, renewables, citing, stakeholder engagement, deliberation

VISUALIZATION APPROACHES TO STORMWATER PLANNING AND ECONOMIC DEVELOPMENT

Abstract ID: 1034

Group Submission: Simulation and Gaming for Engagement, Experimentation and Learning

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The Village of Robbins, Illinois, is one of the poorest communities of Chicago's South Side. Once the center of rich African American culture in the region, the deindustrialization starting in the 1970s has fed into a pernicious cycle of high unemployment levels, crime, vacant and delinquent property, and economic divestment. In addition, the community has faced chronic flooding due to the flat relief and low elevations, and the sharp bend of the Midlothian Creek that flows into the Cal-Sag Channel. Support to the community has been provided directly and

indirectly through County and regional agencies, as well as broader collaboratives addressing flooding in the Calumet region.

Our team got involved to assist with the planning of a green infrastructure park to be built by the Metropolitan Water Reclamation District of Greater Chicago (MWRD). The MWRD seeks to redefine infrastructure investment as solutions that go beyond stormwater management, to also promote economic development. Within this goal, the Robbins Stormwater Park is seen as a catalyst to transform the community and ensure its long-term prosperity, by providing flooding relief, public green space, public access to the Cal-Sag Channel and access to recreational and cultural facilities that currently don't exist in the Village. The proposed stormwater park will remove approximately 140 acres from the floodplain, freeing the area for potential development, primarily a green industry district where a defunct incinerator is located, and a transit-oriented development near the Village's Metra station connecting to downtown Chicago. The Village envisions these combined projects as a major draw to attract new residents, retail, and job opportunities.

As promising as this initiative is, numerous challenges have slowed down planning and implementation. Residents have expressed great distrust in the government and regional agencies, built on a history of corruption and failed projects. The number of partners involved also creates a barrier to effectively communicating the good intentions for the community, and coordinating among the various efforts in ways that welcome stakeholders into the planning process. Stakeholder engagement is critical to both re-build the trust and foster a sense of ownership and stewardship necessary for the long term success of the park and adjacent projects.

We started working with the Village and MWRD in October 2017, funded by the Searle Funds at The Chicago Community Trust. We have worked closely with the Village government, project partners, and community leaders to design participatory visualization workshops for residents and ensure stakeholder engagement. In these workshops, we facilitated participants' use of different techniques (e.g. causal loop diagramming, participatory mapping, visualization of tradeoffs) to collectively design the stormwater park, and plan for the resources to maintain and support this effort as well as for the projected neighboring TOD and Industrial District. We describe the various stages in the process of adapting visualization-mediated collaborative planning techniques to the needs, culture, and concerns of local residents, Village officials, MWRD and associated project partners. We also report on the aspects of tool use and facilitation that supported the process, identifying areas of friction and in need of further development. Our approach draws from our own experience and literature in participatory modeling, within a theoretical framework that recognizes the value of diversity as the main source of innovation to address complex problems, and of reciprocity in fostering an understanding of the shared vulnerability to those problems and the trust and empathy needed to seek fair compromises around effective solutions. Our goal is to help build the much-needed social and economic capital that this community needs, and become an example of how participatory visualization can help accomplish this within a framework of sustainability and resilience.

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Key Words: participatory modeling and visualization, urban flooding, Calumet Region, urban resilience

USING GAMES TO TRAIN DELIBERATIVE DISCOURSE: LESSONS FROM EXPERIMENTAL RESEARCH WITH STUDENTS

Abstract ID: 1035

Group Submission: Simulation and Gaming for Engagement, Experimentation and Learning

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As planners we work in small, interdisciplinary groups, to complete the tasks most commonly associated with our field: preparation of plans, community meetings, negotiation, goal formation, and review of documents (Shalinsky & Norris, 1981). We also frequently ask citizens to engage with small groups through focus groups and advisory boards. The popular and regional scale goal setting approach espoused by the Urban Land Institute, Reality Check, brings hundreds of invited stakeholders together and asks them to play a board game in small groups of 5-7 ("Reality Check - Urban Land Institute," n.d.). This game has been developed to educate stakeholders on the tradeoffs inherent in regional development challenges, and although each table of participants has a facilitator to manage game play, there are no rules for how participants should interact. In other examples, we ask citizens to develop ideas in groups, review models in groups, and develop visioning maps in groups (Desouza & Bhagwatwar, 2014; Frewer & Rowe, 2005; Kleinhans et al., 2015a; Zellner et al., 2012).

Predictors of group performance can be measured in several ways, but most recently collective intelligence has been suggested as the strongest predictor of a group's ability to perform well at complex cognitive and social tasks (Woolley, Malone, Woolley, & Aggarwal, 2015). Collective intelligence is defined by the group's average social empathy score and turn taking. Social empathy is how well group members perceive the nonverbal emotional responses of other group members. These measures, together, are collective intelligence and groups with a high average social empathy score that also have near equal distributed time spent speaking among members tend to perform at a higher level when addressing a complex challenge than groups that do not possess these attributes and qualities (Woolley et al., 2010; Woolley, Malone, et al., 2015).

We tested the ability of the role playing game, @Stake, to improve the deliberative nature (collective intelligence) of unfacilitated planning discussion amongst small groups of students. This experiment was conducted during the Spring 2018 semester with undergraduate students at Georgia Tech. Observation of group deliberation and transcription of deliberations allowed us to measure the extent to which groups that had previously played @Stake had significant differences in conversational structure than those that did not. Earlier work on gaming for civic engagement demonstrates that although there are measurable benefits associated with gaming for participants, it is difficult for groups to "transcend the magic circle" (Gordon & Schirra, 2011), i.e., despite the structured and facilitated nature of games providing productive opportunities for engagement, the behaviors and interaction that participants exhibit and experience during the game do not carry forward through to their subsequent real life interactions (Gordon & Schirra, 2011). This research reveals the extent to which games can train behaviors and identifies how these results may be used to guide gaming as a public engagement activity.

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Key Words: games, education, deliberation, engagement

HUMAN RIGHTS AND CANADIAN MUNICIPALITIES

Abstract ID: 109

Individual Paper Submission

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Applying human rights legislation to government action, including challenges to municipalities, is a growing trend in Canada. Further, inconsistency with human rights legislation is a serious constitutional and legal violation and, above all, a moral issue. Within such a context, this study presents a systematic evaluation of the soundness of bylaws related to land use in municipalities in the province of Alberta in Canada in relation to the Alberta Human Rights Act and the Canadian Charter of Rights and Freedoms.

This study used a mixed-methods approach, which included a four-step process that allowed us to identify which parts of the municipal zoning bylaw and plans have been contentious or could potentially violate the human and Charter rights. Specifically, we did the following:

1. Reviewed past court decisions of and any ongoing litigation at Alberta Human Rights Commission.
2. Interviewed municipal officials to identify any potential issues they see and ascertain their views, awareness, and knowledge of human rights requirements and the Charter. We also gathered media accounts of the cases in the municipalities under study.
3. We systematically analyzed parts of the municipal plans and bylaws identified as potentially inconsistent with human rights. We applied the previously developed instrument (Agrawal 2013, 2014), which includes two tests: the Meiorin test for the human rights analysis and the Andrews test for the Charter analysis.
4. To guide and oversee our work, we assembled an advisory committee comprising a local lawyer with expertise in human rights, a human rights advocate, and a staff member of the Alberta Human Rights Commission.

The study concludes that Alberta municipalities have made significant progress on the human rights front. However, they are facing two sets of potential human rights challenges. One set is the perennial and outstanding issues of inclusion of user characteristics and minimum separation distances in the zoning bylaw, inadequate provision of various forms of affordable and supportive housing, and limits on freedom of expressions on municipal properties arising out of court challenges premised on human rights and Sections 1 (reasonable limits on rights), 2 (right to expression, religion and peaceful assembly), 7 (right to life, liberty and security) and 15 (right to equality) Charter rights. The other set of issues is created due to recent changes to federal legislation giving rise to new issues such as locating safe injection sites, methadone clinics and cannabis dispensaries.

Citations

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Key Words: human rights, Canada, Alberta, municipalities

MANAGING URBAN TRANSITION: REVIEW, FRAMEWORK AND EMPIRICAL TRIALS

Abstract ID: 126

Individual Paper Submission

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Purpose – Cities and urban regions around the world are under many pressures and in response have to adapt, innovate and change. The various urban challenges have been considered under the general term of sustainability and increasingly as the issue of resilience. While urban and regional planning is about dealing with those challenges, defining desired future states, and applying tools toward their achievement, it only superficially (if at all) draws from the rich field of transition and change management and rarely succeeds in pursuing integrated approaches and strategies. This lack of effectively dealing with transitioning is due to various reasons, including the legacy of relying on non-management disciplinary knowledge and a gap between scientific literature and practice and policy discourse. Wilkinson (2011) alerts about this gap in her discussion of the advocacy for socio-ecological resilience and the ability to govern it. A 30-partner European FP7 project ‘Transitioning Towards Urban Resilience and Sustainability’ (TURAS, 2011-16) has explicitly focused on integrated transition strategies (ITS) as a way to link its research outcomes with practice by implementing and demonstrating them in a variety of municipal and regional settings (Collier et al. 2012).

Design/methodology/approach – To contribute toward filling this gap between planning knowledge base and practice, we review literature on strategic planning, integration and transition management. We examine related concepts and theories developed to help address and drive the sudden and long term changes in societal structures and practices which are required for creation of sustainable and resilient cities. The examination revolves around the key concepts of strategic planning, integration, and transition as defined by Bafarasat (2014), Kidd (2007) and Rothmans et al. (2001), respectively.

From the literature we derive a generic and pragmatic framework for an integrated and interdisciplinary approach to facilitating transitions in urban environments. We apply this general framework to three cases of urban transition and find it useful in identifying the key elements that would enable a more systematic pursuit of urban transitions: Integrated Flood Risk Management (IFRM), The Netherlands; Urban Storm Water Management, Melbourne, Australia; and Climate Neutral City, Ghent, The Netherlands. We also connect this framework to the process developed in TURAS project and discuss the lessons learned in implementing the findings of research into local practice. In particular, we focus on the development of integrated transition strategies.

Originality/value – The field of urban planning rarely connects and takes advantage of the management literature and practices, particularly in dealing with transitions and change, which are both at the core of successful implementation of planning projects and policies. This paper attempts to invigorate this linkage by examining the framework against 3 cases and the integrated transition strategies developed and demonstrated by TURAS project. We discover that even successful projects would differ in the structures and paths pursued in managing the transition process.

Practical implications – The 3 cases of urban transitioning and the outcomes of TURAS project – integrated transition strategies and other - have been developed and demonstrated in a real urban and regional settings.

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Key Words: Urban sustainability, Transition management, Integration, Strategic planning

ENHANCING COLLABORATIVE PLANNING WITH SOCIAL MEDIA DATA – A CASE FROM 2017 CALGARY MUNICIPAL ELECTION –

Abstract ID: 139

Individual Paper Submission

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Like many (most?, almost all?) metropolitan regions, the City of Calgary, Canada, struggles with challenge of creating effective planning policies (generally aimed at increased vitality with enhanced societal economic and social benefits), while also fulfilling community concerns about change that is close to home (such as increased mixed-use and densification). This is referred to as the ‘say-do’ gap (Grant 2009), driven somewhat by elected officials observing the community, as a whole, endorsing planning policies that embrace change, while simultaneously facing vitreous obstruction from directly impacted sub-communities. How can policymakers bridge the gap between what they say through planning establishment and what they do through planning implementation?

We believe that the existing gap between the planning establishment and the implementation may be caused by the lack of consensus building and insufficient interactive communication during the planning process. Innes (1996) asserts that failure to build consensus among stakeholders in the planning process “delegitimizes the plan as a meaningful document” (p. 469). In her extended research on the consensus building with Booher, the researchers contend that consensus building can be a way to cope with the obstacles that might hinder the successful implementation of plans resulting from uncertainty, loss of meaning, and rapid changes in our society (Innes and Booher 1999). Grant (2009) argues that the challenges municipal governments face is trying to close the gap between planning policy and implementation. She contends that the combination of weak political commitment and market pressures leads to resistance to change due to entrenched, institutionalized patterns of development.

We sought to modernize Collaborative Planning by incorporating social media and advanced mobile technologies as a foundation for enhanced interactions among policymakers, urban experts, and community members. Integrating new technologies into the Collaborative Planning model provides a refreshed opportunity to over-ride the shortfalls initially identified by Godschalk and Mills (1996), which was before the innovation of mobile-based technologies. Setting up the 2017 Calgary Municipal Election as a test bed, this study seeks to address the question of how new technologies can be applied to enhance Collaborative Planning, and more specifically to provide a fresh approach to addressing the communications challenges that underpin the say-do gap.

Even though this was our first foray into the field, we achieved promising early-stage results, targeted at growing the use of technology-based social media tools for further development of Collaborative Planning. Specifically, we found that applying the semantic network and sentiment analysis tools enhanced our understanding of social media communications, and enriched the value of frequent and intensive messaging from policymakers to community members. Further, through reactions to social media posts, voting, and in-person dialogue, we were able to elucidate the reactions and perspectives of community members in two-way communications not contemplated in the 1960s when Godschalk and Mills first conceived the theory of Collaborative Planning. We were able to validate the social network tools and platform as a promising path for research and development of Collaborative Planning initiatives.

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Key Words: Collaborative Planning, Social Media Analysis, Municipal Election, Semantic Network Analysis, Sentiment Analysis

WHAT ABOUT THE CHUTES? ARNSTEIN'S LADDER, PUBLIC PARTICIPATION, AND ENGAGING EMOTIONS IN 21ST CENTURY PLANNING

Abstract ID: 201

Individual Paper Submission

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Generations of planners have found Arnstein's ladder of citizen participation valuable for reflecting on our field's participatory, democratic, communicative, and collaborative aspirations and realities. Much of planning theory since Arnstein's ladder calls for replacing – or at least dramatically revising – persistent planning norms of rationality, technical analysis, and expert knowledge. Attention to storytelling by planning scholars plays a crucial role in countering rational planning's rejection of emotion as a pollutant to decision making. Yet two substantial blind spots persist in theory and practice as we are typically timid and cursory in our attention to how everyday emotions condition thoughts and actions in planning and a compassionate orientation can guide us as we grapple with the interplay of thought and emotion in shaping action. Using the game Chutes and Ladders as a heuristic we consider planner's stories to focus attention on these two blind spots and introduce the notion of compassionate rationality.

We weave together a conceptual framework from the threads of literature on public participation, deep diversity, emotional intelligence, and compassionate organizations. We revisit practice-based stories previously analyzed by planning scholars, grounding our analysis in planning theory literature and reducing our own subjective biases. . Revisiting the stories focuses attention on emotional and compassionate dimensions of planning practice that merit more consideration and reveals three important themes that are hidden in plain sight.

First, planning theory, with its use of storytelling, makes clear that emotions – messy, often unpredictable, typically relational emotions – are ubiquitous in planning. Yet, planning scholars often fail to bring the emotional dimensions of planning to the forefront in their analyses, perhaps due to their exploration of our own particular theoretical foci, such as discourse and deliberation, production of space, and social performance, and an inability to free ourselves from rationality's deep entrenchment in academia.

Second, when the conflicts present in the stories are examined, the influence of a planner or planning process (positive/negative, successful or not, etc.) is often contingent on the ability to be compassionate. By being open to suffering, noticing suffering, generously interpreting suffering, feeling empathy and concern, and acting on motivation to reduce suffering, planners do their work. Planning scholars have barely scratched the surface of the importance and implications of the emotional intuition and interpersonal skills needed to practice compassion at the individual level and the organizational competence and structures needed to foster compassion in networks of participants engaged in planning processes.

Third, there is a lack of systematic consideration of what it might mean to view planning as translating not just knowledge but translating knowledge and feeling into action. Planning theory and research will benefit from more explicitly integrating work coming out of the fields of psychology, neuroscience and organizational management. Planning pedagogy and practice will benefit by complementing traditional, rational training and skills with explicit attention to cultivating emotional intelligence and compassion.

We offer compassionate rationality as 1) the recognition that thought and emotion are inevitable and interdependent, 2) the mounting evidence that emotional skills and compassionate orientations can be cultivated for the benefit of individuals and society, and 3) the belief that compassion is a fundamental normative orientation well suited to planning.

In Chutes and Ladders the vagaries of the spinner and the board layout dictate when there is progress or setbacks. In planning we have long sought to use technical analysis, and increasingly communication and collaboration, to reduce uncertainty and guide action. When planning scholars and practitioners fail to bring emotions fully into focus, though, we increase the chances that any progress we make will be lost as we slide backwards down an unexpected and frustrating chute.

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Key Words: Emotion, Compassion, Planning Processes, Rationality, Participation

PLANS THAT NEVER HAPPENED: SPATIAL PLANNING FOR BOSTON'S MIDTOWN DISTRICT, 1960-2017

Abstract ID: 309

Individual Paper Submission

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Many North American and European cities must plan for urban regeneration at large post-industrial sites. However, those plans often fall through and the sites remain unused or underused for lengthy periods of time. Often, cities will design multiple regeneration plans for a site before the site is ultimately redeveloped. Does the practice of repetitive planning move the city closer to its urban regeneration goals? What factors lead to plan implementation or the dismissal of urban regeneration plans?

We analyze these questions with a study of repeated attempts to redevelop an industrial corridor in Boston. Today referred to as ‘Midtown’ or ‘Widett Circle’, this site in south Boston has been repeatedly slated for post-industrial redevelopment across several major spatial planning initiatives in the city’s recent history. We use a mixed-methods study to analyze these urban regeneration plans, analyzing the motivations behind repetitive planning and reasons why it has not resulted in major land use change at the site. We use GIS to analyze proposed and actual land use at the site, across three eras of planning in the city: the 1965/1975 General Plan for the City of Boston, a bid for the 2024 Summer Olympics, and the city’s currently active Imagine Boston 2030 master plan. We then interpret these geospatial data with qualitative data on each planning process, based on archival research and in-depth key informant interviews.

We find that repetitive planning is a combination of opportunistic and strategic planning initiatives. Some elements of site planning seek to capitalize on unique historical moments in the city’s politics – for instance by leveraging an Olympic bid as a moment for regeneration planning – while other elements are more strategic and reflect long term development ambitions. Both foster an evolution of urban regeneration plans due to local fiscal and political realities, but as of yet neither has successfully facilitated widespread regeneration at the site. This contributes to planning scholarship in two ways. First, we analyze the mechanisms of repetitive planning and show how continuities and disjunctures emerge across repeat plans. Second, we evaluate how such mechanisms can and cannot fit within planning best practices. By recycling ideas from one proposal into another, repetitive planning may unintentionally incorporate agendas that were rejected by the public in past planning debates. On the other hand, current planning debates may be unduly disrupted by conflicts of the past.

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Key Words: spatial planning, urban regeneration, plan implementation, Boston

NEW YORK CITY COMMUNITY BOARDS AND THE DEGREE OF SUBSTANTIVE REPRESENTATION

Abstract ID: 331

Individual Paper Submission

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Since the second half of the twentieth century, planning theorists and practitioners have emphasized the importance of public participation in local decision making process. Planning theorists of communicative turn have called for collaboration among governing agencies, planners, citizens, and other relevant actors to share different types of knowledge in order to understand each other and reaching a consensus (see Arnstein 1969; Innes and Booher 2004; Shmueli, Kaufman, and Ozawa 2008; Day 1997). However, when participation theory comes to practice in local governance, it has faced several criticisms.

One of the arguments is that local representative bodies are incapable of representing their residents (Fagence 1977; Beatley, Brower, and Lucy 1994). In this sense, John Stuart Mill states that “no matter the predisposition and benevolence of a representative towards the interests of those he represents he is rarely capable of an accurate degree of representation because each man knows his own interests more completely” (Fagence 1977).

Nevertheless, theoretically representative democracy is advantageous to resident empowerments, especially for minorities. If representatives exactly mirror socio-economic and demographic characteristics of the represented (which is known as descriptive representation), and when representatives of all groups are required to participate in a decision making process, decision making power can be equally given to all groups. Yet, in cities with socioeconomically and demographically diverse residents, it is difficult to find 'identikit' representatives. On the other hand, if representatives act based on ideological views and preferences of the represented (which is known as substantive representation), while simultaneously increasing the communication with the represented, substantive representation will empower residents in decision making process (Bühlmann et al. 2010). However, there has been a few research that has observed the level of substantive representation of local representative bodies in planning practice.

Therefore, the purpose of this study is to observe whether local representative bodies work effectively to achieve substantive representation of their neighborhoods. The research target is Community Board members, more specifically, local representative bodies of Community Districts in New York City. Community Board takes the role of assessing needs of their own neighborhoods and developing Community District Statement of Needs every year. Based on these statements, the research asks 1) How well do Statement of Needs and Community Board members describe the needs of the residents? More specifically, which policy area has the highest similarity? 2) What are the characteristics associated with the residents and neighborhoods that result low similarities with the Statement of Needs?

To obtain the data, surveys with New York City residents and Community Board members have been conducted. Survey questionnaire was designed based on the Community District Statement of Needs. The survey asked residents and members about most important needs for their neighborhoods and other specific needs for seven different policy areas. Needs selected by residents have been compared with needs chosen by members and from the Statements.

The information obtained in this study will provide a better understanding of the degree of substantive representation of local representative bodies. Evaluation of the degree of substantive representation with regard to socio-economic and demographical characteristics of residents and to neighborhood characteristics will provide vital information for scholars and practitioners interested in achieving balanced public participation in representative democracy.

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Key Words: Substantive Representation, Public Participation, New York City Community Boards

PREPARING AND RESPONDING TO DISASTERS: A PLANNING PROCESS FOR INTEGRATING PUBLIC PARTICIPATION AND EXPERT INPUT

Abstract ID: 360

Individual Paper Submission

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Disaster preparedness and recovery planning face several obstacles: information sharing, political priorities and incentives, and community priorities and capacity. For example, there is tension between experts on natural

phenomena and the public. The experts believe they have evidence to predict the occurrence and general location of earthquakes, tsunamis, flooding, or landslides, and that preventive actions can protect public health, welfare and property. The public and the elected officials often have different priorities for action and investing public resources to alleviate needs already painfully evident—lack of affordable housing and living-wage jobs, rectifying urban food deserts, or easing daily traffic congestion on city roadways. The heavy science and technology content of disaster information is not readily accessible to communities standing to be affected or stricken by extreme events, or even to the responsible public officials. This impedes effective communication and exacerbates public disengagement from preparedness planning. It also diminishes the effectiveness of public decisions.

We explore how planners can help integrate technical information in public decisions. We propose to borrow from negotiation and mediation practice in environmental disputes, which similarly need to incorporate different kinds of knowledge, including science and local wisdom, into joint decisions.

We begin by examining preparedness efforts at very different locations and with different institutional and participatory arrangements—Oregon and Israel. They share the threat of a catastrophic earthquake at an unknown but not distant future. In both cases, government-led attempts to engage the community in comprehensive preparedness efforts have largely failed. We explore the reasons for failure and propose ways for planners to shape dialogue to enable the public, elected officials and technical experts to work together more productively. We pit case-based observed dynamics against what we have learned from planning theory and practice, and from current disaster preparedness prescriptions. Then we address the observed obstacles to preparedness by applying some negotiation principles that have served in similarly complex situations resistant to resolution.

We find at both locations that “ripeness,” often claimed to be a key obstacle to negotiations to address a shared problem, may not be the sole or even most salient culprit. To wit, even when there is agreement on a threat, preparations to mitigate or avoid catastrophic consequences do not necessarily occur. Instead,

- Communities continue to invest in clean-up rather than preparation;
- Communities prefer to invest in visible, urgent needs;
- Uncertainty paralyzes action;
- Conventional approaches to public participation treat disaster preparedness separately from other planning and policy decisions;
- Technical expertise is used as the foundation for decisions and alternative actions, and then ignored.

Management of environmental conflicts faces similar problems, including ripeness. It is a good source of mitigating practices. For example, the notions of mutual gains, joint fact-finding, and framing alternatives in terms of costs and losses if problems are not addressed might remove some obstacles to preparedness. We propose instead that deliberate efforts to “set the table” for the discussion may be needed. Specifically, planners may need to play a role in (1) dispelling the false choice between preparedness and addressing current problems, framed as an either/or decision, (2) lifting the “veil of ignorance” around who will be hit and how hard, and (3) reframing the dialog by extending the timeline for evaluating costs and benefits. We also propose that the public should be involved at the appropriate time and level (for which we will offer criteria), where they can have the greatest contribution to decisions.

Our analysis results will contribute to participatory planning practice in disaster preparedness and beyond, wherever different types of information have to be brought to bear on a planning challenge.

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Key Words: preparedness for catastrophic threats, participatory planning, strategic use of participation

WE NEED TO TALK: EXPLORING THE DISJOINTED RELATIONSHIP AND THE RESULTING INFORMATION GAP BETWEEN ACADEMICS AND PRACTITIONERS IN HISTORIC PRESERVATION AND URBAN PLANNING

Abstract ID: 423

Individual Paper Submission

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Is it possible that the relationship among academics and practitioners in urban planning and related disciplines is disjointed? This study examines how academic-practitioner collaboration has been recognized as a valuable research tool by a number of disciplines including management, nursing, engineering, pharmaceuticals, and physics. However, one might argue that cross professional collaboration has not been fully explored or developed within the field of urban planning. This paper examines how urban planners can begin to bridge the information gap and improve and expand the knowledge base in both academia and practice. Research in other fields suggests that a lack of industry-academia collaboration is based on differing fundamental assumptions and beliefs held by both the academic and practitioner. This paper explores how other professions have addressed the information gap between the two groups in order to suggest ways in which we might increase collaboration, thus improving the knowledge-base and moving the fields forward.

This topic is explored through the lens of two historic public housing projects in the City of Buffalo in order to better understand how work conducted ‘in the field’ by practitioners can benefit the work in academia to improve and enhance the knowledge and understanding of the subject. This paper reviews public housing literature published by academics and how the data collection compares to that of the practitioner. The comparison of field documentation written by practitioners with research conducted by academics, suggests fundamentally different frames of reference. Academic-practitioner collaboration and knowledge transfer in a symbiotic relationship would allow for the creation of a more comprehensive knowledge-base.

Historic preservation research and documentation regarding the A.D. Price Public Housing (ca. 1932) and Shoreline Apartments (ca. 1970) provide a story of public housing different from what is typically discussed in academic, peer-reviewed papers. Both of these public housing complexes teach us a number of lessons regarding public housing and the creation of diverse neighborhoods and affordable housing. The perspectives through which the academic and practitioner see research, while both valuable, are fundamentally different. While academics typically publish papers rich amount of theories and findings, they are not always published with the intent (both in publically accessible venues or colloquial language) of reaching an audience including practitioners or the general public. The practitioner visits the space and documents the existing conditions and how it complies with current housing guidelines, within the framework of historic context and material fabric. Both the academic and practitioner’s research provide valuable insights into public housing. However, the practitioner’s report is not literature that the academic would necessarily be privy to, while any documentation by the academic may, or may not, be reviewed by the practitioner. Hence, the lack of cross-professional collaboration and opportunity for a more comprehensive knowledge-base.

This paper argues that there needs to be increased academic-practitioner collaboration and communication to facilitate the sharing of knowledge in the fields of historic preservation and urban planning. By looking at this problem from the dual-perspective of the academic and practitioner we suggest that through increased communication and collaboration that we can begin to move the field of planning forward as a whole.

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Key Words: Collaboration, Academia, Practitioner, Relationship, Public Housing

URBAN PARKS AS COLLABORATIVE DECISION-MAKING SITES

Abstract ID: 435

Individual Paper Submission

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Environmental injustice, often conceptualized as the unequal siting of environmental harms, is also enacted within urban, neighborhood parks. Socially and economically-depressed neighborhoods predictably contain smaller parks, a metric frequently used for park quality (Wen et al. 2013). Quality is thought to suffer in smaller parks, versus larger, because they are thought to offer fewer benefits like increased property value, diverse amenities that reflect park users, and space for socializing and recreating (Loukaitou-Sideris 1995). Thus, injustice arises.

Small parks may result from a history of discriminatory and inequitable policies, like racial covenants and decision-making by exclusively white, affluent, male planners (Boone et al. 2009). In this way, another benefit, making decisions about parks, was also denied to park users. From these policies, certain neighborhoods have larger and better funded parks; across the country, parks are “cookie-cutter” rather than reflecting park users. Therefore, what can be done in small parks to bring about environmental justice?

Hypothesis 1: When park users are involved in decision-making, small parks offer benefits comparable to large parks.

I am embedded in two cities that top the Trust for Public Land’s list of ‘best’ city park systems. In both, decision-making practices are changing. New strategies for citizen engagement help tailor park infrastructure to changing and previously-unempowered demographics (following Qadeer 1997). Further, planning practices for daily park use, namely the programs offered, is also changing.

In both cities, I have sent up networks with the parks departments as well as citizens who are involved with park decision-making. Guided by these connections, I have 1) reviewed decision-making policy documents; 2) interviewed decision-makers including park supervisors, area managers, planners, and other administrative authorities. I have also interviewed citizens on advisory committees, neighborhood councils, and park users. 3) I observed daily park use and special events in parks. I also observed various settings where decision-making occurs: formal park board meetings; community advisory council meetings; open houses for specific planning projects; engagement sessions; community events hosted by community groups where park board employees are guests, available to discuss park planning.

I will present a mechanism for how park-organized events, including novel, park-based “intercepts”, listening sessions, and peer-led interviews, create ‘decision-making sites’ for planners and citizens. However, at these park-organized events, decisions usually pertain to large-scale plans, like for infrastructure or a city-wide ‘vision’ for park programs. Conversely, decision-making also occurs from the bottom-up. Smaller-scale decisions, discussed between citizens and park supervisors for example, are made within recreation centers or neighborhood meetings.

These 'sites' can produce more immediate decisions, like new programs. Importantly, programmatic changes at individual parks are realized at a much lower cost and can be independent of park size.

Hypothesis 2: When park programming reflects park users, small parks offer benefits comparable to large parks.

I address my second hypothesis by studying programs in individual parks: types, who participates, and access to decision-making. To test both hypotheses, I operationalize my dependent variable, benefits, by counting programs and amenities per park and by interviewing park users to learn if participation in programs and decision-making is 'worth it.'

Not all parks can afford to expand in acreage or build a new gymnasium but programmatic changes can be a lower-cost solution to benefit citizens, including through participation in decision-making. By understanding how citizens can engage in decision-making, the process can be shared with citizens in study cities and parks across the US to ensure everyone understands how to participate, ensuring, moving forward that parks reflect the needs of the many, rather than the few. Thus, programming can be a start when it comes to promoting environmental justice in urban, neighborhood parks.

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Key Words: Parks, Public Participation, Environmental Justice

LOCAL TRANSPORTATION PLANS: THEIR INFORMATIONAL CONTENT AND USE PATTERNS IN SOUTHERN CALIFORNIA

Abstract ID: 522

Individual Paper Submission

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Given their large and enduring impacts, public transportation investment (or policy) decisions have been made with careful consideration of current conditions and anticipated future demand. Generally, in the US and many other countries, the public decision making takes place over multiple years, starting with a long-range plan making (in which transportation goals and strategies are established in order to meet the changing mobility needs in the city/region and deal with various challenges in a timely manner). In the state of California, such plan making has long been mandated by the state since 1937. Recently, as the California Complete Streets Act (AB 1358) gets implemented, "all cities and counties, upon the next update of their circulation element, must plan for the development of multimodal transportation networks." (p.1, California Governor's Office of Planning and Research, 2010).

However, despite the state-level guidelines and requirements, general plan making rests with individual localities, and the content/structure of plans does vary markedly across cities. Furthermore, little is known about the informational contents of these plans and their use patterns. Some transportation/planning professionals are skeptical about the use of these plans, while others have started to make efforts to better organize the plans and promote wider use of plan contents not only by government agencies but by other stakeholders and general public. Similarly, existing transportation research tended to focus on the impacts of actual investment projects or

regulatory legislation rather than on the importance of plan making/using processes. In the planning literature, a growing number of studies have examined plan implementation or evaluation, but there has been no systematic investigation of how transportation plans have been used by various actors and what drives wider (and more effective) use of plan contents.

To fill this gap in the literature and practice, this study attempts to investigate how local transportation plans are made and used by government agencies and other stakeholders through a plan content analysis and plan use survey with a focus on a sample of general plans which have been adopted by eight municipalities in Orange County, California between 2012 and 2017 (Costa Mesa, Fullerton, La Habra, La Palma, Los Alamitos, Mission Viejo, San Clemente, and Westminster). More specifically, it presents a way to design a stakeholder survey to capture the variation in plan use patterns and provide lessons for more informative plan making processes. Emphasis is on the dynamics of information-seeking processes as well as the importance of the range, depth, and integration of informational (both factual and visionary) contents and presentation methods.

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Key Words: Transportation plans, Plan information, Information use

EXPLORING THE CONSEQUENCES OF PUBLIC SCHOOL CLOSURES ON COMMUNITY LIVEABILITY AND HOUSEHOLD QUALITY OF LIFE: A MIXED-METHODS CASE STUDY IN KINGSTON, ONTARIO, CANADA

Abstract ID: 769

Individual Paper Submission

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Public schools are more than educational institutions; they are public assets that are essential to sustainable and complete communities [1-4]. Yet, public schools are being permanently closed across Canada, particularly within the province of Ontario, owing to declining student enrolments, aging school infrastructure, and reduced government funding. School closure decisions in Ontario are guided by the provincial government's pupil accommodation review model; a model that has been roundly criticized for prioritizing economic efficiency to the benefit of school boards, while failing to consider the broader impacts of school closures on the households and communities served by these schools. In turn, school closure decision-making processes have led to atmospheres of conflict and resentment, and feelings of powerlessness within affected communities [5].

In Kingston, Ontario, the city's only downtown secondary school will be permanently closed in June 2019. Using a mixed methods approach, this study sought to examine the real and anticipated consequences of this pending school closure on individual- and household-level quality of life, and neighbourhood liveability, within the school's catchment area. We conducted 7 key informant interviews with city councilors (2), neighbourhood leaders (2), a school board trustee, a school advocate, and a social service provider, to capture their perspectives on how the closure decision has impacted, and may impact, neighbourhood liveability. We also conducted an online survey of households (n=459) located within the school's catchment area, to capture residents' perspectives on how the closure decision has impacted, and may impact, their daily lives.

The interviewees commonly acknowledged that the school's location within the city's downtown core provides considerable benefit to local residents, because it enables students to walk or cycle to school and it makes the facilities more accessible to the wider public. However, the interviewees had conflicting opinions as to how the neighbourhoods within the catchment area would change after the school closes. On the one hand, the realtor felt that the presence of the university downtown would ensure that Kingston's downtown neighbourhoods would continue to be desirable places to live. Yet, others indicated that families have already started to move out of the area, suggesting that the demographic composition of the neighbourhoods within the catchment area may change following the closure.

Of the 459 completed surveys, 88% of respondents had some connection to the school, and over 50% indicated that living within the school's catchment area significantly influenced their decision on where to live in Kingston. Walking and cycling were used by the majority of respondents' children who attended the school, while these same respondents predicted that private automobile, school bus, and public transit would become the primary modes of travel for their child(ren) to the new school location. Most respondents were dissatisfied with the school closure decision-making process (80%) and the final decision (85%), although dissatisfaction varied by neighbourhood of residence. While the decision has had little impact on respondents' households so far, a significant proportion felt the closure would negatively impact their household's finances and environmental footprint in the future. Negative impacts were more commonly reported at the neighbourhood level, now and in the future, particularly in terms of family retention, neighbourhood pride, and property values.

It is well established within the field of planning that public schools are essential elements of complete and sustainable communities. Thus, the ability of public school boards to unilaterally decide on the fate of these public assets undermines the goals of healthy community planning. More collaborative decision-making processes that meaningfully engage with municipal planners, residents, and other local stakeholders are urgently needed to ensure that complete and sustainable communities are prioritized and protected, in Ontario and elsewhere.

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Key Words: school closures , community liveability, quality of life, mixed methods, Kingston, Ontario, Canada

REVIEWING TECHNIQUES FOR ENCOURAGING PEOPLE TO TEST THEIR PERSPECTIVE, PRIVILEGE AND BIAS

Abstract ID: 773

Individual Paper Submission

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In teaching and practice we encounter people who fundamentally can't see or won't see where their privilege, perspective and bias impacts their ability to solve problems and work collaboratively for community-wide needs and goals. Within the planning profession we discuss and use tools such as Alternative Dispute Resolution, participatory planning, and public engagement strategies as procedural approaches to bridging conflicts in communities. However, with the current political climate it is possible that tools, and even games, can help bring people together before they engage on a specific project tasks. This ideally would help to avoid friction within a planning process but also will make the planning process more meaningful and inclusive.

In the current political climate, divisiveness seems to be at the sharp edge of many interactions. Planners and academics in many arenas recently experience a particular disdain for planning activities that address equity or vulnerable populations. The focus in some communities is not “how can we address inadequacies in our system, city or infrastructure” but is more about how a particular action will “impact me”. The reason to exaggerate the dichotomies is to call attention to the fact that we don’t have regular activities for both students and community members to actively understand their privilege, perspective and bias before heading into a planning process. This creates this immediate underlying friction, power imbalances, and lack of mutual understanding.

This topic is certainly discussed in sociology, political science, and psychology, however as part of the planning process we may often see privilege, perspective and bias as outside of the scope for a particular planning project. For example, while trying to foster an engagement process related to a bike lane project, discussing inequities in general services within the community can feel like it is not part of the scope of work for that project. The goal is to complete this hypothetical bike lane and therefore taking time out to address broader social issues seems out of place. Adding more steps or time to a planning process is often not supported by administrators or policy-makers. However, many if not most planning activities have underlying power imbalances within the community which can stifle meaningful understanding for a shared vision.

Within the planning curriculum, many courses perhaps touch on privilege, perspective and bias but we could do more. Using a FACEBOOK PLANNING 2040 discussion thread I started on addressing this topic, this paper will review the activities, articles and games that many faculty suggested to address this critical issue for growth. I will be following up with many who responded to this discussion post and creating an open-end survey for faculty to further elaborate on how such tools can be used in the classroom and begin to foster or in fact re-foster many of these objectives for these objectives for inclusivity that our profession holds as important. The purpose of this paper is to distill these concepts in a qualitative manner to promote using more of these tools with students in the academy in order to better prepare them for engaging diverse communities.

Changes, divisiveness and political winds perhaps are cyclical. However, allowing our students opportunities to test and reflect on their privilege, perspective and bias gives them tools to help their communities to do the same. Fundamentally using tools to encourage our communities to have more complex visions of each other – not a ‘them and they’ approach, but rather a “us and we” approach – this is where we as planners have to be leaders and keep moving in positive directions to protect and preserve community.

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Key Words: bias and privilege, planning process, student engagement

ACTING IN “INFORMAL SPACES” AND THE INFRASTRUCTURE OF PLANNING IMPROVISATION

Abstract ID: 872

Individual Paper Submission

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Improvising in planning is context-responsive, grounded, creative work, but it is not magic, as if pulling a rabbit from a hat. Planning improvisers work around or within formal rules, without necessarily breaking or doing violence to whatever is formally “given” or pre-scripted. Sometimes we call this acting ‘informally.’ Exploring

planning practitioners' "practice stories," this paper will extend previous research by arguing that being in an informal space, or acting "within" formal rules, differs radically from being in "a vacuum." Formal spaces might be structured explicitly by rules, procedures, regulations, and constraints, but they are not "empty." Formal prescriptions, whether mandates or limits, shape but underdetermine actions in non-formal or informal spaces. How might these spaces be "structured" or even "infra-structured": when an actor acts "informally" and improvises in ways that are not determined by formal rules, what does that actor "have at hand to work with?"

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Key Words: Informality, micropolitics, planning practice, improvisation, discretion

THE CONFLICTS OF GOVERNING PUBLIC REALM ON THE NAME OF PUBLIC INTEREST: PLANNING AND POLITICS OF PUBLIC SPACE IN BOGOTA, COLOMBIA BETWEEN 1990 AND 2017

Abstract ID: 949

Individual Paper Submission

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During the 1990s Bogota's public administrations pledged to improve quality of life in the city by reclaiming the public realm through civic culture programs and physical intervention in public spaces. Since then, different agents have mobilized to position public space as a central element of urban development. This research traces the emergence of public space as a policy field in Bogota and examines the political processes that have taken place around its governing. It explores the ways in which conceptualization, planning, and delivery are connected to larger issues of societal concern and political agendas to answer the following question: How have notions of success and failure shaped policy discourse and policy instruments for governing of public space in Bogota over the last three decades? Understanding this relationship is important because, the ways policies and policy instruments are thought, produced and made legible by different forms of expertise and technical knowledge shape urban space in ways yet to be examined.

This analysis focuses on Bogota's local response to the global tension between the collective and democratic nature of public space and the drive for more entrepreneurial forms of its governance. Bogota was chosen for its celebrated experience in planning and delivery of public space, generally presented as a story of positive urban transformation that lasted until mid 2000s to be followed by a significant period of decline. To explore this trajectory of success and failure, I contrast the discourses surrounding the emergence of the policy field with policy instruments ultimately created and their instrumentation, over almost thirty years. Qualitative data in form of policy documents, archival records, news and media releases, and interviews of scholars, experts, municipal employees, and practitioners are the primary source of data.

Findings suggest a trajectory of public space, as policy field in urban planning, where moments of assemblage and conflict in planning practice drive challenges in achieving the goals initially envisioned and embodied in policy discourses. They also indicate that although policy instruments are strongly related to political agendas and specific forms of expertise, over time they detach from their sources to either become inconsequential or acquire a life in their own. By following the trajectory of public policy instruments for governing public space in Bogota I illustrate how the relationship between planning practices and policy instruments is a negotiated process framed by societal concerns and political agendas. This, I argue demonstrates the dilemma of governing public space in

the name of public interest while simultaneously trying to accommodate an accountable civic domain, a global competitive city, and the materiality of informal practices; all of which ultimately affects quality of life in cities.

This work has theoretical significance for urban studies scholars as well as practical impact for planners and policy-makers. For scholars, it contributes to debates on public space by questioning how public space is produced, interpreted, and ordered through specific rationalities and technologies that do not necessarily embed its accepted democratic nature but rather focus on enforcing its functionality in the name of the public interest. For planners and policy-makers, it offers a long-term view of policy instruments that can both question and inform planning practice. As planners and policy-makers understand the long—or too short—implications of policy instruments, they might realize that their socially constructed nature makes them susceptible to interpretations and applications that embed interest, motivations that ultimately represent power relationships that can manifest in urban space.

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Key Words: Public space, Planning process, Governing process, Public Policy Instruments

"WE DON'T NEED THIS PLAN" HOW EFFECTIVE ARE PLANS, AND PLANNING THEORIES, IN A POLITICALLY CHARGED SITUATION

Abstract ID: 995

Individual Paper Submission

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The political conditions in Israel have long influenced spatial planning in the country. A highly segregated settlement pattern allowed plans to entrench majority power. Conversely, over the past decades NGO's saw the importance of plans and of plan-making to counter discrimination in resource allocation. Currently a surge of comprehensive plans is being prepared for minority communities, as part of a government attempt to foster a more equal development prospects and to re-allocate resources. The cases studied in this paper are the dual processes of preparing two comprehensive plans for Palestinian-Israeli municipalities in the north of the country. Moving between two levels of reflection the paper asks, first, to what degree is regulative planning effective against a backdrop of discrimination and mistrust. Second, on a meta level the writer – an academic turned practitioner – ponders about the value of planning theories for practice.

The communities in this study are struggling against a history of disenfranchisement on the one hand, and internal inequality and conflicts on the other hand. Plans are prepared, if at all, in piecemeal fashion, predominantly to allow more land for residential development and with great of the reluctance of the residents (and of the municipality) to give up privately held land for public needs. The community sees little value in comprehensive long-term plans that do not directly facilitate building development and may even restrict it in some zones. To further complicate things, the standard methods for preparing plans are top down and often not suited to the culture and circumstances in Israeli-Palestinian communities – for example a hesitation to share a residential building with members of different clans. While the community is unenthusiastic to accept an outsider consultant who is also part of the majority group, the internal divides mean that bottom up planning requires more time and effort than is available in formal planning processes. Because of the complex circumstances the main value of making a comprehensive plan lies not only in the end product – the plan – but also in its ability to foster better

future zoning efforts and decision making. Further, the planning process itself can hold some advantages for the municipalities.

The reflection on the indirect effects and advantages of planning – enriching decision making, advocacy and collaboration in the face of power – explores to what extent planning theories can be helpful for practice. It is precisely the complex and conflictual context that makes the need of theory apparent. However, the complex situation also underscores that a general theory will not do – for theory to be relevant, it has to be context sensitive. Planning theories often offer a simplistic and generalized vision of the reality of plan making, and only few take political conflict into account. It is true that planning practitioners cannot allow themselves to ignore power, and yet power and conflict typically do not exhibit themselves as a one-dimensional contradiction, but as a multitude of overcrossing conflicts (of wealth, politics, gender, etc.). Theories that are more content – and therefore context – oriented, and that move between the planes of general reflection and practical advice, may be able to grasp the multitude of conflicts and therefore offer better value for planners.

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Key Words: planning theory, conflict, culture, comprehensive planning

WHERE SHOULD WE HOLD THE MEETING? VENUE CREATION IN PARTICIPATORY PLANNING AND CONSENSUS BUILDING

Abstract ID: 1032

Individual Paper Submission

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Abstract

In the past decades, scholars and practitioners in the fields of planning, public participation and consensus building have devised a variety of techniques for participatory decision-making. Despite the ever-growing literatures on public participation, consensus building and deliberative democracy, however, few scholars have studied perhaps the most elemental consideration in designing participatory processes: namely how to create a physical environment that facilitates “authentic dialogue” (Innes & Booher 2010). This research seeks to address this gap in the scholarship on participatory decision-making by answering the question: how do experienced public participation professionals create venues that allow participants to share, learn, speak and be heard? We asked experienced professionals in the fields of public participation and consensus building and developed a set of criteria for the creation of venues for public engagement. The primary source of data comes from a series of semi-structured interviews with experienced mediators and facilitators, selected at random from the National Roster of Environmental Conflict Resolution (ECR). Research in a broad spectrum of fields, from interdisciplinary academic research (Claudel, Massaro, Santi, Murray, & Ratti 2017) to collaborative workspace design, underscores the importance of physical space(s) in facilitating collaborative processes. Yet widely used handbooks on public participation (Creighton 2005) and consensus building (Susskind, McKearnan, & Thomas-Larmer 1999) point only in the most general terms to the significance of creating appropriate venues for different forms of public participation – community meetings, negotiation sessions or other public gatherings. Little systematic analysis exists regarding the most basic questions of creating appropriate venues for consensus building or public

participation: where to hold meetings; how to set up a room or arrange seating to best serve the purpose of the meeting or whether to provide food and how. Based on our initial analysis of the broader literature on collaborative processes, we define ‘venue creation’ as consisting of two key dimensions: the selecting of a physical place and the making of perceptual space. Based on the semi-structured interviews with practitioners, we have identified key decision-making criteria within these two categories. The practitioners use a fairly consistent set of criteria to ensure that the venues enable the participants to open up, build trust, speak and be heard in the context of complex issues and relationships. These criteria include: identifying geographic locations that speak to the perception of fairness as well as neutrality and accessibility; the comfort and flexibility of the physical space to allow for collaborative decision-making and genuine conversations; the importance of informal interactions and food in bringing people together and building shared understanding on complex issues. The concluding section of the paper outlines emerging theoretical and practical foundations for venue creation in public participation based on this analysis.

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Key Words: Urban Politics, Decision-making Processes, Consensus Building, Public Participation

CODESIGN GAMES EXPLORING ALTERNATIVE RESOURCE INFRASTRUCTURES

Abstract ID: 1049

Individual Paper Submission

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At present, we are staring at several stark futures: anthropogenic climate change and the scarcity of necessary resources such as freshwater and phosphorus. To avoid or cope with this future requires all of us to act differently. However, most of us are also locked into our daily lives and infrastructures that force us to consume resources and expel wastes in ways which may be in opposition to our environmental values and aspirations. Can codesign games, as a novel method of participation, enable citizens and specialists to converse on more equal grounds; generate nuanced and articulate understandings for these environmental problems; and create imaginative solutions?

All people are active participants in creating many types of ecosystems. Infrastructure, like the wind or a water current, carries people’s influence on ecosystems beyond local vicinities to other places far from the people whose actions create it. As human populations have increased and densified in urban areas, this influence becomes more apparent as the ecosystems connected to cities strain and collapse. One example of such an infrastructure is the waterborne sanitation system that transports human waste away from developed cities such as London, Phoenix, and Sydney. This infrastructure often squanders a precious freshwater resource, and downgrades a fertilizer and energy resource. It removes water from one aquatic ecosystem, and expels a different quality of water into another ecosystem, inexorably altering both. As population grows, or water consumption increases, both the abstracted and receiving aquatic ecosystems are vulnerable to collapse, and ultimately also becoming unable to sustain the human population draining it dry or polluting it.

Technologies exist that can reduce the water required for flushing and transform human waste into energy and fertilizer, but somehow the pressing need to experiment and plan their implementation has not yet occurred in any

of these places. This research used a series of codesign games in a two day workshop to unravel what the human and nonhuman aspects that causes this problem to be intransigent in London.

Fourteen invitees participated in a codesign game workshop. They included two citizens and twelve specialists. The first day was spent building trust between the participants who did not know each other and developing a shared knowledge base. The second day was when the series of three codesign games were played. The three codesign games were bespoke to explore alternative sanitation infrastructures for London. They built on each other to generate three group narratives (1) which articulate why and how particular sanitation infrastructures would occur in London's future. The codesign games facilitated a place and time where participants were all located together in an unknown space where it was essential for them express their rationalities to others. Moreover their involvement formed part of the generation of the alternate worlds.

The collaborative process of codesign games enabled possibilities of alternate worlds that stepped outside both professional boundaries and personal interests. The process of codesigning enabled the people participating to be more thoughtful and articulate about the opportunities and obstructions towards change in the urban environment. It also invited a playfulness which is not often a part of professional life. Playing codesign games brought citizens to participate at a stage when infrastructural solutions were not yet solidified in the minds of professionals therefore their contributions could influence the formulation of a solution. Furthermore, if the codesign games were played by more people in a particular location it could generate its own anticipatory culture where infrastructural change is a rational choice rather than foisted upon individuals by climatic or resource crises which necessitate technocratic decisions.

(1) Silvia Does a Poo

http://www.youtube.com/watch?v=r4_wQPn2FKY&feature=youtu.be

McWorm

<http://www.youtube.com/watch?v=0UZGnRjpi0s&feature=youtu.be>

Status Quo

<http://www.youtube.com/watch?v=wCAtt6JueMM&feature=youtu.be>

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Key Words: codesign, participation, infrastructure, sanitation, water

SHIFTING POWER AND REFRAMING “SAFETY” THROUGH COMMUNITY DIALOGUES ON POLICING AND RACE

Abstract ID: 1088

Individual Paper Submission

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Research topic: This paper is an ethnographic case study of community deliberations about policing, race, and safety. In this research project, I explore the effects of process design features and facilitation practices that were intended to alleviate commonly observed problems in community participation, namely domination, suppression of voice and influence of systemically marginalized groups, and the fragility of White participants. In addition, the deliberations were designed to de-center White participants' assumptions, values, and expectations about safety, inclusion, and community-police relationships. In this context, I ask two questions:

(1) How – to what degree, in what directions, and why – did the experience of deliberation bring participants to reframe their understanding of the problems, possibilities, and priorities for “safety,” policing, community inclusion, and race relations?

(2) How do participants connect: (a) their perceptions of how identity, representation, domination, and fragility manifested during the deliberations with (b) the process designs and practices of the deliberations?

The location of the study is Falcon Heights, Minnesota, where the killing of Philando Castile by a police officer in 2016 brought to the foreground longstanding patterns of racial profiling and mutually broken trust between communities and police. Castile's death was met by a mixture of shock, grief, rage as well as by recognition of the necessity to reform policing and re-set community relationships. Community leaders described the circumstances of his death and the community upheaval that followed as “a microcosm of what vexes America.” Indeed, policing and race is arguably one of the most highly charged topics in American community-building and public policy.

Approach: As a scholar specializing in participatory planning and deliberation, I have been working closely with Falcon Heights residents since July 2016 to design and facilitate extensive community dialogues on race, policing, and healing. My approach to this product of my engaged scholarship is ethnographic, drawing upon over 225 hours of participant observation, minutes and fieldnotes of 23 dialogues (13 task force meetings, 5 community conversations, and 5 city council meetings), surveys completed by 60 of the total 180 participants in the dialogues, 4 focus groups with community conversation facilitators and participants, and 7 interviews with key stakeholders. Because of my involvement in the deliberations, other researchers conducted and analyzed the survey, focus groups, and interviews with participants about their experience of the deliberation.

Preliminary results: Participants began with divergent points of view about safety, policing, and race issues, and the differences frequently aligned with race and class identities. Over the process of deliberation, they came to reframe their priorities to be less focused on disciplining a bad police officer and his department and more oriented towards creating safety and welcome for everyone through reducing profiling, strengthening relationships across the community, and addressing White privilege. Many participants attributed their change in view to the duration and pacing of the process, which allowed them to get to build trust, discover new perspectives, and discuss issues in depth. They also credited a circle process design in community conversations with reducing domination, which they found allowed them to express or to hear and take in non-White perspectives without as much silencing, judgment, or censure as they felt in other settings.

Relevance to planning scholarship and practice: The concerns and questions that Falcon Heights is grappling with – racial inclusion/ exclusion in cities, safety, community identity, and power relations in community engagement – are of critical relevance to planners in communities everywhere. This case study provides actionable lessons for improving the quality of planning processes to be more inclusive

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Key Words: Policing and race, Community safety from diverse points of view, Power relations in public engagement, Deliberation and its effects, Participatory process design and practices

HEIGHTENED SCRUTINY FOR “EXACTIONS,” EVOLVING JURISPRUDENCE FOLLOWING KOONTZ

Abstract ID: 1138

Individual Paper Submission

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Koontz v. St. Johns River Water Management District was a 2013 Supreme Court case involving wetlands mitigation. The developer was offered the option of developing more of his site if he gave a monetary contribution for off-site mitigation. It was just an option, and he declined. In the end, the government "took" nothing. Yet, he sued for a Taking and won. The Supreme Court decided in his favor and the Florida State courts ultimately awarded "temporary taking" damages and the right to develop the property free of the offensive condition.

In *Koontz*, the Supreme Court elaborated on the standard it set in *Nollan v. California Coastal Comm'n*, and *Dolan v. City of Tigard* that the government may not condition the approval of a land-use permit on the owner's relinquishment of a portion of his property unless there is a "nexus" and "rough proportionality" between the government's demand and the effects of the proposed land use. The Court clarified that this heightened scrutiny takings standard applies where demands are for money, not just dedications of real property, and even where the demand is refused and the permit denied. The Court reasoned, "as in other unconstitutional conditions cases in which someone refuses to cede a constitutional right in the face of coercive pressure, the impermissible denial of a governmental benefit is a constitutionally cognizable injury." The burden of proof is on the government to demonstrate that the mitigation proposed is related and roughly proportional to impacts created by the development.

Generally, where the question concerns the rationality of permit conditions, the burden of proof is on the challenger and the standard is only whether the government "could rationally have decided" that the land-use regulation could achieve its objective. The law is still evolving as to whether *Nollan/Dolan* heightened scrutiny applies to optional density bonus programs, monetary fees (other than in lieu fees), and to legislatively established programs. This paper makes suggestions for planning practice and legal reform after reviewing *Koontz v. St. Johns River Water Management District* and developing case law.

In *Koontz*, the Supreme Court stated: "so long as a permitting authority offers the landowner at least one alternative that would satisfy *Nollan* and *Dolan*, the landowner has not been subjected to an unconstitutional condition," but the facts and reasoning are incongruent. The Court reasoned that the option to develop a smaller portion of the site was irrelevant because it was not consistent with the developer's plan. Truly voluntary offers could perhaps be distinguished, but the "voluntary" nature of any agreement may be suspect. The *Koontz* Court explained that "land-use permit applicants are especially vulnerable to the type of coercion that the unconstitutional conditions doctrine prohibits because the government often has broad discretion to deny a permit that is worth far more than the property it would like to take," and the government "can pressure an owner into voluntarily giving up property."

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- 2910 Ga. Ave. LLC v. D.C., 234 F. Supp. 3d 281 (D. C. Dist. Ct. 2017)

Key Words: exactions, affordable housing, density bonus

LEGAL INSTITUTIONS AND THE PLANNING PROCESS: CONFLICTS BETWEEN THE RIGHT TO ADEQUATE HOUSING AND TO A SUSTAINABLE ENVIRONMENT IN SÃO PAULO'S INFORMAL SETTLEMENTS

Abstract ID: 1172

Individual Paper Submission

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In the Global South, courts became central actors in protecting the socioeconomic rights of vulnerable populations (Brinks and Gauri 2014). The judicialization of social policy also encompasses environmental rights (Kramarz, Cosolo, and Rossi 2017). In Latin America, Brazil has been the country that invested the most in building environmental enforcement capacity (McAllister 2008). Concretely, the Ministério Público (public prosecutor's office) has been given the power to file civil and criminal lawsuits to protect the environment (McAllister 2008). Municipal governments and slum dwellers have often been the defendants in lawsuits involving occupied municipal lands that devastate environmentally protected areas (Dantas 2015). Simultaneously, federal land use laws such as the 2001 City Statute facilitate tenure security and land regularization in favelas (e.g., Fernandes 2011). Thus, Brazilian courts must resolve legal conflicts between two fundamental rights secured by the 1988 Brazilian Federal Constitution: the right to adequate housing and the right to a clean and ecologically cohesive environment.

Although legal scholars have investigated the doctrines deployed to resolve housing and environmental disputes (Dantas 2015), studies that attempt to combine empirical and legal research have been limited. Then, we ask: How do public prosecutors and defenders use lawsuits to solve local housing and environmental conflicts that should typically be addressed via municipal executive and legislative branches? What are the roles that different municipal departments play in these lawsuits? What are the legal and technical elements used in court cases to defend the environment vis-à-vis legal-technical argumentation for the right to housing? How are these conflicts articulated in the legal proceedings? What are the most prevalent problems of access to justice for slum dwellers (lack of service of summons, lapses in legal representation, inadequate technical assistance (e.g., lack of assistance to prepare counter-geological reports)? Using the city of São Paulo as a geographical reference, our work investigates how the courts and Judiciary Power take on the role of urban planners in providing solutions to problems of environmental degradation and risk in urban areas informally occupied by low-income families living in precarious constructions.

We identified two major sets of lawsuits: one in which informal settlements developed in areas of geological risk and the other in which informal settlements “urbanized” zones of environmental protection by clearing the forest and building shacks in the periphery of metropolitan areas. Research methods included analysis of the legal framework regulating urban environmental protection and access to adequate housing; in-depth interviews with key informants who are protagonists in mediating housing and environmental conflicts; an inventory of all court cases addressing these conflicts in the city of São Paulo from 2013 to 2016; and the development of a mapping tool to spatialize the investigation. We encountered instances in which public defenders and prosecutors called for conflict resolution meetings involving the municipality that resulted in broader sustainable housing policy approaches for the city. Our access to justice indicators also identified areas of improvement for the court system, especially in the common lack of service of summons for slum dwellers and the lack of technical assistance to help them prepare geological reports.

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Key Words: Right to Adequate Housing, Environmental Protection, Access to Justice in Brazil, Planners and the Court System, Court-Driven Conflict Resolution

A FRAMEWORK FOR UNDERSTANDING HOW SPATIAL CONFIGURATION INFLUENCES FACILITATION PROCESSES

Abstract ID: 1187

Individual Paper Submission

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Facilitators have little control over some aspects of facilitation, such as pre-existing power imbalances and emotional baggage between stakeholders. But, they often have more control over the selection or arrangement of the facilitation space. Despite this greater degree of control, the influence of such decisions on facilitation are rarely discussed outright (one exception is chapter 14 of Block's *Community of Belonging* from 2009). If something as simple as the arrangement of furniture can influence facilitation processes, shouldn't facilitators be aware of these impacts so that they can harness them to contribute to a successful process?

We draw from eleven empirical cases that demonstrate how practitioners currently "muddle-through" spatial configuration decisions that shape facilitation processes. These include practitioner profiles gathered by John Forester, two filmed facilitations, and events facilitated by four additional practitioners. We then formulate a framework for how physical and spatial arrangements of people, furniture, and other seemingly mundane objects influence key aspects of facilitated processes.

We identify three key properties that are influenced by the configuration of the facilitation space: group identity, patterns of attention, and internal hierarchy. Then, using five archetypal spatial configurations (task-oriented, unstructured, circular, seated table, and hierarchical), we explore how each configuration influences the three properties of facilitation described above and provide guidelines as to the pros and cons of each archetype.

We hope that these five archetypes and the associated framework for understanding their influence on facilitation processes will be useful for theorists to develop research questions and test the impact of spatial configurations on group dynamics and for facilitators to gain a stronger understanding of the influence of their spatial arrangement decisions on facilitation processes.

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Key Words: facilitation, power, negotiation, process, space

BUILDING INFRASTRUCTURE SUSTAINABLY, RESILIENTLY, EQUITABLY: APPLYING THE ADAPTATION GRADIENTS FRAMEWORK IN SAN JUAN, PUERTO RICO

Abstract ID: 1229

Individual Paper Submission

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Climate change impacts along coastlines compel consideration of new approaches to coastal protection measures. Available measures have expanded ([Sandifer et al. 2015](#)), and now include approaches that go beyond traditional grey infrastructure. The new range of choices includes natural, nature-based, and non-structural measures such as living shorelines ([NOAA 2015](#)), revised building codes, zoning, and community disaster preparedness. Hybrid approaches include combinations of traditional structural measures, greener infrastructure approaches ([Sutton-Grier et al. 2015](#)), and social and regulatory initiatives. When compared to traditional methods, this broader portfolio of coastal adaptation options has the potential to achieve social and environmental benchmarks alongside exposure reduction, and has greater potential for transformative change across multiple criterion ([Neuman 2006; Brown 2014](#)), as described in the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report ([Klein et al. 2014](#)).

Despite these design innovations, adoption of hybrid projects has been slow, albeit increasing ([Zaidi & Timothy 2015](#)). Hybrid approaches require deeper consideration of biophysical, engineering, economic, and sociocultural components. These projects bridge across discipline-specific practices and terminology, posing logistical and methodological challenges for policy-makers and designers ([Kenney et al. 2014](#)). Because of the complexity and inherent novelty risk, evaluations need to be sophisticated and multi-disciplinary, but simple enough to be feasible in resource-limited situations and communicable to decision-makers. For maximum impact, the approach should include clear and reusable graphic presentations of summary findings. The SAGE network has developed the Adaptation Gradients Framework to meet these needs (Hamin, Abunnasr, Dilthey et al, under review 2018). The SAGE research network members include policymakers, physical scientists, engineers, planners, and other social scientists from the US, Europe, and the Caribbean, funded through an NSF Research Collaboration Network grant entitled Sustainable Adaptive Gradients in the coastal Environment (SAGE) (ICER-1338767).

The Framework was developed through iterative collaborative theory-building over four years, including a expert survey of network members, development of four case studies, in-person meetings, and testing on preliminary projects in Barbados and the British Virgin Islands. In summer 2018 the group is conducting two full scale implementations, working with hosts in Puerto Rico and Maryland to evaluate existing project proposals for coastal building and rebuilding. Our host for the Puerto Rico workshop is the Corporación del Proyecto ENLACE del Caño Martín Peña community group who are guiding infrastructure investments in neighborhoods abutting the Martín Peña channel in San Juan, which regularly experiences flooding alongside poor sewerage systems and informal housing, leading to significant misery during rain events for this low income neighborhood (Autoridad de Carreteras Y Transportación, 2004). ENLACE invited SAGE to help them evaluate existing plans and develop more creative, hybrid approaches to the challenges they face, particularly as they seek to rebuild better after Hurricane Maria. Each workshop brings 10 experts from a wide range of disciplines together to use the Adaptive Gradients Framework in evaluating project proposals, providing hosts a broader, more holistic way to identify and improve the benefits of investment projects.

This ACSP presentation is the culmination of five years of the project. We will present the overall framework and the results of the site visit in Puerto Rico, including an evaluation of the effectiveness of the Adaptive Gradients Framework, as well as the resulting design choices for the site. The results suggest ways to incorporate social goals such as public health improvement, livelihood support, and climate resiliency alongside traditional infrastructure project goals of technical and financial fitness.

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Key Words: climate change, green infrastructure, Puerto Rico, decision processes

PLANNING FOR OUTER SPACE: THE FINAL FRONTIER AND THE TRAGEDY OF THE COMMONS

Abstract ID: 1297

Individual Paper Submission

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Much of society is dependent on the concept of property rights. Within the field of planning, the delineation of property rights and the property rights framework is critical for both understanding spatial problems and developing policy-based solutions to address such problems. Regardless of one's arguments for or against the concept of property rights as a way to regulate land and its uses, much of the world is governed using this framework (Barzel, 1997). Nuisances, such as pollution, are often mitigated by the assignment of property rights (Coase 1960). The entire notion of delineating property rights seeks to eliminate issues associated with common pool resources and the tragedy of the commons (Hardin, 1968).

While this system appears to work within finite boundaries, such as nations, states, and municipalities, our species will eventually be faced with a fundamental problem: how do we manage property rights on a non-finite scale? As we continue to explore space and reach further out into the solar system and the surrounding planetary systems in our galaxy, how will humans navigate ownership, use, and responsibility for interplanetary space?

Our concept of property rights, including their bundling and transferability, will encounter a series of critical challenges as we move further through space. Here on Earth, complexity within the ownership of land, water, mineral, air, use, and other rights associated with spatial delineation do exist: no single nation "owns" or has exclusive rights to Antarctica, and marine salvage laws dictate that items found in international waters can be claimed as property by the individual or organization that finds them. Artificial boundaries imposed on Earth's surface are already contested under the current mode. Overlapping exclusive economic zones in the Arctic Ocean have led to disagreement over oil and gas drilling rigs, and territorial claims to the South China Sea have resulted in multiple nations claiming a given area as their own. Even with international agreements in place, we still observe, and will likely continue to observe, conflict over spatial delineations on our planet.

Given the vastness of the universe and human pursuits in space exploration, both private and government-sponsored, we should expect future conflict over the rights to property located off-planet. There are thousands of

objects orbiting near Earth's surface, including satellites and spacecraft, both manned and unmanned, but we lack a fundamental system to manage potential conflicts within this three dimensional space. Consider the potential collision of two satellites owned by entities: which, if any, party is at fault or responsible for damages? Who oversees the removal of debris and other "trash" that might accumulate in the near-surface zone? As technology improves, it is reasonable to believe that humans might harvest precious metals from the moon, Mars, or asteroids. Basic physics leads us to conclude that the transfer of mass from one area to another may impact other objects and the gravitational forces they exert on one another. If the mining of an asteroid by one party leads to a change in orbit of another space object, should this be viewed as a spillover effect or nuisance with regards to the other object? What about other intelligent life that we might encounter in the future and the possibility of then having their own framework that could be consistent or in conflict with any that humans impose?

As planners who consider temporal change in our approaches and decisions, we need to critically evaluate the theories of property rights and how these frameworks might apply to our understanding of spatial relationships, not only on our planet, but the vastness of space as well.

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Key Words: theory, space, governance, future directions, conflict

TRACK 12 - PLANNING THEORY

ROUNDTABLE: STRENGTHENING PLANNING COMMUNICATIONS, RESEARCH & TEACHING IN A HYPER-POLARIZED WORLD NOW AND INTO THE FUTURE

Abstract ID: 129

Roundtable

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Opposition to planning and its implementation tools and processes is longstanding and from across the political spectrum. Conservative opposition in the United States, in particular, has escalated recently with first the emergence of the private property rights movement in the 1990s, in the last decade with the rise of the Tea Party, and most recently with the election of President Donald Trump. Conservatism and right wing populism also is on the rise across the globe including Europe, Australia and India. There is every reason to believe that fierce opposition will continue to persist.

In response, the participants in this roundtable will review the commentaries they authored to be published in an upcoming issue of Planning Theory and Practice's Interface section. The roundtable and Interface's purpose is two fold: to discuss the extent to which planning scholars and educators are reorienting their teaching and research (1) in response to the current political context and (2) with a proactive, long view for building a new narrative about the role of planning in the years stretching beyond the current U.S. presidency.

In the U.S. for example, during the 1980s, in the Reagan years, planning adapted by incorporating new emphasis on economic development and public-private partnership. In the 1990s, planners like D.A. Krueckeberg and H. Jacobs expressed more explicit philosophy of property rights. And since 2000, planners have made new explorations, albeit interrupted by fallout from the Great Recession. Along the way, planning values and objectives have sought to benefit all members of society. But the increasing organization of opposition groups, on the right and the left, assisted by new technology of social media, is making polarization a more central feature of planning audiences.

Questions to spark ideas for spirited debate at the roundtable will draw from the Interface contributions and perspectives of session attendees including:

1. How do we understand the recent conservative uprising? What can we learn from past research and history?
2. How should planners seek to communicate with conservative critics of planning? Might there be ways of finding common ground across difference? This could include substantive as well as procedural matters related to policy and process. Further, to what extent could trained mediators and negotiators or other actors play a role?
3. Why have conservative narratives been effective in the last couple of years, both in the U.S. and abroad? How are social media/internet communications and traditional tactics (e.g., protests, marches) used in organizing?
4. What is the battle for the middle 40% of audience in many communities? What is the role of planning in these matters? What common values or cherished beliefs have been appropriated by conservative narrative that could as easily be invoked in progressive narrative framed for a middle-ground audience? How might local planners help forge a new consensus?
5. And for all contributions, colleagues are asked to consider: to what extent and how do we reorient our teaching and research in response to the current political moment and/or with a long view on building a new narrative that is inclusive of both diverse populations and widely varied political views?

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Key Words: conservatism, planning theory, common ground, community engagement, planning pedagogy

ROUNDTABLE: SOCIAL JUSTICE AND THE PROGRESSIVE CITY

Abstract ID: 283

Roundtable

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The idea that “progressivism” could capture city hall in the name of social justice: redistribution and increased inclusion for marginalized populations – has evolved over past decades. In the 1970s progressive capture of city hall was an oddity. Activist takeovers in Berkeley, Madison and Hartford occasioned more feature articles than serious analysis. Things became only marginally more serious as larger cities like Boston and Chicago joined the ranks in the 1980s, as well as in European cities such as London, Sheffield and Bologna.

Nevertheless these progressive incursions were remarkable in that, where successful, they demonstrated the capacity of erstwhile activists to engage with the relatively durable institutions of city government and demonstrate the practicality of many reforms. Some of these persisted through long term majority control of city hall; others survived despite regime changes that initially purported wholesale reaction. This ran against longstanding biases in political thinking generally, and provided hope that social change could be a local, as well as a national thing; that it could take hold in some places, while resisted in others, that we could learn from experience, and good ideas spread more widely over the decades.

But by the millennium, things had changed —perhaps a response to conservative gains nationally and internationally. The GW Bush and Trump presidencies, and more fundamentally the statehouse incursions and redistricting that remade a majority of legislatures and congressional districts into reactionary bastions, and political polarization created a new environment for local policy and politics. In many cases, cities initiated policies in spite of, perhaps even because of national incapacities: sanctuary cities in response to immigrants; climate initiatives were examples.

Still, progressive initiatives flourished after 2000, but in an increasing diversity of ways. There was still the shock of wholesale city hall takeovers in some places (Richmond, CA, de Blasio in NYC), and long term survivals in others (Burlington VT). But there were also more singular episodes, so that one could point to

progressive policies, within otherwise more diverse cities. Workforce development initiatives finally “got it right” in Chicago. Living wage campaigns began to succeed. The concepts of sanctuary cities and environmental activism gained currency.. The idea of the “progressive city” evolved in Asia and Latin America, parts of Europe, and in South Africa.

Thus, there is something going on among progressives in cities: now, as there was in the 1970s; enough so, that there remain questions that scholars and activists need to address. We hope to catalogue some of these questions and responses:

- Is it (still?) reasonable to think of the progressive city as a broad takeover of city hall by a mayoralty or a city council majority?
- Is there a theory of the progressive city? What are the promising approaches?
- Theory or not, can we have a catalogue of practice? A bibliography?

The purpose of this Roundtable is to air out and note evidence and thinking about these issues.

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- Susan Fainstein, *The Just City* (2010)
- Norman Krumholz and John Forester, *Making Equity Planning Work* (1990)
- Steve Early, *Refinery Town* (2016)

Key Words: Progressive Planning, Economic Development, Community Development

ROUNDTABLE: EMOTIONS IN PLANNING - FROM DENIAL AND DELEGITIMIZATION TO RECOGNITION AND INTEGRATION

Abstract ID: 369

Roundtable

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Even as urban planning has shifted from a rational, technocratic approach towards a more communicative and participatory framework, planning practice continues to deny and delegitimize the role of emotions in planning. Last year’s ACSP session on trauma in planning was a promising sign that more scholars are considering the possibilities for acknowledging and integrating emotions as inherent aspects of planning. This roundtable explores three interconnected problematics.

1. Discomfort with and even the refusal to permit emotions in planning can be understood as the continuing maintenance of the image of the rational, apolitical planner. This privileging of being apolitical – of not having to take a stance on an issue – is in sharp contrast to the lived politics of planners whose work is informed by their embodied experiences and struggles to assert one’s own humanity and identity. The crisis of planning – of the apolitical white male as rational – is a crisis we see across the humanities and social sciences, and is theorized by Sylvia Wynter as the overrepresentation of man (Wynter 2003). Scholars such as Libby Porter, Lisa Bates, Michelle Kondo and Karen Umemoto, among others, have argued for planners to embrace love and attachment in planning (Porter et al 2012). How can we understand the emotions of planners? How might this operate in planning pedagogy as well as planning practice?

2. Emotions also structure seemingly universal planning objectives. For example, public safety intersects with the emotion of fear and the many gendered, raced, ableist, and classed issues that structure that emotion. Emotions about the morality of private property and homeownership, and a spatial imaginary of white, nuclear-family neighborhoods, continue to drive public discussions on housing and development. Feelings or affective states such as belonging or a “sense of place” are implicit goals in proposals for livability, but little consideration is given to how they might be achieved in a far from unitary public. How can we understand the various ways emotions operate in normative planning concepts?
3. Finally, the delegitimization of overt emotion limits the participation and inclusion of non-professionals in planning, particularly those already marginalized. Strong emotions destabilize planning’s preference for consensus and a disciplinary belief in a unitary public interest. Critics of common forms of public involvement such as the hearing or charrette point out how the emphasis on verbal persuasion and logic renders more informal and emotional styles such as storytelling at a disadvantage (Inch 2014; Hillier 2003). These prioritizations are raced, classed, gendered, and ableist in ways that benefit white patriarchy and further marginalize those often defined as outside of the legitimate public, especially immigrants and queer, disabled women of color. Furthermore, planners often dismiss emotional reactions to planning proposals as arising from ignorance and knee-jerk NIMBYism without consideration of past or present day traumas or the need for therapeutic modes of planning (Schweitzer 2016; Fullilove 2009; Sandercock 2000). How do axes of race/gender/sexuality/ability inform the ability to emote in the planning process? How do these structures inform what emotions are considered legitimate in the planning process?

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Key Words: emotions, therapeutic planning, trauma, communicative planning, planning practice

ROUNDTABLE: FROM CRITICAL URBAN THEORY TO CRITICAL METHODS - APPLYING POST-POSITIVISM IN RESEARCH PRACTICE

Abstract ID: 760

Roundtable

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Researchers in urban studies and other disciplines have wrestled over social science’s positivist roots established in the mid-twentieth century’s quantitative revolution. Following largely from Marxist critiques of the 1960s, myriad post-positivist approaches have forged creative and often radical ground, in conversation and contradiction with each other (see Wyly, 2009; Sandercock, 1998). They share, loosely, an ontology where reality is not fixed but fluid, and is visible in mutable processes or relations rather than invariant foundations. Epistemologically,

they embrace accident, contingency, and context, some going so far as to adopt uncertainty as a “fundamental scientific value” (Clegg, 2010).

But a gap remains between critical post-positivist theorization and its application in the practice of research. Methods largely happen “offstage.” In “Methods Matter,” Barnes et. al. (2007) resume the discussion on politics, methods, and policy started by Massey and Meegan in 1983 and identify an enduring “conspiracy of methodological silence” (p.13) in geography, planning, and related disciplines. Following Barnes’s call for “more methods talk” and for greater methodological transparency and reflexivity, this roundtable seeks to extend this discussion on the relationship between critical theory and critical methods to the field of planning and urban studies.

Specifically, we ask: how can we bring critical epistemologies to life in the process of doing research, and what kinds of challenges do we encounter in the process? How do we approach research without presuppositions? What does “objectivity” mean in the context of situated inquiry? How do we document and interpret a reality that is at once fluid, complex, and unfolding in contingent and uncertain ways? If everything is networked and relational, where are the boundaries of the case? What is the relationship between researcher and research subject if we are all already inside the case? How do we do “mixed methods” that combine different, even incommensurable, epistemological assumptions and premises? Where is the boundary between description and interpretation, and between representation and praxis? What are the implications of post-positivist theory for conceptualizing a research approach, identifying cases, sampling observations or collecting data, reporting findings, and so on? What does a “more reflexive methodology” look like?

These questions—and, accordingly, we argue, their solutions—cut across disciplinary and methodological boundaries. This roundtable explores the relationship between critical urban theory and methodological practice in urban research, inviting panelists from diverse methodological traditions to reflect on their experiences with critical interventions and innovations in research, describing what these practices look like “on the ground.”

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Key Words: Critical theory, Post-positivism, Critical methods

ROUNDTABLE: INSTITUTIONS IN THE ‘HOLY TEXTS’ OF PLANNING: INSTITUTIONALISM AS PLANNING THEORY

Abstract ID: 1113

Roundtable

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Institutions are everywhere in planning. From zoning resolutions, neighborhood groups, and habits of ridership, institutions - and attempts at institutional change - arguably constitute planning’s bread and butter. Planning

theory has grappled with the role of institutions as a centerpiece of planning, yet infrequently foregrounds institutions at the heart of analyses. Yet as the “social science of social change” (Sclar 2018), planning can benefit from explicit theories of change and intervention.

The danger of institutional analysis is that if institutions are everywhere they may well be nowhere as an analytic tool. We hold that a systematic and parsimonious study of institutions is within reach for planning, and is necessary to avoid the trap of becoming ‘everything and nothing’. Building on the work of planning scholars who have engaged with lenses of institutional analysis from other disciplines fruitfully into their work (Healey 2007; Kim 2008; Verma 2007), the roundtable will identify strategies to thresh out that which carries meaning - foreground- for understanding the social change processes in which we as planners seek to intervene, from what can more usefully be seen as background. This roundtable assembles a group of scholars to explore the potential of institutional analysis as an analytic mode to advance planning theory, and will ground discussion in one frequently-taught case in planning: the redevelopment of the Cross-Bronx expressway.

The discussion will address institutions as formal and ‘working’ rules, norms and discourses and networks that order social interaction and shape regularities of behavior. This definition encompasses traditions that theorize institutions as historical structures, social constructions, and rules shaping choices (Sorensen 2015; Healey 2007; Crawford and Ostrom 2005). The rich existing work on institutional analysis outside planning provides a useful initial framework. Yet examinations of institutions from other disciplines often lacks what planning is strong in: understandings of power differentials, normative societal visions, a focus on incremental and small-scale change rather than revolution, and an embedded sense of space and time.

The roundtable will explore two provocations. First, we assert that urban planning naturally ‘owns’ institutions. Planners study, and hope to cause, institutional changes to increase equity and access in urban space. Second, planning studies can become more powerful if they more explicitly identify the institutions with which they are working. Institutional analysis can assist in identifying areas of feasible non-reformist reforms, decisions that loosen the institutional constraints on future decisions. Additionally, through the development of courses that explicitly introduce an understanding of institutions we can help train a sharper generation of professional planners adept at identifying meaningful institutional levers of change. Institutional analysis provides a common language to connect, and broadcast, our work to other arenas of the social sciences.

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Key Words: institutions and planning, institutionalism, institutional theory, complexity, institutional analysis

PRE-ORGANIZED SESSION SUMMARY

CONTEMPORARY PROTEST EVENTS, CONFLICTS AND SPATIALITY

Summary ID: 22

Abstract ID: 407

Abstract ID: 409

Abstract ID: 410

Abstract ID: 664

Political contestation, the experience of conflict, and the reality of exclusion make up a central part of contemporary life, which should be understood as "agonistic" engagement. This conflictual dialogue is seen to be a vital component of democracy. Following this rationale, democracy should attempt to create practices and institutions that allow conflict to emerge and take an agonistic form, "a form of adversarial confrontation instead of antagonism between enemies." Thus, as agonistic engagements, contemporary protests should not be seen as struggles between adversaries but as part of the agonistic order that characterizes contemporary democracy, which is more receptive to a multitude of voices, the struggles in pluralist societies, and the complexity of their power structure. This session will address the relationships between protests, conflicts and space and the role of planners in this dynamic.

Objectives:

- Understanding the relationships between protests, conflicts and space
- Examining the idea of participation through struggles
- Addressing the relationships between democratic society and planning

THE SPATIAL CONTEXT OF AGONISTIC ENGAGEMENT: PROTEST AGAINST AND FOR REFUGEES IN ISRAELI CITIES

Abstract ID: 407

Group Submission: Contemporary protest events, conflicts and spatiality

HATUKA, Tali [Tel Aviv University] hatuka@post.tau.ac.il, presenting author

The phenomenon of transnational immigration of refugees fuels conflicts and debates in Israel, with many citizens considering the current increase of transnational immigration of refugees—from Africa in—as a threat and a contested issue. Like in other parts of the world, the growing numbers of refugees in Israel foster contestations and conflicts, characterized by activities by refugees who struggle for participation, citizenship, and social rights; and citizens who call to restrict the numbers of refugees in particular cities or in the country as a whole. Most of these activities take the form of protest in both the public sphere and the physical space. By analyzing protest events from 2010 to date from political, media, and spatial perspectives, the proposed project will offer a critical assessment of the current actions associated with trans-border refuge seeking in public spaces. Using the methodological approach of Protest Event Analysis (PEA) this paper presents a cross-time-space, and cross-thematic analytical framework to explore contentious politics. The paper addresses four key questions: What stimulates the protest? What are the spatial/political/social/media manifestations of protests? What are the dynamics and political rationalities linked to such protests? What practices does the nation state use to control protest and conflict? The analysis of stimulation—the trigger for protests; manifestation—i.e., with regard to agency, space, and media; conflict—i.e., as perceived by different protagonists involved; and control—mechanisms used by the state to manage conflicts, will enable us to answer the overarching question of the paper: whether and (if so) how do protest events against and by refugees and reactions by media, state authorities, and counter-protests related to them contribute to changing political orders? Thereby, we will empirically explore the concept of Chantal Mouffe on the agonistic political order, an approach receptive to the multiplicity of voices and struggles in contemporary pluralist cities and to the complexity of their power structures.

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Key Words: Cities, Conflicts, Agonistic Pluralism, Protests, Public space

“NO TYSON IN TONGIE”! THE TOTAL FIGHT FOR A RURAL WAY LIFE IN TONGANOXIE, KANSAS

Abstract ID: 409

Group Submission: Contemporary protest events, conflicts and spatiality

NICHOLLS, Walter [University of California] wnicholl@uci.edu, presenting author

On September 5, 2017, Tyson Foods, Inc. announced a plan to build a \$325 million chicken processing plant south of the rural town of Tonganoxie, Kansas. The project was part of Governor Brownback’s last major economic push before becoming President Trump’s Ambassador-at-Large for International Religious Freedom. On the same day of the announcement, the town’s residents launched a massive mobilization to stop the plant’s opening. At a series of meetings, activists were able to assemble between half to three quarters of the town’s 5,000 residents. They pooled vast resources, reached out to the press, gathered expert information, developed talking points and mobilization frames, and exerted enormous pressure on the city council and county commission. They asserted that the new chicken processing plant would destroy the town by polluting the environment and attracting immigrants. The mobilization was, to use a rural term, a veritable barn raising. Two weeks after the announcement, local activists compelled the Leavenworth County Commission to pull out of the project, dealing a serious and embarrassing blow to the state’s political establishment.

This paper uses the case of Tonganoxie to examine: 1) how rural towns achieve extremely high mobilization capacities in short periods of time, and 2) how rural identities are activated by and reinforcing of such mobilizations. To address the first issue, the paper suggests that strong, multiplex social networks combined with social media (especially, Facebook) to create a totalizing relational mesh that entangled virtually all the residents. Social media amplified pre-existing friendship clusters, linked previously disconnected individuals and groups, and placed individuals into a continual activist space (offline, online, private, public, day, night). This totalizing mesh helped diffuse information, rumors, facts, and fears while enabling residents to pool resources and exert maximum pressure on local politicians. To address the second issue, the paper maintains that the campaign resuscitated and weaponized a latent rural identity. The threat posed by Tyson precipitated residents to construct an ideal of a romanticized rural community and juxtapose this ideal to its dystopian other: a polluted and immigrant saturated “chicken town”. Tyson, they believed, would unleash the environmental and demographic forces that would forever contaminate the town. People became fully committed because it was conceived as a life or death struggle. Thus, relational conditions (strong tie clusters + social media) maximized mobilization capacities, while the bright symbolic boundaries between the town and its enemy compelled all townsfolks to commit themselves to this existential battle. The case provides a unique window into the spatio-relational conditions that permit high capacity (in terms goal achievement) mobilizations in rural areas.

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Key Words: Protest, social networks, rural

"BUILDING HIGHWAYS AND BIRTHING NEW U.S. SOCIAL MOVEMENTS: BOSTON 1960S ANTI-HIGHWAY BATTLES"

Abstract ID: 410

Group Submission: Contemporary Protest Events, Conflicts And Spatiality

CROCKETT, Karilyn [Mayor's Office of Economic Development] karilyn.crockett@boston.gov, presenting author

When Massachusetts planners created a new regional highway plan in 1948, few bureaucrats and activists could have imagined the swell of political activism that this would spur. The defeat of an interstate highway system, new federal transportation law and a revised blueprint for imagining Boston's future are just a few of the outcomes of this successful twentieth century urban social movement. The 1960s-era convergence of the civil rights movement, the anti-Vietnam War movement and a web of linked national liberation movements brewed a hot cauldron for new political ideologies. The cumulative effects of this outpouring of anti-establishment activism would yield immediate and radical implications for urban planning and democratic practice more generally. In Boston more than a dozen new organizations were founded, new candidates ran for elected office and a transformed physical landscape memorialized it all. Young planners, renegade priests, black nationalists and suburban moms banded together to push for more devolved modes of governance that recognized the power and expertise of local residents as primary users, controllers and planners of space. Based on ethnographic method, oral history and historic photographs, this paper brings first person narratives into direct engagement with formal archives to uncover a story of protest, reconfigured modernist ideals and an original playbook for what it takes to make lasting social change possible.

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Key Words: urban planning, urban social movements, race

LATIN AMERICAN SOCIAL MOVEMENTS AND THE SPATIAL QUESTION: IMPLICATIONS FOR PLANNING PRACTICE

Abstract ID: 664

Group Submission: Contemporary protest events, conflicts and spatiality

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Social protests and social movements have played a central role in guiding urban governance and planning in Latin America for decades. During the 1970s and 1980s, many social movement activists focused their attention on the governance arrangements and economic conditions that generated political exclusion and urban inequality, such as poverty or economic exploitation, authoritarianism, and the absence of democracy. Such activism led to the decentralization of state power and the rise of citizen participation in planning, including participatory budgeting. In recent years, economic conditions have become as important as governance arrangements in mobilizing citizen activism. This owes not just to the fact that most of Latin American has formally transitioned to democracy (largely because of social movement activism), but also because the hegemonic embrace of neoliberalization and economic globalization have created new problems for citizens and planners alike. Yet it is precisely the changed conditions associated with neoliberalization and economic globalization that have also changed the nature and spatial geography of activism. Evidence suggests that urban citizens are more likely to

assert their political claims through routine political mechanisms than through social movement activism. This stands in contrast to the emergence of more radical social movement activism in rural areas, where neo-liberalization and economic globalization have incentivized natural resource extraction and other forms of locally destructive investment. This paper examines the shifting spatialities of mobilization and assesses their impact on planning, both urban but also regional and national.

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Key Words: social movements, geography, citizenship, governance

PRE-ORGANIZED SESSION SUMMARY

PLANNING IN THE FACE OF CRISIS AND AUSTERITY

Summary ID: 25

Abstract ID: 286

Abstract ID: 287

Abstract ID: 289

Abstract ID: 290

The imposition of austerity has been a dominant political response to the economic crises that erupted in 2007, turning the failures of financial capitalism into an acute crisis of the state. By opportunistically imposing new forms of discipline on public service provision, austerity poses both ideological and practical challenges to planning. This panel draws on a range of international case studies to analyze the transformation of planning practices in times of crisis and stress under the duress of neoliberal governmentalities. Papers historicize planning responses to crisis and neoliberal austerity, thereby contesting mainstream understandings of the relationships between (a) the causes and effects of crises, (b) austerity as both a response to and a driver of crises, and (c) planning and its role in intensifying, alleviating or challenging how we view crises. Papers should help planners better understand and act in the present conjuncture of the post-political, populism, and authoritarianism.

Objectives:

- Better understand planning under austerity constraints

AUSTERITY IN REVERSE: KOREA, CAPABILITIES, AND CRISIS

Abstract ID: 286

Group Submission: Planning in the face of crisis and austerity

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Development is austerity in reverse. And austerity is development in reverse, a form of de-development. This paper argues that austerity is a neoliberal technology for returning countries in financial crisis to positive economic growth under the ideological rubric that there is no effective alternative to austerity when responding to crisis (Blyth 2013; Ong 2007). However, the implementation of austerity measures reduces social spending and thereby reverses development. Development is understood here through Sen and Nussbaum's human capabilities approach (Nussbaum 2011; Sen 1999), which emphasizes the expansion of possibility for each and every individual and identifies the state's role in facilitating this progress. By curtailing social spending under the guise of "freedom", austerity limits individual capabilities, thereby reversing development.

Housing functions as an important material support for capabilities by promoting health, safety, association, and material well-being (Rudolf and Potter 2015). Therefore, for governments, housing policy represents an important avenue for enabling combined capabilities and fostering development. Meanwhile, for citizens, the centrality of housing as a guarantor of capabilities positions housing policy outcomes as a core popular measure of a regime's political legitimacy Habermas (1975). Drawing on archival research and summary statistics from the World Bank and Korean Statistical Office, this paper explores Korea's development since 1960, focusing on the role of housing policy in addressing political and economic crises.

The examination of Korea's experience proceeds in three steps. First, Korea's overall progress on recognized human development indicators is assessed, demonstrating a major expansion in human capabilities that is tied to democratization and exponential increases in social spending. Second, the paper looks more closely at Korea's development, dividing it into an industrial and post-industrial period, each with two phases of their own. Through an examination of the financial crises and responses that characterize the transition from one phase to another, it becomes evident that austerity is not the only alternative and that increased social spending is compatible with rapid recovery. This section also demonstrates that Korea's roll out of neoliberal technologies and economic transformation during the post-industrial period since the 1990s have undermined the capabilities developed during earlier industrialization. Finally, the exploration of Korea's housing policy illustrates the importance of housing as a vital tool for political legitimization, especially since democratization. The central role of housing in fostering capabilities has sustained the political interest of both citizens and politicians in providing better housing, suggesting that social movements are essential to protecting social spending and developmental advances.

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Key Words: Korea, capabilities, crisis, austerity, housing

NARRATING A HOUSING CRISIS: CONJUNCTURAL ANALYSIS, IDEOLOGY AND THE PROSPECTS FOR PLANNING

Abstract ID: 287

Group Submission: Planning in the face of crisis and austerity

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Mirroring developments in many other states and jurisdictions, a "housing crisis" has been recognized as an increasingly significant political issue in England. Dominant explanations present this crisis as the product of a long-term failure to balance supply and demand, accumulating forecasts of housing need as evidence of policy

and market failure. Within this frame, land-use regulation has been routinely identified as a cause of the persistent failure to build sufficient new housing, leading to recurrent efforts to streamline planning processes. As a result the housing crisis has played an important role in disciplining planning ideas and practices, contributing to a pervasive sense that planning is “under attack” (Lord and Tewdwr-Jones, 2014). In this paper we seek to illustrate the analytical and practical importance of critically analyzing how this dominant narrative of the housing crisis has been ideologically constructed and how this has, in turn, shaped contemporary ideas of planning.

To do so we turn to the late political and cultural theorist Stuart Hall’s (e.g. 2017) development of a distinctive mode of ‘conjunctural analysis’. As yet underexplored in planning theory, this approach brings into analytical purview the intersection of multiple processes that congeal at a particular historical moment in order to produce a distinctive conjuncture –or social formation- inscribed with particular tendencies and political potentialities. Ideology is one of these ‘processes’ whose influence must be tracked alongside a number of other important determinants of economic, social and political change.

We will therefore illustrate how the housing crisis in the UK is ‘overdetermined’ not just by the enduring effects of the global financial crises and an ensuing austerity programme but also the legacy of attempts to ideologically renew the Conservative Party under former Prime Minister David Cameron and the as yet uncertain implications of ‘Brexit’. The paper will argue that the material and political pressures generated by the housing crisis have resulted in a succession of manoeuvres and sometimes contradictory institutional changes intended to govern the problem of planning for housing within the terms set by governing political ideologies and a hegemonic neoliberal settlement that position the promise of “homeownership” in a “property owning democracy” as central to their popular political appeal (Clarke, 2012).

This analytical lens therefore enables us to explore the faltering role of ideology in suturing together contradictory developments, lines of argument and emotional investments around housing and planning. As such it illustrates how ideology functions by trying to shape common-sense understandings of political problems and the range of possible responses available to tackle them. We therefore highlight the importance of getting “hold of the narrative” to define how the housing crisis has been constructed and might yet be reconstructed (Hall and Massey, 2010, 59).

By developing a conjunctural analysis of England’s housing crisis and its implications for planning, we aim to explore not just the nature and meanings of one particular crisis but also the wider value of this approach for thinking about the political reconstruction of ideas of planning (cf. Campbell, 2010). In doing so, the paper seeks to draw attention to the ideological not as a realm where dominant power relations are unwaveringly reproduced but as a terrain of active struggle whose stakes include the definition of the proper role and purpose of planning. In this regard, we highlight Hall’s commitment to using theory not only as a potent method for critique but as a “necessary detour” on the road to more important and urgent questions of political action. We therefore conclude by arguing for the value of conjunctural analysis as a tool not just for interpretation and critique but also for seeking to change planning.

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Key Words: housing crisis, ideology, ideas of planning, conjunctural analysis

**THE DEEP ROOTS OF AUSTERE PLANNING AND THE CHALLENGE TO BOTTOM-UP
“RESISTANCE” IN MEMPHIS, TN**

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In the US context, bottom-up planning approaches have been conceptualized and practiced since the 60s, to counteract the longstanding market serving nature of US public planning. A variety of scholars have conceptualized various approaches – such as advocacy (Davidoff 1975), participatory (Arnstein, 1969) and guerrilla planning (Goodman, 1971), just to name a few – that can be embraced by planners willing to work outside or even in open conflict with City Hall, in support of community groups and organizations.

In their 1981 book titled “city and Regional Planning in an age of Austerity”, various authors argued that the skills and experience gained by progressive planners were suitable to counteract the round of neoliberal policies promoted under the Regan administration. However, after more than three decades, it is clear that a more progressive planning context has not materialized, and the role of government is minimized even further under the Trump administration.

According to some, the major difference between the political atmosphere of the 1980s and the current political conjuncture is the ability of neoliberal forces to coopt and neutralize progressive forces, seizing participatory and community-based planning techniques, depriving them from their original political soul. Scholars use the concept of post-politics to describe the discharge of traditional twentieth-century political categories and the transformation of political tensions into ‘technical’ policy issues (Žižek, Mouffe, Ranciere, Agamben). In a post-political city, public decision-making aligns with financial and growth interests, but populist leaders give the illusion of a wider democratic process through an intensive use of the participatory procedures. The idea is that ‘everybody,’ the whole community, the ‘people’ – i.e. a uniform social body where social conflicts disappear – are invited into the decision-making arena. The result is a Santa Claus style of planning, promising a present for everybody behaving nicely (Swyngedouw, 2010).

Memphis, TN, is a representative case-study that shows how community organizing capacity have been eroded by austerity and emptied by post-politics. Drawing from lessons learned through two long-term community-university partnerships inspired by action-research, working in two of Memphis’ most depressed African-American neighborhoods, authors share a reflection on why, in contexts like Memphis, community-led planning cannot become a powerful force against old and new forms of austerity by going back to something it was before the post-political. Instead, it needs a re-invention of the kind of planning action that can be carried out independently of City Hall. The authors use this case-study to discuss the need to re-think progressive planning approaches in the US, embracing a broader set of goals than the ones that emerged from the 60s, including the need to work for the empowerment of public institutions and public planners while making them accountable for their ability to act in the public interest.

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Key Words: Post-politics, community development, community organizing, action research

PRE-ORGANIZED SESSION SUMMARY

WORKING WITH “WORKING RULES”: ENGAGING INSTITUTIONAL THEORY IN PLANNING RESEARCH

Summary ID: 31

Abstract ID: 490

Abstract ID: 491

Abstract ID: 492

Abstract ID: 493

Abstract ID: 494

This session is paired with a roundtable that makes two provocations. First, that planning naturally “owns” institutions as a normative field that seeks to reform the formal and informal rules of the game to increase equity and access. Second, that explicitly naming and analyzing institutions as such can strengthen planning research. This session falls directly within that second aim, putting researchers from multiple planning fields, whose work spans the Global North and South, in conversation using institutional analysis as the common thread. Institutional analysis provides a framework for understanding, among other planning topics, whether policy changes actually translated to changes in practice, did a formal rule become a “working rule” and if not, why not? It can provide insight into why certain advocacy movements and organizations persist while others fail, or lead to suggestions for planners wishing to change social norms around transportation habits or the use of road space. The discussion will address institutions as formal and informal ‘working’ rules, norms, and networks that order social interaction and shape regularities of behavior.

Objectives:

- Incorporate lessons from institutional theory into planning theory
- Theorize across sector boundaries

PLANNING PARTICIPATION AND CHANGING NORMS: AN INSTITUTIONAL ANALYSIS OF LONDON BUS PRIORITY

Abstract ID: 490

Group Submission: Working with “working rules”: engaging institutional theory in planning research

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In 1989, Margaret Thatcher announced her Roads for Prosperity proposal, supposedly the biggest roadbuilding program in the UK since the Romans. By 1990, she had left office and the Roads for Prosperity proposal had spawned a burgeoning anti-roads movement. Groups like ALARM (All London Against the Road Menace) began fighting projects in London but eventually became national players. The first traffic director of London, Derek Turner, recalls public meetings of 2000 angry participants following the Roads for Prosperity proposal when he was then borough engineer for Wandsworth. In response to the congestion on city streets and the anger at the large construction proposals, he put forth the Wandsworth Alternative, a plan to remove parking and put in bus lanes on strategic roads, prioritizing the most efficient users. An offer to pilot the plan from another borough eventually led to the development of the Red Routes and London Bus Priority Networks and a doubling of bus ridership from 1992 to 2010. London’s buses now carry nearly as many people as the New York City subway system and vehicle kilometers traveled by private car in London have fallen steadily.

How can we understand the process by which Londoners, politicians, borough planners, and engineers struggled through the competing proposals and ended up with bus priority projects that disproportionately sped the travel times of the least well off? It seems the rare case of successful participation in planning, with aspects of agonistic planning, in the angry public meetings and direct actions. On the other hand, enough of a consensus was reached that bus lanes and traffic signal priority were rolled out quickly, extensively, and with relatively little public outcry, a significant difference from the American experience in which lanes are fought block by block, though it

does not meet the threshold of deliberative planning, as citizens were not directly involved in decision-making or the promotion of alternatives.

I argue that it can best be understood as a process of changing social norms around the use of road space. As norms are one type of institution, an unenforced but understood rule governing social interaction, I use institutional analysis to identify the norm-shaping discourses at play in media and archival documents during the long decade from 1989 to the congestion charge in 2003. Working with Healey's (2007) sociological institutionalist framework and Hajer's (1995) discourse analysis methods, I find that in addition to the paradigm shift among transport planners identified by Goodwin (1999) and critiqued in Vigar (2002), there was a resurgence of the homes before roads rhetoric of earlier highway battles and a new green discourse. Interestingly, however, the social inclusion impacts of bus priority were less present in the discourse, despite being a significant effect of the bus expansion.

Utilizing an institutional analysis framework allows me to foreground context, as the environment surrounding the adoption of the Wandsworth Alternative become the discourses, norms, and working rules that either constrained or facilitated its adoption. Re-embedding bus priority within the story of its adoption also reveals the conditions useful for its success, facilitating the transfer of this successful planning project from London to cities elsewhere. Institutional analysis facilitates identifying the relevant driver of policy shifts, in this case changes in norms brought about by new discourses. Along with a story of institutional change, this finding has immediate policy implications: changing the discourse may be as important as the bus priority technologies themselves to transfer this successful planning project from London to cities elsewhere.

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Key Words: bus priority, institutional analysis, norms, institutional change, participation

A DIFFERENT KIND OF PLANNING: AD HOC LAND INSTITUTIONS IN THE BOOMING PERI-URBAN MUNICIPALITY OF TLAJOMULCO, MEXICO

Abstract ID: 491

Group Submission: Working with “working rules”: engaging institutional theory in planning research

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Intense land speculation and development pulsate through municipalities on the edges of growing cities. In Mexico and beyond, national planners call out weak governance of peri-urban localities as a primary enabler of low-quality and low-density sprawl. Yet among the many municipalities assuming decentralized authority over land use, planning interventions are not dead, just different. In Tlajomulco and beyond, practices of zoning and construction permits actively shape the timing, location, form and fairness of urban expansion.

Using the case of Tlajomulco, a rural municipality to the south of Guadalajara, this paper deploys a ‘forensic institutionalism’ to reconstruct the how of land use decisions in one of the epicenters of unfettered formal sprawl in Mexico. Initial fieldwork suggests two fields of findings. First, zoning and construction approvals have become one of the few arenas left for the state to shape development, as noted in recent scholarship on land rent (Haila 2016). Further, along with eroding the widespread portrayal of municipal institutions as rubber stamps for elite

interests or technical schemes, Tlajomulco's evidence suggests these practices contribute to particular, and different, topographies of exclusion.

Second, a resilient set of ad-hoc institutions in Tlajomulco provide the 'working rules' (Ostrom 1990,51) that guide implementation of the zoning and permitting process. As the practices in Tlajomulco assemble and shift over time, often in time with political party transitions, these ad hoc institutions – such as networks, lists-on-walls, and organizational habits– , create new landscapes of uncertainty for construction. Using theories of institutional change, the paper strives to build on planning scholarship's emergent understandings of exceptions, 'tails' and 'grey' planning (Alterman 1980; Fawaz 2017).

Informed by institutionalist approaches to planning that incorporate formal examinations of change in networks and organizations (Healey 2007), the case assembles an institutional analysis built on multiple sources of evidence, including interviews with municipal officials and developers, the past ten years of zoning and construction permits granted, and financial data of municipal income. As one of the extreme cauldrons of sprawl in Mexico, Tlajomulco's story identifies a combustible interaction of mechanisms with resonance for understandings of land governance and institutional change on the urban frontiers of metropolitan Guadalajara and beyond.

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Key Words: ad hoc institutions, zoning, uncertainty and transition, peri-urban governance, sprawl

CALIFORNIA HOUSING POLITICS: A HISTORICAL INSTITUTIONALIST PERSPECTIVE ON HOUSING POLICY MAKING

Abstract ID: 492

Group Submission: Working with "working rules": engaging institutional theory in planning research

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Alexander (2005) summarily rejected historical institutionalism as useless for Urban Planning. He reached that conclusion on the basis that, unlike rational choice theory-based institutionalism, the historical approach cannot generate useful predictions for policy analysis. This paper challenges this assertion on two fronts. First, it shows that historical institutionalism provides a set of theoretical and methodological tools that are not only complementary of and critical to other approaches, but also well adapted to the goals of planning research. Second, it demonstrates through an analysis of housing policy in California that historical institutionalism has great potential for informing decision making.

The paper, through a review of the political science literature, develops a framework for adapting theories of institutional change to urban planning. The main import of historical institutionalism for planning is in its ability to call attention to overlooked interactions between existing structures and new ones. It puts individual actors, the focus of rational choice theory, on equal bearing with the overall structure within which they work to develop a better understanding of unforeseen consequences of changing institutional arrangements.

While a more general theory of historical institutionalism exist, much of the theorization in that framework derives from case studies to match their specific context, an approach I reproduce here. I focus on housing

because the political contests involved are often paradoxical and uniquely complex, two aspect historical institutionalism is particularly well equipped to deal with (Pierson & Skocpol, 2002).

Following the methods of political development, I analyze events and changes independent of their chronology, looking instead for patterns of repetition that shed light on the continuity of institutions (Orren & Skowronek, 2004). From this perspective, contemporary housing politics, particularly the contests centered on housing provision (e.g. SB837 aiming to up-zone all areas in proximity to high usage transit stops) can be placed on a continuum. While much of the debate around these policies focus on the narrative of coalition formation between “Not in my backyard” and anti-gentrification activists on one side and “Yes, in my backyard” and real estate developers on the other, less attention is devoted to understanding the political moment in historical perspective.

I draw from journalistic archives and government documents, as well as secondary analyses, to frame the evolution of institutions and emphasize the role of power in shaping the changes that were taking place at several critical junctures, particularly in the 1960s (Brilliant, 2010). I focus on the power property rights and structures of local control confer in California as the constant around which policies change. I then use the Los Angeles context to map, both figuratively and literally, the import of institutions on space and how policy trends are likely to change or fail to change the existing institutional field against which change must be evaluated (Orren & Skowronek, 2004, p. 23). Based on the results, I cycle back to how historical institutions apply to urban planning through a set of recommendations for contemporary political battles in the field of housing.

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Key Words: Institutions, housing policy, property rights, power

WHEN THE SUM OF SECTORIAL PARTS IS GREATER THAN THE CITY AS A WHOLE: EXPLORING THE CAUSES AND CONSEQUENCES OF DIVERGENT INSTITUTIONALIZATION

Abstract ID: 493

Group Submission: Working with “working rules”: engaging institutional theory in planning research

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Planning as a discipline is greatly concerned with how the social, political and economic organization of space can be nudged to produce more equitable outcomes. At the heart of achieving this are planning institutions such as land use zoning, rules governing the expansion of public transportation systems, water supply regulation, citizen participation, and rules structuring the creation of public space. Both formal and informal institutions impact how cities are planned and managed, thus it is not surprising that planning scholars are concerned with topics ranging from institutional design to institutional change (e.g. Carmin et al, 2012; Healey, 2005; Neuman, 2012). This paper reviews a series of contemporaneous progressive planning practices that emerged in Medellin, Colombia, in the mid 2000s and an interesting puzzle emanating from the city’s experience: while progressive approaches stemming from integral planning experiments became institutionalized in sectors such as water supply and public space provision, these approaches failed to achieve continuity in the city’s overall planning system. This is highly paradoxical considering the ‘Medellin model’ is premised on a holistic approach to planning, on coordination among different state agencies, and on more open and transparent state-society relations.

Building on historical and sociological institutionalism theories, and based on in-depth semi-structured interviews, focus group discussions, and content analysis of documents elaborated by state and non-state actors, this paper seeks to address a key question arising from the aforementioned puzzle: what explains the divergence in progressive planning institutionalization outcomes among planning domains and what consequences does this have for city planning? Existing scholarship on planning and institutions provides key insights but no satisfactory explanation. For example, path dependence is commonly called upon in planning to explain the persistence of institutions and the range of options available to emerging institutions (Morrison, 2017; Sorensen, 2018). Path dependence can explain why progressive planning found persistence in some sectors (e.g. due to positive feedback effects), or why progressive planning failed to achieve continuity in the overall planning system (e.g. due to existing institutional winners being unwilling to diminish relative gains). However given the contemporaneous emergence of the initial practices, path dependence fails to explain the divergence in institutionalization outcomes. Based on the analysis of data collected in Medellin between February 2016 and July 2017, this paper argues that divergent outcomes in planning institutionalization are the product of four causal factors: (1) the organizational structure of the local government agency tasked with primary responsibility over a planning domain, (2) the ability of agencies in the planning domain to raise financial resources, (3) changes in the distribution of decision-making power over a planning domain among one or several agencies, and (4) the ability to maintain and socialize a coherent narrative substantiating the existence of the institution. Consequences of these divergent outcomes include inefficient use of resources, delays in the implementation of plans, and loss of citizen's confidence in the goodwill of the local state in marginalized areas. The findings from this study help advance the institutional approach within planning theory and refine our understanding of path dependence and critical junctures frameworks for the analysis of divergent institutional outcomes.

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Key Words: critical juncture, institutionalization, progressive planning, institutional transformation, path dependence

THEORIZING INSTITUTIONAL CAPACITY IN HYBRID GOVERNANCE ARRANGEMENTS FOR WATER MANAGEMENT IN SMALL CITIES

Abstract ID: 494

Group Submission: Working with “working rules”: engaging institutional theory in planning research

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What is institutional capacity and how does it develop through planning and policy? The urban governance and service delivery literature traditionally equates institutional capacity with local state capacity and with resources. In terms of operational and resource dimensions, institutional capacity is conceptualized as the ability to deliver public services efficiently using available human, financial, and technical resources. More recent scholarship explains the local state's successes as hinging on the ability to collaborate with and mobilize resources from multiple actors and institutions engaged in urban governance. However, all these frameworks (and the policies based on them) afford primacy to the local state as the main actor and public rationalities as the main institutions shaping service delivery.

Water and wastewater management in many small cities and towns occurs through hybrid governance arrangements consisting of formal and informal, state and non-state actors as these towns are not fully covered by public utilities and/ or networked infrastructure. The local state is but one of many actors providing and shaping access to these services. Within these hybrid governance arrangements and institutional assemblages that are socially constructed in context (Healey, 2003), the relative connections, power, and actions of different actors strongly influences the nature of governance outcomes. Therefore, this paper asks -- how do we conceptualize institutional capacity within hybrid governance networks and what, if any, is the role of planning and policy in contributing to developing this institutional capacity?

We adopt an inductive approach to theorize the idea of institutional capacity within hybrid governance arrangements for water-wastewater governance. Our study is rooted in an institutional analysis of wastewater governance in the small Indian cities of Tiruppur and Erode in southern India. Data were collected using ethnographic methods – interviews with key informants and an analysis of planning documents and newspaper articles over a three-month period in summer 2017. Erode and Tiruppur are among India's largest exporters of textiles, and producers in both cities are faced with a policy that mandates zero-liquid discharge as a response to the wicked problem of water pollution. This policy and the negative ecological impacts of pollution on farming have transformed institutions and practices around wastewater discharge in these cities. It caused unusual alliances across the rural-urban divide as well as across the broader region as textile producers augmented their capacity for action by tapping into their ethnic and industrial networks as well as by working across geographic scale. As the subnational political environment was less-enabling of the local state, they, too, have started to partner with groups of local textile entrepreneurs to create new capacities by implementing new technologies for wastewater management. However, not all these new forms of capacities have translated into sustainable and equitable water management from the perspective of city-residents.

This paper notes how the poor governance of water-wastewater in small cities and towns is often ascribed to a lack of local state capacity for planning, service delivery, and governance. The policy solutions for increasing capacity, therefore, tend to take an organizational, managerial approach. In contrast, this paper discusses how an institutional analysis allows us to take a broader view of capacity as emergent through interactions between various actors, rationalities, norms, and power relations in the hybrid governance of water-wastewater in small cities and towns, which forces us to rethink the role of planning and policy in shaping capacity development.

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Key Words: institutional capacity, hybrid governance, wastewater, small cities, India

PRE-ORGANIZED SESSION SUMMARY **THE POLITICAL ECONOMY OF URBAN DECLINE**

Summary ID: 33

Abstract ID: 666

Abstract ID: 667

Abstract ID: 668

Abstract ID: 669

This session draws attention to urban decline as a historical, geographical, and political process. While vital to understanding contemporary urbanization, prior research often represents decline as natural, neutral, or the effect of neighborhood and inhabitant deficiency. Recent academic and think-tank work associates decline with scarcity of knowledge and expertise concerning abandonment and blight. Critical approaches connect decline to the

seesaw of capital as investment moves around a region. Elsewhere, urban scholars show how decline operates as a multi-scaled process linking global financial practices with local built environments. The value of existing scholarship on decline is indisputable but the research agenda may be broadened to investigate new tensions, structures, and interventions. By addressing decline as a process with unique spatial qualities, governmental approaches, and accumulation strategies, this session seeks to aid planning in identifying and addressing the structures and processes through which urban decline is produced and historical race- and space-based inequalities intensified.

Objectives:

- Learn about linkages between multi-scalar political and economic forces explicitly oriented toward making, reproducing, and profiting from decline
- Discuss racially discriminatory and spatially uneven objectives and outcomes of liberalized housing and economic development policies in declining urban areas

PORTFOLIO SOLUTIONS, BULK SALES OF BANK-OWNED PROPERTIES, AND THE REEMERGENCE OF RACIALLY EXPLOITATIVE LAND CONTRACTS

Abstract ID: 666

Group Submission: The Political Economy of Urban Decline

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With the foreclosure crisis ostensibly in hindsight, media and scholarly attention have turned toward the uneven recovery of neighborhoods in the aftermath (Raymond et al. 2016). We now know that neighborhood home values largely returned or improved over pre-crisis levels in predominantly white neighborhoods, while those in communities of color have made only marginal improvements from their nadir. Millions of homeowners remain underwater on their mortgages, particularly in places that recovered least, and banks have allowed large numbers of repossessed properties to fall into disrepair in minority neighborhoods nationwide. This paper examines an important though relatively unexamined facet of this uneven recovery, the reemergence of predatory land contracts in black neighborhoods left behind in the national housing recovery (Immergluck 2018; Satter 2009). Land contracts, also known as land installment contracts and contract-for-deed sales, are a form of seller financing in which buyers pay for properties in installments, receiving title only after the principle has been paid in full and without building home equity in the interim. These instruments have been used for decades to finance sales for households unable to secure mortgages (Sagalyn 1983). The light regulation of these instruments, however, allows sellers to set terms impermissible in conventional home loans. Interest rates on contract sales can be set far above their conventional counterparts and sellers retain the right to evict after a single missed payment. In an environment where black household wealth is deeply eroded and mortgage credit hard to come by, and where homes in inner-city neighborhoods are cheaply auctioned by the hundreds, if not thousands, the land contract has returned as an instrument for extracting profits from vulnerable households marginalized by the U.S. housing system.

This paper links the racially uneven geographies of subprime lending and the foreclosure crisis to the accumulation of bank-owned properties in black neighborhoods and the bulk sales practices employed by one Government Sponsored Enterprise, Fannie Mae, to channel properties to private-equity backed investors, with predatory contract sellers foremost among them. This study draws on the universe of real estate transaction records nationwide covering the entirety of the mortgage foreclosure crisis and "recovery." Leveraging this dataset we expand our prior research in Detroit to identify the national landscape of activity for contract sellers purchasing mortgage-reverted properties directly from Fannie Mae (Akers & Seymour 2018). We examine contract seller inventories at multiple scales, linking spatial units to socioeconomic data to uncover patterns at the state, metropolitan, and neighborhood scale.

Though contract seller acquisitions constitute but a small share of Fannie Mae's sales, we find they are concentrated in cities and neighborhoods where subprime lending flourished and foreclosures piled up, particularly in the Midwest and Southeast. Majority black neighborhoods account for a vastly disproportionate

share of sales to contract sellers relative to the underlying distribution of bank-owned properties. We argue large financial institutions' bulk sale practices generated spatially uneven outcomes, with harmful consequences for black households and neighborhoods in cities hit hard by the foreclosure crisis. Fannie Mae, like other large lending institutions responsible for rapidly growing, heterogeneous portfolios of real estate owned properties, made enterprise-level decisions to bundle and sell their lowest-value and slowest-selling homes to opportunistic investors. Despite these entities' ostensible public purpose objectives of stabilizing distressed neighborhoods and preserving homeownership, these portfolio-driven practices facilitated the construction of new markets for housing exploitation, reproducing race- and space-based inequalities and creating further barriers to black homeownership and wealth building. This research contributes to planning knowledge by moving upstream from research focusing on neighborhood-contextual variables in explaining investor activity and foregrounding upstream systems operating to restitch distressed neighborhoods into predatory profit-maximizing channels.

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Key Words: land contracts, foreclosure, decline, uneven development

DEATH BY EXPERTISE: POLITICS OF ENVIRONMENTAL JUSTICE IN DETROIT'S 48217 NEIGHBORHOOD

Abstract ID: 667

Group Submission: The Political Economy of Urban Decline

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The economic crisis of Detroit has attracted economic development experts in the fields of planning to repair a number of failing public amenities. Often understood in terms of its ability to revitalize low economically valued areas, private investment in the context of weak public resources is also seen in the expansion of industrial areas at the cost of environmental injustice and quality of life for some communities. A heavily industrialized neighborhood in the shadow of oil, electricity and steel production, the predominantly Black zip code of Detroit, 48217, is one such example.

Relying on political economic and environmental justice frameworks, this paper explores the role of development experts as proponents of neoliberal rationale at the cost of adverse health outcomes for the local community that are often considered 'collateral damage'. Arguing that the expansion of industry is necessary to increase tax base and create jobs, development experts and politicians often regard the community as a sacrifice zone that absorbs the costs of pollution locally in favor of the economic vitality of the city on the aggregate. The use of 48217 as collateral damage is further justified by the advanced state of economic decline of Detroit, and the neoliberal tendency to depoliticize issues of environmental justice impacting marginalized communities in the name of the bottom line. In light of these dynamics, this work asks the following: 1) what discursive practices are used by experts to rationalize development decisions that enable the expansion of industry in the context of extreme urban decline? and 2) how do local communities resist the notion of expertise that enables this pattern?

This work uses discourse analysis of documents and interviews to understand the ways that community members have established a strong tradition of resistance to such expertise in 48217. It addresses a significant gap in the literature that describes the power of experts under neoliberalism as unilateral while neglecting forms of

contestation. This work directly compares the discursive practices used to push agendas of experts with those of community groups, challenging the assumptions of the literature that often treats experts strictly as technocrats and communities as being in need of expert advocacy.

Contrary to this assumption, this work finds two tendencies that are divergent from what literature on environmental justice and political economy have proposed. First, that community members create their own technocratic data without the help of advocate experts, in acts that mirror expert strategies in an effort to be taken seriously (in the form of health assessments, air quality readings and blight inventories). This dynamic is a rare opportunity to witness a direct comparison between the data collected by technically trained experts and community members, finding that comparable data set forth by the community was dismissed in every instance. Secondly, this work finds that experts reproduce their power through the use of intimidation and manipulation of community members.

This work adds nuance to the general assumptions that experts, in the setting of environmental regulation, are merely technocrats that leverage their power as experts. Another implication for this work is the sophisticated nature in which the community replicates technocratic practices without expert assistance. This finding again brings into question the role of the expert, uncovering an overwhelming reliance on their status to further the neoliberal project; this power, then, is less reliant on the actual technical skills they possess than is typically portrayed. Finally, this research provides a case of how a community fighting for environmental justice faces additional obstacles in the context of extreme economic decline, particularly in confronting the narratives of collateral damage that experts and politicians alike use to promote neoliberal governance.

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Key Words: Technocracy, Urban decline, Expertise, Detroit, Environmental justice

ENVIRONMENTS OF DECLINE: RESIDENTIAL DEMOLITION AS A REGIONAL AND POLITICAL PROCESS IN DETROIT, MI

Abstract ID: 668

Group Submission: The Political Economy of Urban Decline

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In 2014, the Detroit Blight Removal Task Force released a 300-page strategic framework for addressing abandoned structures within the city. The co-chairs assigned a price of nearly \$1 billion to complete a decade-long campaign to secure or demolish approximately 50,000 vacant homes. In the succeeding years, the Detroit Land Bank Authority (DLBA) and the Detroit Building Authority (DBA) have collaborated to execute the largest residential demolition program in the United States. By 2018, Mayor Mike Duggan's administration claimed responsibility for 14,000 demolitions (Stafford 2018). The federal government financed the program with Hardest Hit Funds reassigned to removal efforts. This paper is part of a larger study that investigates Detroit's demolition project to draw conclusions on the geography and institutional processes associated with urban decline.

Historically, researchers treat decline as one stage in a timeline of urban change (Mumford 1961). Cities age and decay. This work suggests decline is synonymous with population flight and economic contraction isolating an impoverished city from prosperous suburbs (Pascal 1987). These analyses of urban decline echo the limitations of

past scholarship on urban growth discredited by historical and geographical research. In *Nature's Metropolis*, William Cronon (1991) addressed the inadequacy of received wisdom on urban growth by examining the ascendance of Chicago, IL. By narrating a history of city-countryside co-development, he characterizes the city's rise as a relationship between a political and economic core and a hinterland feeding the city's substantial resource needs. Chicago's growth cannot be easily distinguished from its countryside. Cronon concludes cities are material, political, and infrastructural projects with regional geographies. In this paper, I extend Cronon's insights on growth to understand decline.

I examine demolition in Detroit as a process with a regional environmental, real estate, and logistical footprint. I analyze and map records of demolition backfill transactions between 2014 and 2017 to track metropolitan circulations of material involved in the completion of each demolition. City officials estimate demolitions require an average of 250 cubic yards of regulated material to fill the hole created by excavating the structure's foundation. These data include origins of material, destination of material, and the completion date of each demolition. By analyzing these data in a spatial form, I argue demolition draws on a regionwide constellation of resource extraction sites entangled with the speculative construction of suburban housing and amenities. Contractors travel hundreds of miles each week to deliver million of cubic yards of excavated material. The backfill program connects new subdivisions, parking lots, shopping centers, and home renovations at the periphery to the demolition-dependent revitalization of Detroit. As one DLBA staff member observed, "Detroit will need all of northern Michigan's dirt to unbuild." I contend demolition is not an engineering event that simply takes place at an address. Real estate and investment processes in Detroit's sprawling suburbs are not independent of the physical destruction involved in the management of the core's decline.

This paper builds upon recent efforts to challenge planning and geography research that approaches decline as absence and emptiness (Akers 2013). By identifying how demolition establishes regional patterns of extraction, investment, and loss, I demonstrate decline is a political and institutional process. My analyses can enrich how planning scholars approach the relationship between decline and urbanization. I find demolition produces its own resource hinterland – which I call a backfill shed - to eradicate residential blight that developers and leaders perceive to be the impairments to investment and revitalization. My findings are significant to critical researchers in planning and urban studies analyzing political and environmental dimensions of decline. The backfill program in Detroit establishes a scale and geography of decline extending beyond residences, neighborhoods, and cities.

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Key Words: Detroit, demolition, decline, urbanization, environment

LAND MARKETS AS EXPROPRIATION: THE MARKET VALUE ANALYSIS IN PHILADELPHIA

Abstract ID: 669

Group Submission: The Political Economy of Urban Decline

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If property in land confers the right to exclude, value provides the instrument of exclusion. As the language of abstraction, value dispenses with the qualitative, the particular, and whatever is extraneous to an idealized market. The rise of data-driven planning and community development practice has contributed to the fragmentation of places by policy makers according to the ability to meet the demands of capital. Further, such practices ossify existing unevenness so as to mask embedded relations of power. This paper examines how

institutionalized practices of valuation constitute a rationale for exclusion, and, parallel to Harris' analogy between whiteness and property, reaffirm "expectations of power and control that enshrine the status quo as a neutral baseline, while masking the maintenance of white privilege and domination" (Harris, 1715).

A new mayoral administration launched Philadelphia's Neighborhood Transformation Initiative (NTI) in 2002 to extend the prior decade's downtown revitalization into the city's "transitional" neighborhoods. The strategy grew out of a collaboration between the City and a regional CDFI that had developed a modeling tool, the Market Value Analysis (MVA). As the algorithm organized census block groups into land market areas to direct and facilitate private investment, the NTI's implementors relegated the most historically disinvested areas further into the financial margins. This research traces the continuous work of performing value's objectivity through application of the MVA in Philadelphia, flattening the city into a landscape of equivalent and substitutable real estate markets. Unsurprisingly, these efforts coincided with deepening spatial inequality across Philadelphia's neighborhoods.

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Key Words: Land markets

PRE-ORGANIZED SESSION SUMMARY

ECOLOGICAL WISDOM & REGENERATIVE DEVELOPMENT: A SESSION IN HONOR OF ROBERT F. YOUNG

Summary ID: 36

Abstract ID: 565

Abstract ID: 566

Abstract ID: 568

Abstract ID: 915

Robert F. Young (1959–2018), associate professor at UT Austin, increasingly devoted his scholarship and praxis to the cultivation of ecological wisdom (EW) and regenerative development. In a special EW issue of *Landscape and Urban Planning*, Young noted: "EW provides an opportunity to assess the wisdom of planning interventions based upon the symmetry of their impact on the coevolution of social and ecological systems. Through these assessments EW can be used as a guidepost to human and ecological efforts that can contribute to the development of regenerative cities and landscapes" (2016:91). Known as an innovative planner, Young was also a historian. Beyond pursuits of big data and "smart cities," in the spirit of Patrick Geddes he called for innovation grounded in ecological wisdom and practices that "have shown (a) historical resilience and (b) equitable benefit to social and ecological systems" (2016:98). This session responds to Young's call and honors his memory with papers on ecological wisdom and regenerative development, including theory and practice in the land of the Haudenosaunee - Young's beloved home of origin and the grounds of ACSP 2018.

Objectives:

- Exploration of "ecological wisdom" as a framework for ethical practice in the 21st century
- Understanding the ecological wisdom of the Haudenosaunee of Western New York and Ontario, and contributions of other indigenous voices for planning in the 21st century
- Exploring the opportunities and challenges of theory and practice of planning for regenerative cities.

REMEMBERING OUR WAY FORWARD: OPPORTUNITIES FOR A JUST TRANSITION TO A REGENERATIVE ECONOMY FROM WESTERN NEW YORK

Abstract ID: 565

Group Submission: Ecological Wisdom & Regenerative Development: A session in honor of Robert F. Young

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Faced with the social and ecological limits of capitalist economic growth powered by fossil fuels, planners increasingly recognize the need for a transition to a sustainable economy powered by renewable energy. Across sectors, planners are increasingly pursuing more environmentally sustainable practices – even multi-national corporations like British Petroleum have become leaders in solar energy production. An economic transition appears on the horizon, but will it be a just one? Will the “new” economy be a regenerative one that heals past social and ecological harm? Will this transition represent a paradigm shift where the purpose of the economy becomes managing our common home to care for all of its interdependent inhabitants? Or, will innovations in renewable energy technologies simply be used to replace fossil fuels in the 21st century, just as fossil fuels replaced slave labor in the 19th century as the favored fuel for global, capitalist economic growth? How can planners support a paradigm shift and design alternative structures to support a just transition to a truly regenerative economy that supports the social and ecological well-being of all life on earth?

In response to these critical questions, this session’s focus on ecological wisdom and regenerative development, and this conference’s emphasis on the “exchange of stories of city-making, and remaking, across all urban scales,” this paper explores possibilities for a just transition through stories of regeneration and resistance in Western New York. Consistent with the conference hosts’ theme of exploring “Buffalo’s continually evolving and in some cases disputed ‘comeback,’” this paper explores the bioregion’s legacy of regenerative regional development prior to 1609, under the governance of the six nations of the Haudenosaunee (e.g., Iroquois Confederacy). Prior to the Dutch colonizers’ introduction of the private right to own people and parcels of the web-of-life, the Haudenosaunee governed their territories according to the Great Law of Peace, the Law of Regeneration, and Seventh Generation planning principles. With such governance of common pool resources grounded in trust, reciprocity, and ecological wisdom, these nations supported extensive agroforestry, settlement in longhouses, population stability, and peace among previously warring nations. Their participatory democracy inspired the founding fathers of the United States in the design of the U.S. Constitution. Their gender relations inspired the founding mothers of the women’s movement for suffrage in Seneca Falls, New York. Over time, colonial settlement, legal systems designed to protect private property rights, and the Erie Canal ultimately connected the City of Buffalo to the Port of New York (including its slave market and stock market at Wall Street) and a global economy. However, Buffalo has continued to be a site of resistance to extractive modes of development as well a center for exploration of regenerative practices. Today, the region is increasingly recognized for its leadership in planning a just transition to a regenerative economy, aligned with the economic paradigm practiced by the Haudenosaunee. Drawing on research in the history, theory, and practice of regenerative development, writings of Haudenosaunee historians and elders, the author’s personal experiences and conversations as a board member of the Western New York Environmental Alliance, and primary contemporary sources, this paper presents lessons for a just transition to a regenerative economy from the past, present, and emerging future of the Buffalo Niagara bioregion. Although the paper presents the results of place-based research, its exploration of principles and practices of regenerative development are relevant to others seeking to draw on situated ecological wisdom to plan for a just transition to a regenerative economy in the 21st century.

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Key Words: ecological wisdom, regenerative development, indigenous planning, ecological economics, ecological justice

FROM SMART CITIES TO WISE CITIES: ECOLOGICAL WISDOM AS A BASIS FOR SUSTAINABLE URBAN DEVELOPMENT

Abstract ID: 566

Group Submission: Ecological Wisdom & Regenerative Development: A session in honor of Robert F. Young

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Around the world, increasing urbanization continues to be accompanied by ecological decline, natural resource limits, overburdened infrastructure, and economic and social inequities. These trends necessitate radically new responses from city and regional planning. In response, researchers and policy makers have proposed “smart cities” as one approach to an evolutionary transformation in urban infrastructure and management, with a focus on optimizing planning and management through information technology systems and real-time data. In turn, government leaders and the private sector have turned significant policy attention and infrastructure investment towards the smart cities approach.

This article seeks to answer the following two questions: how does the smart city approach to city planning compare with a potentially competing approach—ecological wisdom—and do the two approaches offer potential for productive synthesis for planning theory and practice? We analyze materials from academic, corporate, public intellectual, and public policy sources to present a comparative review of smart cities with an alternative approach: “wise cities” based on an ecological wisdom framework. Researchers describe ecological wisdom as property of good design requiring minimal ecological and social intervention. While smart cities emphasize new, digital networks, ecological wisdom draws upon historical social and ecological dynamics, emphasizing place-based, life-centered systems. Through our analysis, we derive basic definitions of these two planning approaches, outline the general goals and objectives of each, and develop an overall multi-tiered framework of analysis for both approaches. We conclude by proposing potential areas of synthesis between the two approaches, applications for planning practice, and areas of future research.

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Key Words: ecological wisdom, smart cities, planning theory, urban infrastructure, sustainable development

"INDIGENOUS VOICES IN 21ST CENTURY PLANNING: WISDOM TRADITIONS FOR SOCIAL AND ECOLOGICAL WELL-BEING"

Abstract ID: 568

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As planners face the social and ecological crises of the 21st century, how can we develop the ecological wisdom required to discern strategies to meet the end goals of planning as defined by the APA to improve the welfare of people and their communities? How might we honor autonomy (etymologically, self-governance) and economy (etymologically, home-governance) as we plan for thriving communities in the face of disruptive change? How might planners approach these challenges in collaboration with indigenous leaders and through integration of traditional ecological knowledge and wisdom traditions of indigenous communities?

This paper examines the re-emerging context of indigenous self-determination planning and explores its potential to contribute to planning for social and ecological well-being in the 21st century. The paper identifies traditional indigenous knowledge and indigenous worldviews as the key components that separate indigenous planning from mainstream planning. The paper explores the potential to integrate indigenous knowledge with other forms of knowledge (e.g., scientific knowledge) through social learning processes. It also explores ways in which indigenous planning and mainstream planning may emerge from irreconcilable worldviews and paradigms of economic development. The paper draws its authors' review of existing literature and diverse lived experiences engaging with indigenous communities.

Cullen's review of literature includes scholarly literature on indigenous planning and a review of ethnographic works that shed light on indigenous traditional knowledge and world views. He also draws from 10 years of participatory action field research as an initiated Pipe Carrier and Sun Dancer in the Lakota tradition and a semester of field research supported by a WNY Prosperity Fellowship through the Prentice Family Foundation conducted in Western New York, Maui, New Zealand, and California between August and December of 2015. McKibbon draws from 22 years as a professional environmental planner working with First Nations in Ontario Province, Canada.

The paper begins with a thematic exploration of central tenants of indigenous planning wisdom and contrasts them with mainstream modes of professional planning practice. It then presents a case study of an effort by the Windigo First Nation Council and the Ministry of Natural Resources and Forestry to co-manage Ontario Crown lands in the Windigo territory. The case study reveals the opportunities and challenges of integrating indigenous knowledge within mainstream planning practices in a Canadian context where the treaty rights of First Nations are recognized more than in many other contexts. The case study and the broader findings of the paper offer helpful perspectives to planners committed to developing healthy communities and regenerative economies.

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Key Words: Indigenous Planning , Regenerative Development, Social Learning , Traditional Ecological Knowledge , Healthy Community Planning

PRE-ORGANIZED SESSION SUMMARY

LOOKING FOR DIFFERENCE IN ALL THE WRONG PLACES: CONFRONTING THE CHALLENGE OF DIVERSITY IN PLANNING

Summary ID: 46

Abstract ID: 1072

Abstract ID: 1073

Abstract ID: 1074

This session examines the historic and ongoing understanding of forms of diversity in distinct urban planning contexts: high profile redevelopment projects, artistic interventions, and tenant social movements. In a time marked by competing social agendas organized around identity, the session's case studies unpack how planning engages in the reproduction and unsettling of social relations through the reification and subversion of categorical difference. In doing so, it explores the potentialities and limitations of mainstream and radical planning modalities in fostering inclusive deliberative processes and thereby producing a genuinely democratic public.

Objectives:

- To examine the role of diversity in planning

ENGAGING DIVERSE PUBLICS THROUGH CREATIVE PRACTICE: ENCOUNTER, DIALOGUE, AND TRANSFORMATIVE ENGAGEMENT IN A MULTICULTURAL METROPOLIS

Abstract ID: 1072

Group Submission: Looking for Difference in all the Wrong Places: Confronting the Challenge of Diversity in Planning

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In heterogeneous cities, how do communities with radically different worldviews and cultural practices learn to communicate and collaborate across dimensions of difference? If Sandercock (2004) enjoins planners to be more creative and therapeutic in approaching the cosmopolis, what role can artistic endeavors play in negotiating across difference to provide a Habermasian intercultural public sphere?

Many artists and art critics in the 1990s embraced Nicolas Bourriaud's theoretical works on "relational" practice and the "dialogical" projects. As Suzanne Lacy wrote in her seminal 1995 book on new genre public art, *Mapping the Terrain*, this focus on "collective relationships" is not "undertaken simply as an exercise in political correctness. A longing for the Other runs as a deep stream through most of these artists' works, a desire for connection that is part of the creative endeavor in all its forms" (Lacy 1995, 36). Planning scholar Jonathan Metzger draws on the work of Jean Hillier, Iris Marion Young and others to describe how the arts may establish dialogical spaces for constructive agonistic encounters instead of antagonistic pre-established posturing; he uses this framework to gesture toward how such spaces -- which are most effective "outside the structures of official policy discussions" -- can nonetheless part of a communicative planning process (Metzger 2011, 7).

Examples of arts initiatives that explicitly seek to facilitate or create such dialogical, intercultural spaces abound. Performance scholar Kim Solga mused over the affective experience of personal witness, musing that such intimate encounter with the other "perhaps changed (forever?)" her own "brain and body" (Solga 2010, 162). Janinka Greenwood (2001, 202-203) offers the example of a drama-based third space in which Maori and Pakeha cultures could interact under the "influence of physicality and action" which facilitated the exploration of worldviews and assumptions. It is important to sound a note of caution, however, as certain forms of creative engagement become codified, they may serve to reify particular forms of public and publicness. In much of North America, multicultural festivals (whether neighborhood or municipal level) often replicate the understanding of whiteness as normative and ethnicity as performative. While the phrase "creative cities" has been thoroughly mobilized by neoliberal projects of inter-city competition and post-Fordist flexism, the possibilities of creativity in planning practice still remain. Creative inquiry and relational aesthetics can offer agonistic as well as communicative arenas in which definitions of the good life and new relationships between city dwellers can be forged, discarded, and rehabilitated.

By focusing on works primarily understood as art rather than urban design, I invite in projects that have been neglected by planning scholarship into conversation with planning practices and theories on communicative and community planning for and with diversity. This paper brings the literature of performance studies and visual studies into conversation with feminist, indigenous, insurgent and radical planning. Through assembling and analysis of selected site-specific participatory art practices in the United States over the last five decades, I provide a theoretical exploration of the potential of relational aesthetics and creative practice for planning practitioners. Furthermore, I adaptively borrow from Metzger, Zambonelli (2014), and others to build three categories -- encounter, dialogue, and transformative engagement – that demonstrate the convergences between creative practices and planning practices in a multicultural metropolis.

Citations

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Key Words: participation, agonism, socially engaged art

FROM TIMES SQUARE TO CONEY ISLAND: PLANNING DIVERSITY IN PUBLIC SPACE

Abstract ID: 1073

Group Submission: Looking for Difference in all the Wrong Places: Confronting the Challenge of Diversity in Planning

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Planning has long grappled in both theory and practice with the challenges of diversity at the levels of process and outcome. This paper contrasts the evolving theorizations and operationalizations of this concept in connection with the planning of public space.

Often employed as centerpieces of urban revitalization efforts, public spaces have also been historically envisioned as preeminent venues for the encounter and negotiation of social difference-- functions that have become ever more crucial (and complicated) as public assertions of invidious political claims have increased in frequency. We consider the various notions of diversity that have informed the planning of such places by drawing on case studies of the redevelopment of two iconic New York City destinations renowned for the public dimension, Times Square and Coney Island. These cases are especially fertile because they are high profile planning efforts that involve multiple stakeholders and provoke significant debate over public objectives and benefits. They also reflect the priorities of different eras: the Times Square redevelopment plans were approved in 1984, when the City was still digging its way out of a deep fiscal crisis, while the plans for Coney Island were approved in 2009, as the City solidified its premiere position in the global urban hierarchy. This study examines qualitative data from interviews, planning documents, public hearings, and media coverage to identify ways in which diversity factored into the two planning enterprises.

Based on these cases, we argue that demographic concerns moved from the foreground to the background in public space planning as urban development goals shifted from an explicit effort to dislodge people of color, to an implicit effort to appeal to higher-income residents and tourists. In place of those concerns emerged a generalized planning interest in the preservation of diversity as local color and as a marketable expression of place authenticity. We conclude by considering the merits and difficulties of bridging the gap between these conceptions of diversity and alternatives that better account for social difference as experienced by neighborhood users.

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Key Words: Diversity, Public space, Urban Redevelopment, New York City

RACE, RADICALISM, AND TENANT STRUGGLES

Abstract ID: 1074

Group Submission: Looking for Difference in all the Wrong Places: Confronting the Challenge of Diversity in Planning

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Social movements have long been recognized as an essential vehicle for the radical reorganization of society (Castells 1983; Piven and Cloward 2012). However, the politics of movements are constantly in tension. This paper questions the racial tensions and claims around Western radicalism in tenant struggles across Los Angeles and Berlin. It asks four specific questions: How does color-blindness or color-consciousness manifest in tenant struggles? What claims around radicalism are mobilized? What are the realpolitik implications of tensions around race and radicalism in tenant struggles? And how do those tensions shift our understanding more broadly of social movements through Marxist urban political economy? Methodologically this paper mobilizes militant ethnography, which combines participant observation, interviews, documentary film, and active participation in both contexts.

Even 'radical' tenant struggles reproduce certain forms of color-blind politics. Preliminary findings suggest that activists involved in movements sometimes mobilize an 'external' politics—i.e. one politicized or learned elsewhere—for instance embedded in critical theory of the Frankfurt school, other strands of European Marxism or anarchism, LGBTQ politics, or forms of artistic/aesthetic critique, etc. Those political agendas are at risk of being 'external' to the specific socio-economic-political struggle primarily centered in communities of color. The specific concern here is that there are "limitations of Western radicalism" (2005, 68), as highlighted by Cedric Robinson, and when movements develop claims with forms of external critique they must be sure not to mobilize those against the agency of community members. Laura Pulido highlights, for instance, how forms of resistance are developed out of and forged through the specific contexts of oppression (Pulido 2006).

Unpacking racial regimes and radicalism has implications for broader understandings of urban political economy as a framework of understanding movements and their relationship to planning. Planning thought has widely neglected to systematically integrate black oppression and resistance within conceptualizations of political economic and socio-spatial analysis and intervention. The treatment of property and land, for instance, are foundational components to the functioning of any political economic analysis. Classical, neoclassical, and neoliberal influenced economic thought mobilize private property as exclusive and excludable ownership rights, as foundational assumptions inherited from white British political economy. Marxist urban political economy subsequently defined property as fundamentally rooted in class conflict, social relations, and a prerequisite to the process of rent extraction and capital accumulation.

I argue learning from movements on the ground and the black radical tradition, we should expand both frameworks by following Cedric Robinson's critique of Western Marxism as formulating "a more complete contradiction" within capitalism, and Clyde Woods (2017) blues epistemology that marries a systematic analysis of the white southern economic planning with black planning resistance, and, fundamentally, subverts color-blind white scholarship. Discourse around a black radical praxis should challenge the fundamental frameworks within dominant economic thought around space: methodological individualism/market equilibrium and dialectical thinking/historical materialism.

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Key Words: Housing, Tenants, race, radical, social movement

IS ARNSTEIN'S LADDER STILL RELEVANT?

Abstract ID: 57

Individual Paper Submission

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Sherry Arnstein, in her frequently cited JAIP article, assumed that greater citizen participation would produce more equitable outcomes. She wrote when rebellions against urban renewal and displacement had reached their height in the US and Western Europe, and American federal programs called for maximum feasible participation of the poor.

Demands for community decision-making powers were within an ideological framework that characterized street-level bureaucrats as neo-colonial instruments of governance. Subsequently, the political-ideological context for participation has changed. Arnstein assumed that federal programs targeted at neighborhoods comprised of the "have-nots" would continue and that community participants would direct their demands at obtaining federal funding. The termination of those programs under the Nixon and subsequent administrations illustrates that although Arnstein regarded them as co-optive, conservative forces feared them as empowering. With the triumph of neoliberalism, the forces affecting neighborhoods emanate more from the private sector than the government, making citizen participation less relevant.

Even while movements demanding redistribution have continued to call for more direct democracy, exclusionary groups (NIMBYists, right-wing organizations) have also demanded the right to set policy, while representatives of minority groups have become better represented within bureaucracies and urban political bodies. Experience with various participatory approaches has raised the issue of how an affected community should be defined, and a history of failure to implement redistributive programs points to the limits of decision-making authority when plans are not supported by committed executives, supportive electorates, and adequate investment.

Planners developing community plans are often caught between a commitment to greater democracy, a concern with equitable outcomes that might be at odds with local control, and the need to obtain financing. This paper, relying on theoretical argument and case studies, examines participatory action in New York City. It then uses London, UK, as a contrasting case under a different institutional system. Within New York the recent East Harlem Neighborhood Plan reflects the greater incorporation of minority members into important political and bureaucratic positions, thereby blurring the distinction that Arnstein makes between citizens and elites. Planning for the area also reveals divisions between advocates for the development of more affordable housing and community members opposing such housing.

Local communities are embedded within a highly complex system of advocacy groups, forming an intermediate layer that was less developed at the time Arnstein wrote her article. London provides a counterpoint to the American cases in that local advocates are less evident, but borough government provides a stronger framework

for local planning than do New York's community boards. Comparison of the two differing governing systems allows us to address the question of whether more participatory governance in the American case validates Arnstein's assumption that greater citizen control produces more redistributive outcomes.

Our discussion illustrates both the positive and negative effects of the citizen power that Arnstein placed at the top of her hierarchy, while recognizing that democracy constitutes a desired end in itself. It concludes with an argument concerning the relations between process and outcomes and analyzes the role played by planners in facilitating citizen participation while simultaneously maintaining a commitment to equitable outcomes.

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Key Words: Citizen participation, Arnstein, Advocacy planning, Justice planning, East Harlem neighborhood plan

CLIMATE ACTION TOKENISM – DO THEORIES OF RECOGNITION LEGITIMIZE SYMBOLIC PLANNING?

Abstract ID: 164

Individual Paper Submission

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In 2017, the UN Climate Change Conference in Bonn, Germany, was hosted by the Republic of Fiji. Apparently, island states like Fiji suffer strongly from the effects of global warming and climate change. Assigning the presidency of a climate change conference according to vulnerability is certainly a friendly gesture of the international community. But can it be more? This is a question pertinent to spatial planning in an era when many important planning goals – such as social justice, gender equality, sustainable development, green economy, or carbon-free mobility – have become unattainable. Is recognition under such circumstances the new goal of planning? Most prominently, Nancy Fraser's theory of recognition claims that change often is not confined to 'real change' (in the sense of re-distribution) but starts with the recognition of needs and differences (e.g., Fraser 2001). Recognition is of great relevance in human rights law, social policy, land reforms, or other fields of applied politics (Leisering et al. 2015). But recognition also can be considered as merely a token that distracts public attention from continuing injustices and harm.

My paper explores the legitimacy of climate action tokenism. Are planning practices that make only a perfunctory or symbolic effort to achieve climate mitigation and climate adaption empty gestures or significant acts of recognition? I shall use the bicycle speed lane proposed for the Ruhr (called RS1) as an example of climate action which cannot easily be identified as either climate action tokenism or a meaningful step in transformative transport planning. In North Rhine-Westphalia, bicycle speed lanes (as categories of transport planning) have been created in 2016 and assigned the highest rank in the hierarchy of state streets and highways. Public investment in a 100 km long bicycle speed lane (only bikes are admitted) from the City of Duisburg to the City of Hamm must be considered a serious effort of redistributing flows of traffic and promoting carbon-free mobility. It can also be considered, however, as an overgenerous gift to the leisure class whose need for weekend entertainment demands land uses that hardly benefit single mothers, homeless persons, or refugees.

Two aspects are important for assessing the legitimacy of symbolic planning. First, the effectiveness: Does a policy of recognition, in the long run, effectively facilitate more climate-friendly practices? Second, the socially just distribution: Do the benefits of recognition reduce climate risks for marginalized and disadvantaged individuals and groups?

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Key Words: climate change, recognition, redistribution , justice, transport planning

TIMES OF PROGRESS, HOPE AND TREPIDATION: PLANNERS' SHIFTING STANCE TOWARD THE FUTURE

Abstract ID: 170

Individual Paper Submission

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This paper examines planners' evolving stance towards the future. Assumptions about time (scale; cadence; abstract or social; relative or absolute) powerfully shape planning. Yet these undercurrents are too rarely acknowledged or challenged. Planners have a rich tradition of engaging diverse conceptions of space (our stock-in-trade), but not time. Planning documents often make unproblematic references to time (e.g., “long-range plans,” Detroit Future City).

Time is not only complex but also persuasive (Abram, 2014). Time is not just an abstract, numerical device to mark the orderly sequencing of events. It is deeply-embedded in how planners and communities imagine, value and devalue their traditions, aspirations and fears about community life cycles. When linked to compelling historical narratives, time becomes a powerful planning tool.

We examine three manifestations of planning time: hope, progress, and trepidation. Hope is intrinsic to planning. Hope actively constructs a future vision and imbues it with meaning (Minkowski, 1970). Without hope, meaningful human life cannot be sustained (Frankl, 1959). Its emotional quality counterbalances the presumed rationality of planning. Atul Gawande (2014), a surgeon, argues that “hoping is not planning”: desperate attempts to extend human life often result in a poorer quality of life. Yet one of the most poetic definitions of our profession is Baum's (1997): “planning is the organization of hope.” Planning's expertise becomes the systemization of citizens' deepest future concerns, the harmonization of rationality and meaningful futurity. Facing loss and suffering, those without power invoke hope. Hope represents a plea to those with agency—planners, politicians, deities—to intervene.

Second, the rhetoric of progress is integral to planning's engagement with the future. Yet planners now dismiss progress as a relic of modernist hubris, incompatible with sustainability, communicative action, or postcolonialism. But planners abandon the banner of progress at their peril. Conservative interests readily fill the vacuum and redefine progress in their own vision: privatized, technocratic, individualistic, stripped of visions of equality and public good. Progress resurfaces under new guises: as “innovation,” “smart cities,” “globalization” and other neutered ideologies as the public sector no longer advances an ambitious vision of collective progress.

Third, trepidation increasingly burdens planning's futurity. Rising seas, droughts, climate refugees, and footloose capital constructing landscapes of boom and decline may overwhelm planning's modest capacities. We respond with the language of ‘resilience’: a seemingly rational response to looming crises, a backs-to-the-wall/reinvent-

yourself strategy. But beneath the bold resilience narratives, uncertainty undermines morale. Trained in a culture of progressive futurity, how do planners adapt to a future that advances toward them rather than molds itself around planners' drawings and maps?

Planning's approach to time is shifting. Planning's claim as the custodian of the 'long term,' with effective methods to bridge present and future, overestimates its unique comparative advantage towards the future. Planners' relationship to the future is more ambivalent than their predecessors.

Planning's 'progressive futurity' traditionally involves two complementary activities: analysis -- the prediction of future urban needs (population, land use, infrastructure), and action -- the design and implementation of this future. Yet anti-government movements, austerity and increasing forces beyond our control (e.g., climate change) threaten to upend the 20th century balance between these two planning tasks: prediction versus prescription.

Finally, planners' most commonplace experience with time is conflicting deadlines: the tension between slow planning and fast development. Developers complain about planning's bureaucratic brake on fast-paced innovation. Planners could more confidently embrace "slow planning": deliberative, thoughtful, inclusive -- a counterbalance to hasty, reckless development. Have we instead devolved into timid, defensive planning? Did communicative action, anti-modernism and Jacobian libertarian incrementalism dilute planners' optimism? Are we now afraid of the future, no longer confidently claiming the future as our ally?

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Key Words: concepts of time, progress, futurism, planning theory, planning history

FILM AS A CATALYST FOR INDIGENOUS COMMUNITY DEVELOPMENT ON HAIDA GWAI

Abstract ID: 184

Individual Paper Submission

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Haida Gwaii is a remote archipelago in northwest BC, formerly known as the Queen Charlotte Islands by European settlers. Pre-contact, between 20,000 and 30,000 Haida people lived in 300 villages on Haida Gwaii. By the late 19th century, the ravaging impact of European diseases had reduced that population to 600, living in just two villages, Skidegate and Old Massett. Government policies of assimilation further undermined the vitality and viability of Haida culture. For the past fifty years, the Haida have been resurgent, but the struggle for economic and cultural revitalization is ongoing due to the intergenerational effects of Residential Schools, on the one hand, and the decline of their economic base (logging and fishing) on the other. The relative isolation, and lack of opportunities for youth on Haida Gwaii compounds the sustainability challenge. Haida cultural identity is linked to language and storytelling, yet their community is inundated with foreign media.

The research challenge then, from an Indigenous community planning perspective, is how to use 'homegrown' multimedia in the context of community development. Further, how can this media development be a process of social and technological innovation to serve the aspirations of the Haida, introducing new opportunities that will nurture, not undermine, their culture?

In 2014 a three-way partnership was formed between the Council of the Haida Nation, the Inuit film production company, Kingulliit, and the Indigenous Community Planning (ICP) program at UBC.

The goal of this partnership has been to contribute to the ongoing cultural and economic revitalization of the Haida Nation by (1) preserving traditional language and storytelling through a community-based story gathering process bringing together youth and Elders, and culminating in the collaborative creation of a feature film script in the Haida language, drawing on Haida myth, legend and history. (2) providing training for 40-50 Haida community members as cast and crew of the film production: skills in acting, script writing, production and management skills, and (3) contributing to knowledge among and between First Nations, government, multimedia industry, planning practitioners and planning academics about the potential of multimedia as a catalyst for Indigenous community development in other northern and remote communities.

The theoretical framework for this project draws on various streams within planning theory (communicative, empowerment, and decolonizing theories), as well as the practice based experience of the academic partner and the Indigenous film making partners. We are building on our own practice-based work in collaborative film making with two First Nations in a deeply divided community in north central BC, where we observed the power of film making as a 'therapeutic planning intervention' (Sandercock and Attili 2010, 2012, 2014).

A major stream of influential literature examines the role of planning as a colonial practice in settler societies, serving to render Indigenous populations invisible, to deny their rights, to exacerbate their geographical and economic marginalization, and provide them with culturally inappropriate programs and services (Jojola, 1998, 2008; Jackson 1998; Porter 2010). We seek, through our film work, to practice a decolonizing planning, to 'unlearn the colonial practices of planning' and to work in partnership with Indigenous communities, supporting them in achieving their own aspirations for self-determination, economic and cultural revitalization (Porter 2010; Erfan and Hemphill 2013; Walker, Jojola and Natcher 2013; Jojola 2013; Matunga 2013). Methodologically we have been inspired by various approaches: critical and Indigenous methodologies (Denzin, Lincoln and Smith 2008; Smith 1999; Kovach 2008; Wilson 2008), as well as action inquiry (Torbert 2004; Erfan 2013) and community-based action research (Reason and Bradbury 2008).

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Key Words: Indigenous, Community, Film, Decolonizing, Revitalization

PLANNING THE CONTEMPORARY RISK CITY: NEW THEORY AND PRACTICES FROM LONDON AND NEW YORK CITY

Abstract ID: 198

Individual Paper Submission

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Contemporary cities are facing phenomenal mounting levels of evolving risk and vulnerability, stemming, inter alia, from social polarization, the growth of poverty, urban conflict, terrorism, and, most recently, climate change. The greatest challenge for planning is how to plan our contemporary cities under the new circumstances of phenomenal risk. This paper conceptualizes the contemporary city as a risk city. The risk city is a discursive

social reality, which is founded on both 'ontological risk' and 'ontological lack'. It is articulated through three logics. The logic of risk directs and shapes public opinion regarding the main risk that the city faces. Thus, the risk city is about a struggle for social power over the 'meaning' regarding what is the immanent 'risk' threatening the city in a 'war of position' over meanings. The fantasmatic logic, as an imaginary scenario, masks the risk through offering alternative positive scenarios, such as the sustainable city, to the virtual threats that a city faces. The practice logic prescribes actual actions on the ground to fill the void. It functions to serve the fantasy and desire of the city and state apparatuses. This paper, then, focuses on planning the risk city and identifies the planning approaches used to cope with emerging risk stemming from climate change. Based on an empirical study of spatial master and climate change action plans of New York City and London, our analysis indicates that these cities based their visions primarily on the risks and uncertainties stemming from climate change. This paper concludes that climate change and its resulting uncertainties challenge the concepts, procedures, and scope of conventional approaches to planning our cities. Furthermore, city plans have become extremely significant tools for coping with risk in general and the risk stemming from climate change in particular. Practically speaking, city planning serves as a synergetic vehicle that brings mitigation, adaptation, social, economic, and spatial policies into integrated focus within a single statutory plan.

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Key Words: Risk City, Laclau and Mouffe, New York City, London, Lacan

THE RADICAL PRAGMATISM OF CROWDSOURCED CO-PRODUCTION

Abstract ID: 322

Individual Paper Submission

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Researchers have neglected critical theory in public planning developed in the 1980's (e.g., Forester 1980), to the point of needing a 'revival' (Sager 2013). In the intervening years, the digital revolution has fostered new approaches to quantifying larger datasets, which may offer more answers to participatory questions of who and how many, but fall short regarding why and how planners and publics work together to improve futures. Rather than incremental changes, new participation approaches can follow lessons from the Civil Rights Movement to advance Alinsky's radical pragmatism for planning but must consider whether digital communication fosters emancipatory or hegemonic power (Alinsky 1972; Radil and Jiao 2016). I argue the multi-channel communication needed for contemporary planning highlights constraints of communicative and collaborative approaches in some, but not all situations. Without considering digital methods explicitly, Vanessa Watson imports co-production from public administration and development studies as "perhaps shifting planning theory in the direction of becoming truly international" (Watson 2014, 62). This paper extends Watson's development of a co-productive planning theory through case analysis of crowdsourcing—online, bottom-up production of some portion of the planning process following a top-down call for participation in planning—addressing two of her propositions distinguishing co-production from communicative and collaborative planning. First, how does "bottom-up co-production" through crowdsourcing take "a different position on power and conflict from certain positions in collaborative and communicative planning" (Watson 2014, 71)? Second, how does crowdsourcing "up-scale local practices through global networks" (Watson 2014, 72)? I then tentatively assess the degree to which co-production via crowdsourcing offers a radically pragmatic approach for planning.

I employ literature review and case study methods to assess the research questions. Review of research through Google Scholar and the Journal of Planning Literature formed the basis for literature review, supported by reviewing cited works. Key papers provide additional sources backward in time (previous works cited by key texts), and forward (newer works citing the key literature). Additionally, I provide grounded evidence through case studies in crowdsourced participatory geographic information systems (PGIS) for bicycle route planning in Austin (TX), and Portland (OR) including interviews, and additional cases in public preferences for bike share station locations in Chicago (IL), and New York (NY).

Findings suggest that the conception of co-production in planning is incomplete, but supports the development of radically pragmatic planning practices. First, co-production privileges the production of local information by emphasizing actions over words, addressing power and conflict in ways that constrain communicative and collaborative approaches. Second, the digital production of knowledge through crowdsourcing supports transparency and scaling to other planning sites and publics. However, the lack of intervening time since planning cases shows only initial outcomes—so interview results suggest a coherent imaginary of co-production that may not result in radical results. Further, co-production's roots in development and public administration focus more on actions than meaning-making and knowledge production, neglecting opportunities for development of this area as an epistemology for planning.

This study extends Watson's development of the concept of co-production as critical for planning and does not supplant communicative or collaborative approaches. This initial development of online methods including crowdsourcing and PGIS as epistemological sites for co-productive planning theory helps situate public knowledge production for planning. Further development of co-productive planning, including international sites, is needed to re-align the use of digital communication in ways that support radical empowerment, rather than furthering digital hegemony.

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Key Words: bicycle planning, co-production, crowdsourcing, PGIS

PLANNING IN A CONTINGENT, COMPLEX AND CONFLICTING WORLD

Abstract ID: 391

Individual Paper Submission

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This paper understands planning as a multiple, relational and mixed social process directed to deal with the contingencies of a dynamic and complex world. In this view, planning is not limited to the institutional work of formal planners; it also includes the action of informal networks of agents seeking to promote their own social life.

In an increasingly complex and conflicting world, government (planning included) is often under pressure to adjust its decisions to new social imperatives. This paper aims to identify the main elements interwoven in this process of institutional adjustment and transformation. It takes the propositions advanced by Deleuze and Guattari (1984, 1987) — which advocate for a permanently changing and contingent world — and discusses a set of concepts, intended to reveal the pervasiveness of the difference/heterogeneity in relation to the idea of unity and homogeneity. For them, the world is a succession of moving scenarios, composed by an ever-increasing diversity

of entities. In this ontology, the aim of theorizing is not to explain what something “is”, but what it “does”. Essentially, concepts should inform how something might affect what other things (actants) do. With reference to planning, the aim is to understand what a concept does for and how it affects planning practice.

In this view, planning approaches the world from the ontology of “becoming,” rather than that of “being” (Hillier 2013). That ontology asserts that real objects are in a permanent process of becoming something else, and that the real world is a continual unfolding of events, which does not necessarily move toward a specific end or final destiny. In the world of becoming, planning does not search for stability or certainty, but manages to cope with unpredictable futures and evolves through creativeness, seeking to identify trends or scenarios from “disparate flows of events and spaces in more or less temporary alignments” (Hillier 2008).

Planning here is a task for managing fluid and ‘contingent planes,’ and the emphasis is placed upon the process by which changes take place. Since there is always the potential for unforeseen “lines of flight” to emerge, planning should not be led by models, ideal visions or prescriptions, but by “processes of experimentation,” which require investigating problems, exploring relations between elements “and being open to what might happen if; what differences might emerge” (Hillier, 2013).

In this approach, planning evolves as “rhizomic” networks, growing in several directions through the action of different actors. These networks operate along lines of flight as insurgent movements, aiming to deconstruct (deterritorialize) old social codes and re-territorialize them as a more democratic, inclusive and just society. “Rhizomic planning” proceeds through a random process with no hierarchical structure, central command or control.

This paper explores planning experiences carried out in Brazil by agents acting either inside or outside institutional boundaries. They are not formal planning experiences, but evolve spontaneously, as a creative, interactive and fluid process of experimentation with new worlds. The text suggests that these experiments were essential to boost social emancipation, and convert planning into a democratic, participatory and collaborative assemblage.

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Key Words: Complexity, Experimentation, Rhizomic planning, Becoming, Conflicts

ON QUESTIONS OF URBAN SOCIAL JUSTICE IN AN IMMIGRANT CITY

Abstract ID: 394

Individual Paper Submission

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There is a rich body of work on planning and policy-making in, and for, immigrant communities and multicultural communities more generally (Burayidi, 2003; Fincher, et al., 2014; Qadeer, 2016; Sandercock, 1998; Vitiello, 2009). There is a comparably rich body of work on theorizing urban social justice (Fainstein, 2010; Harvey, 1973; Marcuse, et. al, 2009; Soja, 2010). But too often the literatures have not addressed each

other. Discussions of planning in/for immigrant communities often have an implicit understanding of urban social justice – and are motivated by social justice concerns – but such understandings are too rarely articulated or explored in depth. Similarly, discussions of urban social justice often implicitly acknowledge the existence of immigrants in American communities (and the injustices they so often confront), but too rarely foreground questions of immigration and how immigrants might shape or transform the meanings of social justice and the efforts to achieve it.

In this, planners are not alone; philosophers have long struggled to incorporate questions of migration into their frameworks for understanding justice. Some, like Rawls, have assumed away the question, and write about a “closed society”; others, like Walzer, have advocated for relatively closed borders in order to have “the community” of their theorizations; others still, such as Carens, have advocated for open borders on the grounds of social justice. These frameworks, however, offer less than could be hoped for in efforts to theorize justice in actually existing urban spaces, where migrants increasingly constitute “the community.”

This paper will use the context of Queens, NY to discuss the ways in which questions of social justice manifest themselves in an immigrant society. It will do so in ways that try to bridge the aforementioned disparate conversations and make explicit questions and problems that are too often left under-discussed. It does not provide any clear answers to most of these issues, but instead points to ways in which such questions and dilemmas might be addressed in both the theory and practice and practice of planning.

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Key Words: immigration, social justice, Queens, NY

BOSTON'S SEARCH FOR RESILIENCE

Abstract ID: 548

Individual Paper Submission

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A recent plea in planning theory was launched to re-examine the broader implications of ecological studies on resilience for the planning field. Since Holling's seminal paper (1973), the foundations of evolutionary resiliency prompted many to conclude that planning theories and practices should be concerned with planning actions not only aimed at enabling the recovering from natural disasters (bouncing back), but also with the capacity of human beings to cope with non-linear and non-predictable systems (Davoudi 2012). It also encouraged many to explore critical questions focused on the de-politicization of the planning field, especially when planning is called into play to address unexpected natural events caused by climate change and the exhaustion of limited resources (Davoudi and Porter 2012, Fainstein 2015).

In the US, planning for resilience approaches have been mainly divided between ecological and engineering advocates. While the former group has been searching for the most innovative high-tech solutions that would protect urban areas and enable them to return to their “normal” state after natural catastrophes, the latter have been trying to generate naturally-oriented strategies that would restore former ecological conditions to accommodate the effects of those changes and create a new “normal” conditions. In the Boston Metro Area – which is experiencing significant economic growth pressures and where the free market tends to drive the policy agenda – planning for resilience is a paramount concern. Institutional planning strategies have been mostly

inspired by the “engineering resiliency” and “ecological resiliency” approaches. These trends in planning practice have been paralleled by a complementary inclination in academic research favoring dynamic modeling aimed at forecasting future natural events. However, acknowledging that humans are the primary cause of global environmental challenges, there is still a strong need for research on what substantial changes in people’s value systems and behaviors should be taken into account in planning for resilience.

This research project will present preliminary findings of a case study research aimed at answering the following questions: How is planning for resilience conceptualized and implemented in the Boston Metro Area? Who gains and who loses from potential and implemented projects for resilience and under which circumstances? What type of research is needed to maximize the transformative power of planning in the face of global environmental challenges?

Preliminary findings suggest that while mainstream planning still maintains a “return-to-normal” model, there is an increasing awareness of the limits of these planning practices, especially within social structures and groups that are not accountable for decision-making. This paper reflects on those findings and suggests the need of planning approaches aimed at reshaping value-rationality in decision-making. Using “civic engagement” (Boyer 1996) and “multispecies entanglements” (Houston et al. 2017) as theoretical frameworks to re-orient planning action, the paper discusses the possibilities for collaboration between institutional and non-institutional agencies to work on conducive planning strategies to cope with the unpredictable.

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Key Words: planning for resilience, evolutionary resilience, engagement, entanglements

DECOLONIAL AESTHETICS AND THE ART OF REFUSAL: LESSONS FOR PLANNING IN DUANE LINKLATER’S MONSTERS FOR BEAUTY, PERMANENCE, AND INDIVIDUALITY

Abstract ID: 558

Individual Paper Submission

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If you had ventured in to Toronto’s Don Valley in the fall of 2017, you might have confronted something unexpected: 14 enormous cast-concrete replicas of gothic-revival grotesques that adorn many of Toronto’s major buildings. Created by Cree artist Duane Linklater, these replicas formed an installation titled *Monsters for Beauty, Permanence, and Individuality*. Linklater’s sculptures appropriate familiar forms, transposing symbols of progress and wealth from their original locations to the Don Valley in order to draw attention to the history of the Don Valley as both a space of historical importance to Haudenosaunee, Wendat and Anishnaabe peoples, as well as the source of clay and timber that provided the material basis for the settlement of Toronto.

Toronto, like many of Canada’s major urban settlements, is located on the traditional territories of Indigenous peoples. Indigeneity and urbanity have long been understood as incompatible categories. *Monsters for Beauty, Permanence and Individuality* refuses the meanings and histories that have been forced on to Indigenous territories in the making of settler colonial urban space. Thus, Linklater’s work activates “decolonial aesthetics”—

a mode of artistic expression which refuses the constraints of colonial narratives on creative production, and re-orient creative practice to “affect resurgent practices and Indigenous ways of being.” (Martineau & Ritskes 2014, IX) As Karyn Recollet explains, decolonial aesthetics “gesture towards creative design futures” which practice “an active ongoing refusal of dispossession and erasure.” (Recollet 2016, 93)

Having recognized planning’s role in historical and ongoing colonial projects, planning scholars have begun to grapple with the question of how to decolonize planning theory and practice, and produced numerous discursive, ethical, and rights based approaches to this task. (Ugarte 2014) While planning theorists have made important progress in tackling this problem, important questions remain unanswered. For instance, much of this work has focused on planning and resource co-management in remote settings, while the urban dimensions of decolonization have yet to be fully understood. (Porter 2014) In this paper, I argue that decolonial aesthetics offer a vision for reimagine city building as a resurgent practice, and show how Indigenous creative expression can provide a basis from which to imagine futures beyond colonialism which do not focus on the settler colonial state, or non-Indigenous peoples as the drivers of decolonization. I will explore how works such as Linklater’s offer important lessons for planning by tangibly illustrating how theory and practice are connected through creative engagements with urban space, thereby suggesting modes of theorizing that might animate anti-colonial and decolonial planning practices.

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Key Words: Indigenous planning, decolonization, public art

PLANNING IMAGINATION & PROFESSIONAL JUDGMENT: MAKING COMPELLING PLANS FOR FUTURE GENERATIONS

Abstract ID: 561

Individual Paper Submission

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Problem

People focus on the present and conceive needs and desires in relation to the people they know and love. Professionals make plans that include expectations tied to the welfare and security of unknown future generations. How do professionals make compelling plans for these strangers to the present?

Argument

Professionals study urban problems documenting the likelihood that certain human activity contributes to traffic, flooding or pollution offers reasons to focus policy attention on solutions. Additionally, they model relevant system behavior evaluating the scope and intensity of interactive consequences. Clever planning scholars like Dowell Myers and John Forester critique this approach and from very different directions offer ways to avoid irrelevance. Myers the demographer uses astute analysis of population cohort data to uncover counterintuitive evidence challenging popular conceptions of the future, while Forester uses in depth interviews to uncover evidence of how professionals lead people to change their minds about the meaning of future effects on others.

Planning Imagination and Professional Judgment

I argue that conceptions of rational analysis and instrumental effectiveness offer an incomplete and sometimes

misleading basis for planning judgment. Plans may offer valid reasons assessing future consequences and still offer little insight for practical action. I review and summarize debates about extended and embodied cognition to show how research about humans cognition treats plan making as a complementary extension of the more basic prediction focused trial and error learning. Plans actively imagine the memories people use to make the world each inhabits with others. Research evidence from cognitive science and neuropsychology document how problem conception happens interactively as each of us extract and combine elements of experience and our environment composing mental models that project imaginary blends of familiar and unfamiliar possibilities. These include plans that help us form intentions and infer meaning about causes, norms and effects.

Recognizing the functional properties and operational features of such planning can help planning scholars and professional planners better understand their own practice. I will explore how this evidence supports some of the insights of scholars like Myers and Forester that study what planners do and how plans might work to shape and alter perceptions and belief.

As professionals deliberate with citizens their claims for special attention flow not from the presumption of a kind of detached rationalism, but a more sustained and detailed understanding of relevant data and cases related to the problems at hand. The ability to compare and contrast direct and indirect future effects for competing proposals provides legitimacy as this knowledge informs the intentions of the citizen participants. The deliberation includes more than offering reasons, but includes storytelling, map making and image projections that offer meaningful contexts for those involved to imaginatively inhabit and use imagining future impacts for distinct alternatives or options. People incline towards a single pathway fixed by habit and professional artistry strives to work against this tendency. Objectivity in this context does not mean detached contemplation of the facts, but experienced and capable composition of imaginary elements.

Professionals do not conduct the comparison and calculate the winner, but foster deliberations among the citizens about the value and meaning of the different effects generated by each simulated option. I consider the use of proverbs, metaphors and scenarios using familiar planning cases to show how cognitive insights about planning provide support for planning imagination. I consider how teaching planning theory may be improved as instructors treat ideas not as mental constructs representing an external world, but constructs that imagine and inspire embedded transaction.

Citations

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Key Words: Planning Imagination, Deliberation, Plan Making

IS PLANNING "SECULAR"? THINKING ABOUT RELIGION, SECULARISM, AND PLANNING

Abstract ID: 584

Individual Paper Submission

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Responding to the call for a deeper understanding of the religious phenomenon in planning (Sandercock, 2006; Thomas 2006), this paper argues that understanding religion in planning entails understanding religion's constitutive other: secularism. This position draws on the burgeoning field of secular studies (Asad 2003;

Mahmood 2015; Sullivan, 2005) as well as examples of entanglement of religion, secularism, and planning in the United States and France. It problematizes a long-held assumption that good planning is based upon the notion of “religious indifference,” for the assumption is conceptually anachronistic and practically untenable. Nonetheless, this assumption is too important to be simply abandoned given the perils of religious differences, and too entrenched to be easily revisited given the exigencies of liberal-secular governance. This paper offers a series of methodological considerations as to how planners can radically rethink this assumption while effectively attending to the religious subjectivities of their constituencies and actively working through the structures of the modern state.

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Key Words: planning, religion, secularism , religious (in)difference, law and politics

VIOLENCE, PLANNING, AND THE PRODUCTION OF SPACE: A SURVEY OF THE LITERATURE.

Abstract ID: 586

Individual Paper Submission

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Across the social sciences, violence has been presented through a variety of perspectives, from Hannah Arendt’s (1970) conceptualization of violence in opposition to power, to Bourdieu’s account of complicity submission as symbolic violence (Bourdieu and Wacquant 1992), to Zizek’s (2008) categorization of violence into subjective, objective, and systemic. Theoretical treatments of violence vary in regards to whether it is exerted directly and physically or implicitly and subtly; whether it is perpetrated by the state or individuals; and whether it is treated as cause or effect.

In the planning field, violence has similarly been discussed from various perspectives. Studies and theories about strategies for designing spaces where crime can be prevented or where women feel safer, for instance, illustrate one aspect of the relationship between planning, space, and violence – one in which planning may be deployed to deter violence. However, the acknowledgement that planning may serve as a tool of oppression (Yiftachel 1998) has brought to light investigations of violence perpetrated by the state. This view emphasizes the role of violence in shaping urban policy making and the production of space (Gunder and Mouat 2002). Thus, rather than conceptualizing violence as the unfortunate or unintended consequence of lack of planning, this approach argues that violence may be part and parcel of the urban planning project.

This paper offers a survey of the planning and urban studies literature focusing on how the different types of violence (e.g. physical, symbolic, systemic, structural) have been addressed and theorized. It analyzes what we have learned (and how we have learned) about the relationship between violence, planning, and the production of space. Finally, the paper discusses gaps in our understanding and points to important conceptual and methodological issues that must be considered in advancing theorization about the relationship between violence, planning, and the production of space.

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Key Words: violence, oppression, state, literature survey

POLITICAL INEQUALITY IN TRANSPORT INFRASTRUCTURE PLANNING: A CASE OF MELBOURNE, AUSTRALIA

Abstract ID: 591

Individual Paper Submission

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Abstract

This paper contributes to a reconceptualization of transport infrastructure politics in the urban age, which is increasingly characterised by 'urban uprisings' against the structural inequalities produced through neo-liberalism. In his description of 'urban uprising' Dikeç (2017: 7) draws our attention to the production of political inequality in the urban declaring that uprisings are themselves political acts as they "expose patterns, dynamics and structures of exclusion and oppression that have become routine and normalized". For cities embedded into neo-liberal forms of planning, transport infrastructure planning as one example is being met with increasing participation by the private sector presenting new challenges for public participation as a powerful practice in planning (Innes & Booher, 2015). This paper examines public-led resistance campaigns directed at the production of political inequality in public participation processes that are designed to both normalise political inequality in urban governance, and refract socio-political resistance in the city.

Approach and Method

To examine this form of public resistance, I draw on the case of Melbourne, Australia, a city that witnessed the defeat of an inner-city tollway in 2014 and then was met with the announcement of a new inner-city tollway in 2015. This research draws on thirty interviews with public campaigners including long-standing transport advocates and single-issue campaign groups, as well as local and state politicians. It also includes discourse analysis of print and social media and relevant policy documents. Critical participatory action research (Kemmis et al, 2013, p6) was also conducted involving attending neighborhood meetings, exhibitions, neighborhood festivals, participating and/or observing street protests and sharing my research with public campaigners throughout the different stages of resistance through an exchange of reflexive learning and critique.

Findings

Mobilising Dikeç's (2017) notion of political inequality in the context of two controversial inner-city tollway projects in Melbourne, the findings offer illustrations of the conditions shaping resistance. The findings show that we must reposition transport politics into a broader urban politics that allows for civil society to be foregrounded in the production of transport. Moreover, examining what motivates and inspires public-led politicisation lies at the heart of understanding the conditions that shape what is political and what becomes political in the planning of future transportation infrastructure. Such analyses can help us better understand different ways of knowing and experiencing transport and its politics.

Relevance

These findings are important for transport studies and planning theory as it connects the symbolic violence promulgated in planning with the literature on urban transport governance. As more high-profile uprisings expose the “sources and geographies of legitimate grievances, including injuries of the past, difficulties of the present and anxieties about the future” (Dikeç 2017, 217), resistance to urban infrastructure must be understood in cultural and historical terms as a city and its people come to terms with the injustices transport planning has produced in the city. In doing so, transport infrastructure planning and transport governance theory must properly recognize the socio-political environment it is set within.

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Key Words: political inequality, transport, public participation, infrastructure, Dikeç

COMMONING OR BEING COMMONED?: COMMUNITY RHETORIC AND THE ACTUAL PRACTICES OF COLLECTIVE HOUSING IN BANGKOK

Abstract ID: 614

Individual Paper Submission

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The “urban commons” has been invoked by scholars across the many disciplines of planning and urban studies as an alternative to the market-based system of private property. The most well-known conceptions of the urban commons draw from the broad, Lefebvrian view that the city itself is a collective work, with “commoning” referring to acts of appropriating space for collective use (e.g. Harvey 2012; Blomley 2008; Maringanti 2011). Though the work of Ostrom is frequently gestured to in urban commons literature, researchers have rarely employed an institutionalist lens to understanding the urban commons (Huron 2018). Taking inspiration from Huron’s effort to emphasize the labor involved in commoning, this research employs both institutional and broadly political conceptions of the commons to investigate how the work of the commons is done in the Baan Mankong Collective Housing (BCMh) program in Bangkok, Thailand.

BMCH is administered by the Community Organizations Development Institute (CODI) and has been lauded as a successful example of participatory slum upgrading (Mitlin and Satterthwaite 2004). Much of the praise for BMCH emphasizes two key aspects of the policy: (1) It is community-based, establishing communal land tenure and financed through cooperatives, and (2) To go through the BMCH process, communities join one of a handful of community networks whose official purpose is knowledge-sharing and capacity building. This research asks the question, what are the roles of these two elements in producing the actual practices of commoning employed by communities? Using data from over 60 semi-structured interviews and 15 months of participant observation with the various agencies, organizers, and communities involved in BCMH, this paper addresses this question through the lenses of regulation and rhetoric.

Regulation refers to the vast array of zoning laws, housing cooperative by-laws, and prescribed practices passed down from CODI that communities must agree to in order to participate in BMCH. On top of these regulations, it is often legal action in the form of eviction that pushes residents to participate in the program in the first place. The combination of having limited options when entering into the program and the presence of complex regulations that are difficult to comply with amount to what I refer to as the element of “being commoned.” Though the phrase implies passiveness, being commoned involves a tremendous amount organizing and administrative labor.

Rhetoric refers to narratives of community put forth by CODI and the different community networks. The networks vary in their political leanings, running the gamut from a democratic activist movement founded on the

principles of Saul Alinsky to the one created by CODI, which emphasizes a distinctly neoliberal discourse of empowerment through self-reliance.

I conclude that residents' understandings of community, informed by involvement with their networks, greatly inform the commoning practices of BMCH communities. In particular, they affect how communities deal with instances in which they are unable to comply with regulations or current institutional arrangements are incompatible with their needs. Through detailed descriptions of case study communities, I demonstrate that the actual work of creating and maintaining urban commons can be emancipatory, but it can also be disciplining. This nuanced and unromantic perspective is critical to moving forward the theory and practice of the urban commons.

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Key Words: Urban Commons, Community, Housing Cooperatives, Bangkok, Thailand

“DEMOCRACY YET TO COME”: PARTICIPATORY PLANNING AND MUTATIONS OF THE POLITICAL IN TUNISIA

Abstract ID: 826

Individual Paper Submission

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In this paper, I use Jacques Derrida's concept of "democracy yet to come" (Derrida, 2006) to explain what the view from municipalities engaged in participatory planning in Tunisia reveals about our understanding of democratizing politics. I connect conversations about the urban political in urban studies (Dikeç 2005, Magnusson 2014, Dikeç and Swyngedouw 2017) with early research on the Arab uprisings which examined the emancipatory politics of these upheavals beyond the region (Abourahme & Jayyusi 2011, Bayat 2013, Ismail 2013). Instead of reflecting on the Arab revolutions as particular conjunctures, I study the aftermath of these revolutionary moments in Tunisia, where participatory planning plays an important role in consolidating a "democracy yet to come". In keeping with Clive Barnett's call, I study democracy "parasitically" focusing on the ways "in which democratic norms are invoked in new contexts in the course of ongoing political contestation." (Barnett 2008, 1639)

I use data from 40 participatory planning meetings I observed in Tunisian municipalities across the territory during two cycle of municipal investment planning in 2016 and 2017. Each of these meetings lasted between 1 and 3 hours and was attended by an average of 50 predominantly male participants. My observations of these meetings pertain to the profile of the participants, their modes of participation, and the type of services they asked to access. I also recorded how municipal officials responded to these demands. The participatory planning exercises are part of a political decentralization program that seeks to create municipalities across the Tunisian territory in response to revolutionary grievances of unequal service delivery. This research paper is part of a larger dissertation project where I make an argument about an emerging mode of governance in post-revolution Tunisia that is neither democratic nor in keeping with the authoritarian past. I call this emerging mode "governing through expectation". This research paper is an attempt to establish a relationship between this emerging mode of

governance and notions of the urban political both in its emancipatory potential and the opportunities it forecloses.

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Key Words: democratizing politics, participatory planning, urban political, Arab revolutions, Tunisia

TRANSFORMATIVE PLANNING IN CHINA: CONCEPT, APPROACH, AND A RESEARCH AGENDA

Abstract ID: 831

Individual Paper Submission

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The most urgent task in understanding Chinese planning is to explain the country's great transformation since the Reform and Opening-up policy of 1978. How to define planning in the Chinese context? What kind of role planning has been playing in China's great transformation? How does it happen? What could China's experiences contribute to planning theory? This paper tries to answer these questions and lay out a research agenda for what I called "theorizing Chinese planning and Sinicizing planning theory".

To define planning in the Chinese context, I borrow Friedmann's idea of planning as the art of linking knowledge to action. The Chinese state owns all urban land, controls about half of the capital nationwide, leads the financial industry through ownership and regulations. It deploys far more resources demanding planning for uses than its western counterparts. With its socialist tradition of state planning, the Chinese state has multiple planning systems within and beyond the spatial planning realm. And these systems have been constantly reformed to be brought up-to-date for the country's socio-economic development. Giving this complex of Chinese planning, an encompassing and metaphysical definition of planning like Friedmann's is particular necessary. It's capable to provide explanatory leverage.

To understand the role of planning in China's great transformation, I use Friedmann's dichotomy of system-maintenance planning and transformative (system-changing) planning, among which transformative planning should be given a special emphasis. Comparing to Friedmann's idea that transformative planning in developed countries takes the form of radical practices conducted by the civil society, I propose that transformative planning in China primarily happens through the party state. The one-party rule of the Chinese Communist Party plays the function of what Friedmann calls "revolutionary state", which mobilizes the society to transform for self-reliant modernization.

While system-maintenance planning denoting the institutionalized and bureaucratized practice of planning, transformative planning refers to the process of intentionally reforming the institutions and bureaucracies to bring them up-to-date. In the course of understanding China's institutional reform process, I develop Friedmann's theory of transformative planning by introducing the intermediary concept of institution. The change-actors have to employ their knowledge to transform concerned institutions, and then changed institutions would shape new practices to achieve the goal of social transformation. In post-revolution China, constant institutional reform is the primary job and source of legitimacy of the mass-mobilizing party state. In this research, I borrow John Searle's theory of institution, and develop a description of the dialectic relation of humans and institutions in an institutional changing process.

To find an empirical research approach to understand the Chinese transformative planning, I examine Healey's institutional approach and point out its limitation of combining two categories of institutions. The institutions that humans take for granted to follow and the institutions that explanation and implementation are required should be differentiated. Because the space of change for the second category lies precisely in the explaining and enforcing process. I therefore employ a theory of gradual institutional change from historical institutionalism to analyze the transformation of China's city-building institutions in the past forty years.

In this analysis, I conclude that change-actors' efforts of linking practical knowledge to reexplanation and discretionary implementation of institutions bring gradual but transformative changes of city-building institutions. The institutional transformation leads to the transformation of city-building practice. Given that city-building is the realm where the country's great transformation is arguably most phenomenal and it's a realm most familiar to the planning academia, I choose it as the starting-point to explain China's great transformation with the theory of transformative planning. A further research agenda of "theorizing Chinese planning and Sinicizing planning theory" was proposed at the end of this paper.

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Key Words: transformative planning, Chinese planning , institution, citybuilding, party state

THE PUBLIC INTEREST AND INDIGENOUS LAW: EXPLORING THE POSSIBILITIES FOR A NEW ETHICAL 'PIVOT' FOR PLANNING

Abstract ID: 839

Individual Paper Submission

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The public interest has a long and contested history in planning theory and practice. Scholars have argued that it is both a tattered concept, unable to account for the plurality of interests and positionalities of increasingly diverse society (Sandercock 1998), and a necessary (albeit contested) "pivot around which discussions concerning the purpose and role of planning must turn" (Campbell & Marshall 2002, p. 164). The public interest has proven to be a particularly troublesome concept in settler-colonial contexts (Porter & Barry 2016). For not only is it based on assumptions of a singular, idealized public whose interests are protected by the state, but it continues to valorize the settler state as a neutral arbiter over conflicts that have a direct bearing on Indigenous lives and Indigenous lands.

In many settler-colonial contexts, such concerns about the just relationship between Indigenous peoples and the state sit alongside a growing body of literature that seeks to draw attention to and explore the contemporary meaning of Indigenous (customary) law. The writing of Anishinabe legal scholar John Borrows (2002; 1997) represents one expression of these efforts. He tries to promote greater understanding of the legal principles that are embedded in Indigenous languages, teachings, and practices – principles like kinship, reciprocity, autonomy, and interdependence. He is interested in how these principles might interact with non-Indigenous laws to provide guidance in the current context.

This paper draws particular inspiration from a planning-specific example of Borrows work (1997), in which he applies the legal concepts found in his own oral culture to a real-life environmental planning conflict in his home community. It seeks to put this paper in conversation with the theoretical literature on planning and the public

interest to demonstrate the transformative potential of alternative ways of understanding the ethical underpinnings of planning. It advocates for the creation of more legally pluralist planning systems in settler-colonial contexts, so that Indigenous laws can meaningfully coexist with and productively extend the idea of planning in the public interest to create a new, decolonial ‘pivot’ for planning.

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Key Words: Indigenous law, public interest, settler colonialism, ethics, decolonization

TOWARD A NEW CONVERSATION: AGONISM AND THE DISAMBIGUATION OF POLITICS AND ETHICS IN PLANNING

Abstract ID: 843

Individual Paper Submission

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The role of politics in planning practice is an enduring normative question in the history of planning thought. Over the course of the past twenty years, a debate has been developing that is centred on political conflict and the ethics of overcoming it in the planning process (Gualini, 2015). This “contemporary debate about conflict” is divided along the lines of two distinct bodies of thought, what could be called the “communicative” paradigm and the “agonistic-pluralist” paradigm. Although the debate has proven to be highly fertile intellectual territory, little progress has been made toward its resolution (Bond, 2011).

This research seeks to contribute to the contemporary debate about conflict through a discourse analysis conducted on interview data from practicing planners in Winnipeg, Manitoba. It is directed toward the development of an agonistic-pluralist normative planning theory. It is argued that the communicative paradigm cannot sufficiently value the varied commitments of the discipline and is not serve as a suitable or coherent normative basis for theory or practice. A key source of this shortcoming inherent to the communicative perspective is the collapse of ethics into politics – the Good is indistinguishable from the democratic and the emancipatory (Mouffe, 2000).

Agonistic-pluralism, through the disambiguation of politics and ethics, is capable of valuing the varied commitments of planning precisely because it recognizes that all practices, both the disciplinary and the progressive, are interwoven with power and the immanent potential for antagonism (Pløger, 2015). Through an agonistic-pluralist lens, the challenge rests in identifying and exposing the contingency of practices that should be challenged and the terms through which that challenge might take place. This research seeks to illustrate these points by using Chantal Mouffe’s Discourse Theory to deconstruct various Key Signifiers and explore the differing ways that planning actualizes the potential for antagonism and hegemonically moderates the limits of emancipatory politics in practice (Jorgensen & Phillips, 2002). It is hoped that this strategy might be used to have a New Conversation about planning ethics that takes its starting point from the practiced commitments of planning, rather than the panacea of facilitation and consensus.

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Key Words: Agonism, Normative Theory, Ethics, Politics, Collaborative Planning

SANCTUARY PLANNING AND THE PUSH AGAINST THE CARCERAL CITY

Abstract ID: 877

Individual Paper Submission

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The movement around sanctuary cities represents a range of immigrant rights organizations that respond to the scaling down of immigration policy to the local level. The movement includes a range of tactics, from rapid response networks to political mobilizations to stop deportations; in many ways challenging urban planners to better engage with questions of citizenship (Varsanyi 2008; Freeland 2010). An important component of this growing movement is addressing police and Immigration Customs and Enforcement (ICE) collaborations or the “poli-migra” that have impacted the life of immigrants throughout the United States. As part of a shift in immigration enforcement policy from catching and releasing to detaining immigrants for long periods of time, ICE has entered into intergovernmental service agreements with city and county jails. The immigrant rights movement has challenged the financial and political investment in new Jim Crow policies and the Carceral City, which is visible in the building, financing, and refurbishing of jails, prisons and the investment in their workforce (Alexander 2010; Graham 2010). These economic strategies and political decisions are often linked to ideologies of austerity, crime, and accompanied by a retrenchment in services, aggressive policing and the continued confinement of poor people of color.

The immigrant rights movement in Santa Ana, California, serves as a case study to examine how a growing sanctuary movement has pushed back on the carceral city at the local scale. This study builds on previous research that documents community responses to the vast prison expansion in light of disinvestment and destabilization of low-income communities of color. The City of Santa Ana passed one of the strongest sanctuary policies in the nation, and now its sanctuary movement targets the city’s investment in the police and city jail. Through an analysis of qualitative and archival data including interviews, participant observation at city-sponsored community meetings, city minutes, and the city budget, the study demonstrates the political and economic integration of the city and the police department. The sanctuary movement challenges this consolidation in the following ways: 1) reframing the narrative around security, safety, austerity; 2) redirecting the discourse around participating in the prison business as an economic development strategy; and 3) helping push an alternative physical, political and economic vision by shaping the jail reuse process and budget allocations. The findings challenge the traditional “integration” framework that is most commonly used in planning for immigrant communities. Immigrants are more than negotiating and coping and are actually shaping community-police relations, city budget allocations, and challenging the economic model that builds on the backs of immigrant detention and deportation. The sanctuary movement is “reinventing” (a la Davis 2000) practical, economic and political urban planning alternatives that include the possibility of opting out of the prison business completely.

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Key Words: immigration , jail, sanctuary, budget, activism

ARGUMENTATION TACTICS IN PUBLIC MEETINGS

Abstract ID: 910

Individual Paper Submission

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This paper will examine how elected officials, administrators, and the public use argumentation tactics in public meetings. Despite their shortcomings (Innes and Booher, 2010), public meetings are important political means of citizens to influence local government responsiveness (Adams, 2004). They are ubiquitously used by planning and zoning agencies. They give legitimacy to policy decisions and reduce judicial challenges. Hence, it is important to examine the patterns by which persuasion happens in these meetings.

We use the theoretical lens of Habermas's communicative rationality and Aristotle's classical approach to rhetoric as the conceptual schema for identifying the patterns of arguments in local government planning and zoning meetings. Several scholars have drawn on Jurgen Habermas's critical theory and the theory of communicative action to emphasize the linguistic turn. The linguistic turn does not diminish the significance of the substantive field or empirical scientism, but also recognizes the significance of rhetoric and argumentation as influencing public policy. As Majone (1989, p. 1) observed astutely, "Politicians know only too well but social scientists too often forget, public policy is made of language." Fischer and Forester (1993, p.2) extended Majone's observation to claim, "Policy analysis and planning are practical processes of argumentation." Fischer and Gottweis (2012) portray how the argumentative approach challenges the value free, technocratic approach and brings the reality of discursive deliberations and politics to the forefront of policymaking.

To construct the argumentative schema, we draw on how people persuade or argue in the tradition of Aristotle's classic, *On Rhetoric*. Persuasive communications are derived from enthymeme, or rhetorical syllogism, where a statement is supported by an implicit or explicit premise. Aristotle famously identified three main components of persuasion (pisteis)—logic (logos), character (ethos), and emotion (pathos). Several philosophers have also highlighted how the use of timing and context (kairos) is integral to Aristotelian rhetoric. We use these four pillars to frame our scheme of deliberative arguments in public meetings.

To develop the schema, we examine the planning and zoning meetings held in the Miami-Dade County and in San Francisco over one year period in 2017. We chose these two places for giving us diversity in the form of public meetings (San Francisco's meetings are very structured; Miami-Dade County ones are semi-structured). Our focus is not as much on the substance, as it is on the mode of argument. [As many authors have argued, the mode (i.e. the how) of communication is more important than substance (i.e. the what) in public deliberations (Bartels, 2014).] We are in the process of coding the meeting transcripts in NVivo to identify common patterns of argumentation.

Based on the extant coding, we have tentatively identified ten tactics that could be grouped under the four Aristotlean categories. They are: kairos or situational context (first mover advantage, using time as ally, and mountains are too high); logos or rationality (data dump, take it down the rabbit hole); ethos or speaker's credibility (expert knows best, belittling dissenters, moral high ground); and pathos or emotional appeal (loaded language, trigger/ defuse the bomb). We will further refine the tactics after the transcripts are fully coded.

Understanding and identifying these argumentative tactics is an important step for policymakers to recognize when the tactics are employed and effectively steer the public conversations in the face of conflicting narratives. In the spirit of Aristotle and Habermas, we have to deconstruct the persuasive argument or the dominant narrative in the quest for a better argument for future action.

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Key Words: public deliberation, public meeting, communicative rationality, rhetoric, policy argumentation

TEN PARTICIPATION NORMS FOR URBAN DEVELOPMENT PROJECTS

Abstract ID: 941

Individual Paper Submission

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Citizen participation is one of the key-terms of urban planning in the 21st century.

In most urban planning projects, engaging the local community is one of the promises made by planning authorities, and private developers. In practice a wide range of participation practices exists that often involve various public and private stakeholders.

In our research project we develop a new method to analyze and design participation processes in (urban) development projects.

Already in the 1960s, Arnstein (1969) has famously noticed that a wide range of participation practices exists and she developed a ladder of citizen participation (ranging from manipulation to citizen control) that is still widely used.

However, the ladder is hard to apply to multi-stakeholder projects and was not made as an analytical tool to describe where processes are successful and where they go wrong.

We have therefore developed ten participation norms. These norms are based on the relational contract theory as developed by the legal scholar Macneil in the second half of the 20th century (Macneil, 1980) who famously argued that all contracts are embedded in a social structure (relations). We have framed participation processes in urban planning processes as a type of social contracting. This means that participation processes come with a minimum requirement of reciprocity.

Policy practices of the 1980s onwards have not only been described as a move to neo-liberalism but also as contractualism (eg Vincent Jones, 2007). The latter means that the governments make use contractual practices to promote public goods. Examples of this trend in the planning field are tender practices that include participation goals (such as a requirement to develop a community center with specific local organization) or a requirement that – in order to get a planning permit - a developer has to make specific promises to a local community (Janssen-Jansen & Van der Veen, 2017).

Relational contract theory can be used to analyze these practices and to show that contractualism is not necessarily a synonym for neo-liberalism but can be used to promote relations that are characterized by reciprocity.

In our presentation we will introduce the participation norms and apply them to various cases in Amsterdam (the Netherlands) and New York. These cases include, the redevelopment of Kingsbridge Armory and Gowanus Canal in New York city and the redevelopment of the K-buurt and The Navy Yard in Amsterdam. We will also draw on interviews that we conducted in Paris.

In the presentation we will show, why and how some participation process fail and use the norms as well as the interviews to provide suggestions for improvement.

The presentation is of interest for scientists and planners that are interested in participation processes and in new scientific and practical approaches to design and analyze them.

The research project is part of the R-link research project that was granted to a coalition of Dutch universities by NWO (the Dutch Scientific Organization) as part of their research project SURF (Smart Urban Regions of the Future)

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Key Words: participation, urban development, communities

PROSAIC PRACTICES OF URBAN MANAGEMENT: RESPONDING TO INFORMAL HOUSING IN US MUNICIPALITIES THROUGH SYMBOLIC ENFORCEMENT AND INFORMED NEGLECT.

Abstract ID: 966

Individual Paper Submission

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In municipalities across the country illegal apartments are a common phenomenon. These apartments are usually created by subdividing single family dwellings into multiple units or by renting out areas not intended for living quarters, like basements, attics, or garages. Illegal housing is a particularly vexing problem for authorities. On the one hand, it presents serious health and safety concerns. On the other, illegal units are often one of the few affordable options for the poorest, most vulnerable urban residents. Mass crackdowns are costly and create new challenges such as finding housing for evicted tenants. Adjusting zoning or building codes to accommodate denser housing arrangements can be politically infeasible. In many municipalities struggling with this issue, officials are effectively “stuck” when it comes to formal options. This study asks the question, how do public administrators and enforcement agents manage the issue of illegal housing in the face of these constraints on formal options?

In order to answer this question, I use fine-grained ethnographic methods that include in-depth interviews with municipal officials, politicians, and other stakeholders such as advocacy organizations and residents associations. Data collection is carried out in eight municipalities in the New York metropolitan area. The municipalities are not named, and research subjects were granted anonymity in order to allow for more candid discussions about enforcement and management strategies that deviate from formal laws and procedures. Through this research, I find that informal techniques emerge as important tools to for state actors manage the illegal housing issue. I separate these techniques into two categories: informed neglect and symbolic enforcement. Informed neglect refers to situations where officials have full knowledge of informal actions but tacitly accept most practices as long as they are not too egregious. Symbolic enforcement occurs when political pressure or potential safety issues get too severe to ignore. Usually the worst violators are pursued and these crackdowns are held up as examples that city officials are “doing something” about the problem, while the broader issue and its causes are left largely unaddressed.

This paper contributes to our understanding of informality and planning by showing how informality is not just an absence of control or regulation, but a reconfiguration of it. It challenges planners—we who often conceptualize the state as a relatively stable, formal, rules-based entity—to pay attention to the ways in which informality is an important mechanism of urban management. This paper calls for planners to take a more disarticulated, ethnographic approach to understanding state power. My findings demonstrate the ways in which the state is not a fixed unitary entity, but is something enacted through prosaic practices (Painter 2006). The state here is conceived of as embodied with the enactment and the experience of state power understood as the product of individualized decisions, compromises and improvisations (Mountz 2003). Under this frame of thinking, ambiguity is conceived of not as an accident, but as a strategic mechanism utilized by state officials to manage difficult, seemingly intractable, problems of municipal governance (Roy 2003). Yet, lest they be uncritically celebrated as new tools for flexibility in planning (Innes et. al. 2007), we must also remember that these strategies tend to benefit municipal officials at the expense of true democratic decision making and can reinforce and reproduce social and political inequalities (Flyvbjerg 1998).

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Key Words: Urban Informality, Informal Governance, Planning Process and Enforcement, Housing

EQUIPPING URBAN PLANNING FOR REDISTRIBUTIVE JUSTICE THROUGH THE CREATION OF NEW URBAN INDIGENOUS RESERVES: A CASE-STUDY OF PRACTICE AND DISCOURSE IN A MEDIUM-SIZED CANADIAN CITY

Abstract ID: 1063

Individual Paper Submission

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Planning scholars have suggested ways that Indigenous self-government might be advanced in rural regions through shared land use and natural resource decision making partnerships (Porter, 2004). In cities, however, rigorous neoliberal logics at the government level, and divergent worldviews at the social level may pose significant obstructions to shared decision making, especially where territorial claims pit ‘highest and best use’ against non-capitalist property interests (Howitt & Lunkapis, 2010). I use this paper to investigate planning

processes and public discourse at the Indigenous-state interface, through the case of new urban reserves in Saskatchewan, Canada.

New urban reserves are additional land holdings for Indigenous nations within or adjacent to municipal boundaries. They are a possible mechanism for mutually advancing the self-government and economic development interests of Indigenous populations in cities (Peters, 2007; Walker, 2013), but direct attention to the under-tested ability of mainstream planning to adapt to pluralist modes of government and property. For example, representatives of local government express fear over the prospect of lost tax revenues that urban reserves, which are converted to public crown-land after being purchased, may represent (Peters, 2007). Importantly, some have argued that the neoliberal orientation of the urban reserve model in Canada may undermine Indigenous sovereignty via a quiet process of municipalizing the position of First Nations in relation to Canadian governments (Tomiak, 2017).

I offer case study of new urban reserve development in Saskatoon, Saskatchewan, consisting of a critical discourse analysis of public policy, municipal planning documents, and city council minutes, as well as semi-structured interviews with planners engaged in the development process. In doing so, I assemble sketch of a planning practice and a policy approach that may be novel, and specialized towards increasing urban Indigenous land bases. I argue that by acquainting themselves with the processes of urban reserve creation, and the challenges it may incite from within government and in community, planners can improve their ability to influence distributive justice in contested territory. Conceptually, I develop this paper as a means of mainstream planners improving their ability to function in the rearguard of decolonization efforts. Key questions that this work engages include:

- How does the development of new urban reserves require planning process to adapt to new ways of doing planning?
- What are the internal and external challenges planners face in planning for the redistribution of Indigenous lands within municipalities, and what strategies can be deployed for managing them?
- How, if at all, do new urban reserves contribute to the self-determination and decolonizing goals of urban Aboriginal communities?

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Key Words: Indigenous-municipal relations, Planning theory, Property, Economic development, Neoliberalism

SUB-NATIONAL FINANCE AND THE POLITICS OF GLOBAL PRESTIGE

Abstract ID: 1069

Individual Paper Submission

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The City of Dakar was the first city in West Africa to receive a credit rating and was anticipated to be the first city in the region to issue a municipal bond without the sovereign guarantee of the nation-state. Dakar's bond was a model experiment that proposed to solve a contemporary problem of urban development finance: how are local governments going to access enough wealth to pay for the service delivery needs of a rapidly expanding urban population? Policy-makers intended for Dakar's municipal bond to address exactly this problem by leveraging access to regional stock markets to pay for a commercial center to house thousands of Dakar's street vendors. Instead of increasing tax revenues, the City of Dakar aimed to raise funds by appealing to investors and donors

through a positive credit risk rating and a World Bank-led financial accounting evaluation. However, the week of the anticipated bond launch, Senegal's Ministry of Finance sabotaged the program by retracting its "letter of non-objection". Despite the global prestige accorded to municipal bonds, central state countered with its own juridical right to sabotage the program.

In this paper, I explore the political stakes of Dakar's bond. I argue that the program's central effect was to assemble political audiences, what scholars of modern life have come to term publics. I focus on the bond's publics because the material, administrative, and financial value of the bond itself were never realized in Dakar. And, in fact, many of the actors involved never anticipated that they would ever be realized. Therefore, I turn to the imagined futures and social values that Dakar's municipal bond came to embody. I suggest that the bond's value did not lie in its programmatic effects, but instead on how it garnered attention across multiple audiences, even as the program became widely understood as a "failure". I term this type of audience a technopublic: a collectivity called into being through the shared attention to—and, in this case, anticipation of—technical forms and expert interventions. In contrast to a focus on the program's proposed material effects, I explore how it garnered attention—and opposition—exclusively through the circulation of its representations. Importantly, the municipal bond program embodied what development professionals call "fiscal accountability" while officials at the City of Dakar similarly understood the program as a possible pathway towards "fiscal autonomy", itself an emergent value of international development thought and practice. Seen from this perspective, the bond program was immensely successful in assembling publics, which became a springboard for the Mayor's subsequent, albeit embattled, presidential campaign.

I use the concept of technopublics to focus attention on the various audiences to which Dakar's municipal bond project appealed, particularly international development practitioners. But I also suggest that the program is more than just a search for political prestige. It is also a creative response to a much longer history of central state legal reforms that, in the name of decentralization and local government, has diverted resources and responsibilities away from the City of Dakar. Leveraging international attention for its democratic practice and good governance in order access to wealth is a long-held practice of the Senegalese nation-state. I examine in this paper how the municipality, not the nation-state, is taking up a similar global political economic strategy, but reconfiguring it to fit the values of contemporary development thought. Yet I also reveal that appeals to this global technopublic—and its attendant aspirations of fiscal autonomy—are still susceptible to the juridical and sovereign power of the Senegalese nation-state.

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Key Words: Africa, Finance, Politics, Theory , Development

DISPOSSESSION AND ITS LIMITS: COAL, LAND AND THE ENVIRONMENT IN SOUTH INDIA

Abstract ID: 1099

Individual Paper Submission

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For more than a decade, the concept of dispossession has been central to debates in urban and planning theory. Situated within and against these debates, this paper examines the ways in which environmental planning is implicated in processes of dispossession. Environmental planning, a relatively recent sphere of governance in postcolonial India, emerged during the 1970s during a period of populist and authoritarian rule. Within this historical context, environmental planning often served as a means to mitigate social conflicts and legitimize dispossession. Drawing upon eighteen months of archival and ethnographic research among planners, scientists, fishermen, and environmental activists in south India, the paper tracks how the coal industry draws upon

technologies of environmental planning in order to dispossess artisanal fishing communities of their lands and livelihoods. I argue that environmental planning has become an increasingly important site around which contestations over coal and land take place. By tracking such contestations, the paper demonstrates that environmental planning constitutes a site of political struggle that both enables and limits often-violent processes of dispossession.

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Key Words: dispossession, coal, land, environmental planning, India

REPARATIONS FOR RACIAL PLANNING: NEW THOUGHTS ON THE JUST CITY

Abstract ID: 1169

Individual Paper Submission

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To define both the activity and normative object of planning, scholars and practitioners rely on well-defined typological "traditions" that conceptually organize the major historical themes of planning praxis. These include, for example, the rational comprehensive planning of the first half of the twentieth century, the advocacy, equity, and communicative planning associated with progressivism and mainstream critical theory, and the Rawlsian/neo-contractarian-inspired Just City planning of the 21st century. Each of these traditions engages in descriptive and normative theorizing by challenging the predominance of an existing planning paradigm and proposing its replacement by a new one. As Fainstein (2010) notes, this evolution within planning theory is attributable to the major epistemological and ontological shifts within social science and political philosophy -- the move from positivism to post-positivism, orthodox Marxism to post-structuralism, and from liberal (atomistic) individualism toward a social ontology of causally efficacious social groups. But as Charles Mills (2017) notes, what has generally survived these shifts is the nonrecognition of white supremacy as a political system as well as the obfuscatory processes that work to conceal it. White supremacy propagates a social opacity that enshrouds what Mills calls the historical relations of racial exploitation, allowing for the actualized account of racial liberalism to be replaced by a mythical inclusive and universalistic "liberalism." Building on the work of Charles Mills, this paper takes an integrative approach to planning theory, black political theory, and the critical philosophy of race, arguing that planning history as it has been told is woefully incomplete. Planning history and theory is problematized for its general supplantation of white interest with public interest. I argue that within this history, planners are typically recast as bureaucrats principally concerned with protecting this so-called "public interest" and the racial state is sanitized through either liberal idealism or a revisionist class-reductionism. Consequently, racial planning (the most historically salient planning tradition!) is left unacknowledged and untheorized. I define racial planning and trace its development from the colonial era to the present, arguing that its acknowledgement demands that we fundamentally reconceptualize the "Just City" and work toward a nonideal theoretical solution.

Implications

Acknowledging racial planning as a planning tradition contributes to planning theory in the following ways: (1) it extends the disciplinary boundaries of planning theory, (2) it extends the historiography of planning practice, (3) it de-whitewashes planning history, and (4) it provides the theoretical basis for an oppositional planning tradition rooted in reparations (rectificatory justice).

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Key Words: Planning theory, Racial liberalism, Racial planning, Political Philosophy, Justice

CYBER-ANALOG CITIZENSHIP, AMERICAN NATIONALISM AND ANTIFASCISM: DISPUTATION OF ONLINE AND PHYSICAL SPACE IN THE “BATTLE FOR BERKELEY”

Abstract ID: 1301

Individual Paper Submission

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In the wake of President Donald Trump’s election and escalation of right-wing populism in the U.S., the exercise of the constitutional right to free speech and assembly has inspired vitriol and protest at college campuses nationwide from the west coast (Berkeley, California) to the east (Charlottesville, Virginia). In some cases, the reactions occurred after student groups and others invited provocative conservative speakers to campuses; their aim being, many say, to provide an alternative to the messages generated by what they feel is an echo chamber of academic elitism and student indoctrination by faculty who espouse progressivism, multiculturalism, and inclusiveness that some denounce as “political correctness.” At the same time, they hope to recruit adherents to their side of the aisle.

These debates and protests have extended beyond campus communities and drawn attention of those across the political spectrum, including the far left and far right, responding to a perceived clarion call to resist the enemy Other. Narrative diffusion of their perspectives and organizing occurs in a combination of on-line and in-person channeling of emotions and arguments through what I call a cyber-analog citizenship. This citizenship is practiced in a hybrid cyber-analog setting that is an interplay between the campus and its physical urban surroundings and the global cybersphere.

To interrogate this citizenship, this research focuses on the far right and far left as articulated through their actions at successive, often violent, protest rallies at the 2017 “Battle for Berkeley” – commonly dubbed after the East Bay City in Northern California and UC Berkeley, which also are widely identified as home of the 1960’s Free Speech Movement. I develop a conceptual framework drawn from three lines of scholarship: communications and new media theory as it touches on cyber-citizenship and organizing (Bennett and Segerberg, 2012); social imaginaries which are people’s conceptions of themselves and society (Taylor, 2004); and, divided cities scholarship to incorporate consideration of deep-seated and intractable conflicts in locales (Gaffikin and Morrissey, 2011; Bollens, 2012). While confrontations between these opposing sides are not new and nor are nationalist and nativist conceptions of “Real Americans” (Varsanyi, 2011), what is new is how digital communications increase circuits of exchanges between like-minded, geographically dispersed activists and with their opposition.

Two imaginaries emerge that I have identified: an American Nationalist Imaginary for the far right and an Annihilate Fascism Imaginary for the far left. Although divided cities literature typically focuses on residents within the same city and region, it is important to note a significant departure: Berkeley and its environs is generally united. Instead, I find that divided imaginaries engaged in conflicts that transcend city geography as a result of the interplay of cyber and corporeal battles as rallies and people circulated in physical space across multiple cities.

I draw evidence from content analysis of online internet/social media sources. I also conducted field research through direct observation of the three protests in Spring semester 2017 and subsequent events in Berkeley post-Charlottesville, namely the so-called campus Free Speech Week and rallies organized by the far right in Fall semester 2017.

Overall, this research contributes to planning scholarship through: 1) expanding theoretical conceptions of divided cities and social imaginaries to consider when divided imaginaries circulate online and then physically and spatially land in a united city and 2) providing an empirical case analysis of U.S. right-wing populism in the context of recent far right and far left confrontations in a digital era. To my knowledge, this research represents the first scholarly treatment and analysis of the 2017 Berkeley protests drawing from extensive field observation and using the lens of cyber-analog citizenship and the developed conceptual framework.

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Key Words: Antifascism, Connective Action, Divided Cities, Right-wing Populism, Social Imaginaries

NATURE AND THE CITY: SPECTACLE AND SOVEREIGNTY IN THE “CITY IN A GARDEN”

Abstract ID: 1331

Individual Paper Submission

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In the past decade, Singapore has increasingly marketed its urban brand through spectacles of nature. These new attractions present nature as a consumable urban experience, not just as recreation, but as spaces designed around accessibility to the feeling of being in nature. Through planned vistas that frame the city, LED architectural lighting, and green walls and infrastructure, these urban nature experiences provide the means for residents and tourists alike to frame and represent the city as natural and tropical. Previously, nature in Singapore has been interpreted as an element of national development, such that major initiatives in the city, from the industrialization of the coastline to the national public housing program, had the effect of remaking the island and its natural spaces. However, the branding around nature in the city (from Garden City to City in a Garden) suggests that nature is both a “social construct” in Singapore (Kong and Yeow 1996) that nature is operationalized primarily for its economic value (Yuen 1996).

Using Chua’s recent critique of the institutional pillars of Singapore’s sovereign rule, this paper argues that “nature” is also a mechanism through which the state constructs and manages the nation (2017). Like the state programs of public housing and racial management, the production of experiences and spectacles of urban nature has been a mode of managing the citizenry, the mythology, and the popular representation of the nation. Second, these new larger-than-life natural spectacles conform to a Foucaultian schema of territorial production through monumentality. Finally, I examine these “natural” interventions through Haraway’s language of “naturecultures” (2016), a lens that confounds the understanding of nature as “natural,” something outside the limits of the organismic human, or outside the domain of state power.

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Key Words: Nature, Singapore, sovereignty, spectacle, green

FEAR: AN UNDEREXPLORED MOTIVATION FOR PLANNERS' BEHAVIOUR?

Abstract ID: 1355

Individual Paper Submission

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This paper contributes to the small but growing body of literature on the factors that influence the behavioural nature of planning practice. In this contribution, we specifically focus on fear and fearfulness as emotions that can be seen as having a significant bearing on the emergence of norms of practice. Using case-study evidence from England, we draw upon work in behavioural psychology to argue that in some contexts fear can become a natural reaction for planners; and that helping to create a more positive atmosphere for planning decisions—a space for hope—is something we should all consider important.

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Key Words: Fear, emotions, behavioural science

THE DANCE OF WORLDVIEWS - RECONCILIATION, DECOLONIZATION AND COMPREHENSIVE COMMUNITY PLANNING

Abstract ID: 1380

Individual Paper Submission

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A western perspective sees planning as a descendant of Enlightenment thinking – tied to reason and democracy (Friedmann, 1987). Winkler and Duminy question the centrality of western discourse noting that “planning interventions necessitate an awareness of how we know (epistemology), some kind of action, as well as value-based judgements (or ethical principles)” (2016). In this more complex situation, many planners possess a lifetime of teachings that causes them to don western lenses. But worldviews frame the ways that we conceive of knowing what we know (Atleo, 2005). How do we teach emerging planners to embrace other worldviews? What are some of the steps in the subtle dance that traces a line between western and Indigenous worldviews?

This paper argues that planners have much to gain through learning, promoting and aligning with Indigenous world views – but the subtle journey to formulating a workable approach requires deep reflection on planning as a colonial project and the ways that we might decolonize practice. To demonstrate the potential of these concepts

for planning, I discuss my own learning over the past year, as a newly hired lecturer in the Indigenous Community Planning concentration in the School of Community and Regional Planning at the University of British Columbia. In my discussion of this learning journey – working with students and communities, I explore the seeming incommensurability of western extractive industrialization and Indigenous world views. At the same time, I search pathways of possibility for emergent practice in this complex collision of understanding.

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Key Words: indigenous, teaching, decolonization

HOW COMMUNITY ENGAGEMENT CHANGES MINDS?

Abstract ID: 938

Poster

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Communities often enlist the support of local experts and stakeholders to serve on ad hoc planning committees. These committees work alongside with consultants and city officials to draft, review, and revise plans. Committee members are also seen as community representatives, acting as conduits for broader community engagement efforts. However, when the public's role is only advisory, it is unclear how community engagement influences the judgments of the committee members (Fung 2005). In this poster, we explore the ways in which an ad hoc local planning committee gathered and processed input from a series of community engagement workshops. We intend to show how and to what extent public input shaped and changed the mindsets behind the practical judgments of members of the committee as they made plans to revitalize their downtown.

This poster reviewed a planning process in a small community in Upstate New York. The community engaged in a contest that weighed proposals from across the state in order to obtain funding for a slate of projects in their central business district. We recorded public meetings and analyzed them by reviewing and coding dialogue. Using theories of practical judgment (Forester 1999; Hopkins 2001), we tracked the ways in which participants' mindsets shaped the discussion and how those mindsets changed over time. Visualization of the coded meeting interactions demonstrated where and how these mindsets shifted as the committee members worked with each other and as they engaged with the public.

Our results highlighted how committee members and other stakeholders engaged in collective information processing to evaluate different development proposals (Tetlock 2015). We noted that many committee members were far more adept at reasoning about the complex relationships at the heart of development projects than an analysis of practical judgment alone might have shown (Hoch, Zellner, et al. 2015). Many weighed the benefits and risks of various proposals honestly and deliberately in spite of the heavier cognitive lift required. Ultimately, committee members were caught between three intersecting sets of interests: personal, civic, and political. To the casual observer, it was not always clear how these forces influenced the mindsets and judgments of the committee and potentially jeopardized the legitimacy of the process by creating an atmosphere of distrust. By unearthing the mindsets of the committee and showing how they changed, our findings demonstrated the fine-grained details of how practical judgment can change throughout a planning process.

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Key Words: Practical Judgment, Community Engagement, Participatory Planning

TRACK 13 - REGIONAL PLANNING

FRAGILITY IN VOLUNTARY REGIONALISM: EFFICIENCY MYTHS AND IMPACTS FOR EQUITY

Abstract ID: 432

Individual Paper Submission

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Regional approaches to address social and economic inequity and improved service coordination and quality face many barriers. Some of these impediments include municipal fragmentation, local government fiscal stress, and the spatial segregation of race, economics, and political power (Dreier, Mollenkopf, and Swanstrom 2014). One possible step towards the ideals of regionalism is the formation of shared service networks among local governments. Can shared service delivery help create a broader policy framework for service provision at the regional scale? We argue it is one step, but not enough to build a lasting regional approach.

Inter-municipal cooperation, not privatization, is now the growing reform. To what extent is this cooperation driven by concerns with cost savings or equity or both? Public administration scholars argue, against regionalism, that voluntary shared services is sufficient (Thurmaier and Wood 2002). However, planners and legal scholars argue that regional governance systems must have a broader basis than cost savings, and have placed great emphasis on equity and democratic engagement (Pastor, Benner, and Matsuoka 2009, Frug 2002). By “scaling up,” regional coalitions can promote progressive policy change (Doussard 2015).

We argue that voluntary service sharing alone will not promote an equitable regionalism. While much public administration theory is based on efficiency and competition, we argue that more attention be given to financial structures and relational norms that encourage long term sustainability of sharing agreements across differences in race, income and tax base.

We use a mixed method research approach. We conduct a meta-analysis of empirical papers which use data drawn from a survey of all cities, counties, towns, and villages in New York State that assessed the level of sharing across 29 common public services. We merge survey data with local budget data, and show that cost savings under shared services erode overtime. While efficiency goals may help localities initiate service sharing, cost savings may be ephemeral, and do not enable regionalism policies to endure. We show that differential state aid encourages sharing with poorer neighboring municipalities, both the initial creation of shared services, and their endurance over time. We then delve into the politics of service sharing with case studies from upstate New York.

Voluntary approaches alone will not build a regional approach, but regionalism may be enhanced by differential state aid and relationship building between local governments. Planners must be at the forefront of this process.

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Key Words: shared services, regional equity, cooperation, regionalism, local government

POLICY INTERVENTIONS, UNEVEN DEVELOPMENT, AND RESCALING IN THE BEIJING-TIANJIN-HEBEI (JING-JIN-JI) REGION, CHINA, 1962–2017

Abstract ID: 436

Individual Paper Submission

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With the emergence of social problems such as the "Beijing Folding", China's regional uneven development has recently become a rising concern. As a typical case, it remains key question to understand the development process in Beijing and its surrounding areas. This paper aims to show the evolution of policy intervention and spatial development in the Beijing-Tianjin-Hebei region, also known as Jing-Jin-Ji region, from a historical perspective, to reveal the internal dynamics and mechanism of regional uneven development in a highly centralized environment, and to explain the role of policy intervention in reterritorialization. Finally, the author discusses on the applicability of growth pole theory and proposes the policy-oriented strategy as a planning solution.

Firstly, this paper carries out an empirical study of the history of the Beijing-Tianjin-Hebei region. Based on the statistics of the State Administration for Industry and Commerce, this paper examines the changes in the distribution of enterprises of different sectors in different regions from the 1960s, through spatial statistic analysis, and measures the evolution of uneven development in the Beijing-Tianjin-Hebei region. The research shows that in the past half century, it has generally become more and more polarizing in the Beijing-Tianjin-Hebei region. At the same time, the coupling relationship exists between reterritorialization and rescaling, and changes in regional development pattern are positively associated with changes in central-state relations.

This paper further discusses the internal dynamics and mechanism of uneven development in Beijing-Tianjin-Hebei region, by analyzing the evolvement process of the production relations under the policy intervention, through the typical game model and cases of the central government and the local government. According to the central place theory, Beijing is the geographical core of the Beijing-Tianjin-Hebei region and therefore should serve as a regional center. However, entering the era of globalization, Beijing, as a typical Global City-region, has attracted more global and national-scale flows from a multi-scalar perspective. Its development relies on the flow of elements at the global and national levels, and there is no close geographical connection between Beijing and the surrounding areas. In the meantime, through the state-space arrangement under continuous policy intervention, over-concentration of capital and other elements is triggered, which further aggravates regional uneven development.

Finally, this paper proposes theoretical reflections and planning solutions. On the one hand, the planners should reexamine the applicability of the growth pole theory in the service economical time, and focus more on the function of key nodes in the regional network instead of specific regions. On the other hand, through the rescaling process, efforts should be made to build public platforms, in order to connect various actors at global, national, regional and local levels and promote the development of localized economy.

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Key Words: Rescaling

RESEARCH ON THE CONCEPT OF "GREAT BAY AREA" IN CHINA FROM THE PERSPECTIVE OF CITY RELEVANCE NETWORK --AN EMPIRICAL STUDY BASED ON THE TWO BAYS OF GUANGDONG, HONGKONG, MACAO AND ZHEJIANG IN CHINA

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19th session of the National People's Congress clearly points out that the main contradiction of Chinese society has shifted from the underdevelopment of productive forces to the inadequacy and imbalance of development. In this context, the focus of China's regional development will focus more on the urban agglomeration level, that is, relying on the core city, under the market forces, to break the administrative barriers to promote regional balanced development. In 2017, the rise of the concept of "Guangdong, Hong Kong and Macao Bay Area" and "the Great Bay Area of Zhejiang" and the hot debate led to the following questions: (1) What is the relationship between "Bay Area" and "urban agglomeration" in terms of concept definition? (2) Is there a potential for the development of the Great Bay Area in densely populated urban areas with coastal ports?

Guided by the theoretical concepts of "Space of Flows" and "Global urban area", using large data and open source data, such as enterprise data, cell phone signaling data, high speed railway and aviation shift data, we construct the function units of Yangtze River Delta and Pearl River Delta based on enterprise organization, Traffic organization, population flow and other network of "Flow element", to analyze status of "Guangdong, Hong Kong and Macao Bay Area" and "the Great Bay Area of Zhejiang" located in the Pearl River Delta, Yangtze River Delta City Network respectively, the spatial structure characteristics of the two major bays and the role of the central city, and the network relationship between the two major bays in the Pearl River Delta and the Yangtze River delta urban agglomerations respectively. The analysis results show that: (1) Since 2004, the spatial organization relationship of the Pearl River Delta Urban agglomeration has been strengthened "core-edge" feature. Guangzhou, Shenzhen, Foshan, Zhuhai and other places along the Bay Area of urban construction-intensive areas have been the core of regional development, especially Guangzhou, Shenzhen. With their global urban function, the Pearl River Delta gradually become a world-competitive urban agglomeration. (2) In Yangtze River Delta, the core status of the Shanghai has been consolidated, the network capacity has been upgraded, the Shanghai-centric area of the near-provincial metropolitan area has also been formed and continuously developed; and the development of the Great Bay area of Zhejiang Province supports the south wing of the Yangtze River Delta City Group, and participates in the global competition together with the core cities such as Shanghai. (3) The "Guangdong, Hong Kong and Macao Bay Area" is more of a system and policy integration and innovation, further strengthening regional cooperation between Guangzhou, Shenzhen, Hong Kong and Macao, and lead the Bay Area to the world class. The proposal of the Great Bay area of Zhejiang Province cannot be separated from the broader and mature area of the Yangtze River Delta.

Finally, based on the conclusion of empirical research, this paper extends the rational thinking and proposes the corresponding planning orientations and strategies for building the "Great Bay Area" in China.

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Key Words: Guangdong, Hong Kong and Macao Bay Area, Hangzhou Bay Area, City network, Distinction of concept, Planning Orientation

THE EVOLUTION AND CHARACTERISTICS OF THE NETWORK STRUCTURE FROM GUANZHONG-TIANSHUI ECONOMIC ZONE TO GUANZHONG PLAIN URBAN AGGLOMERATION UNDER THE PERSPECTIVE OF "FLOW SPACE": COMPREHENSIVE ANALYSIS BASED ON ROAD TRANSPORT, TRAIN PASSENGER TRANSPORT AND BAIDU INDEX

Abstract ID: 794

Individual Paper Submission

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Guanzhong plain is the important birthplace of Chinese civilization and the starting point of the ancient Silk Road. It has a unique strategic position in the overall situation of China's modernization and the all-round opening pattern. Based on the 7 cities and 1 district demarcated in "Guanzhong-Tianshui Economic Zone Development Plan" promulgated in 2009, Guanzhong Plain Urban Agglomeration promulgated in 2018 has incorporated into some districts and counties of Yuncheng City and Linfen City in Shanxi province and Pingliang City and Qingyang City in Gansu province. Using the theory of "Flow Space" and the method of urban network connection analysis, based on the comprehensive analysis of four elements including road transport, train passenger transport and Baidu index, this paper analyzes the evolution and characteristics of the network structure from Guanzhong-Tianshui Economic Zone to Guanzhong Plain Urban Agglomeration. The results show that from Guanzhong-Tianshui Economic Zone to Guanzhong Plain Urban Agglomeration: ①The network structure of Guanzhong plain area is more complete. The urban network system has changed from a single radial centered on Xi'an to a multi-level network system with Xi'an as the center, Xianyang, Baoji and Weinan as sub-centers. But Tianshui, Pingliang and Qingyang still rank relatively low in the urban network hierarchy. ②The network is more unevenly distributed. The degree of the network in the eastern area of Guanzhong Plain Urban Agglomeration is higher than that in the western area, especially the northeast along the Beijing-Kunming development belt, which is far higher than the northwest along the Fuzhou-Yinchuan development belt. The degree of participation in network of districts and counties in Pingliang and Qingyang needs to be improved. ③The position of Weinan in the network structure has greatly improved, becoming an important node because of the addition of the districts and counties in Shanxi province. On this basis, the paper further interprets the formation reasons for the evolution and characteristics of network structure from static factors such as economic volume, population distribution, topography and landform features, urban built-up area characteristics and urban functions. And then it puts forward some suggestions on the optimization of network structure and the urban development of Guanzhong Plain Urban Agglomeration, in order to make it play a more important role in the progress of promoting the western development and "the Belt and Road" strategy.

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Key Words: Flow Space, Guanzhong-Tianshui Economic Zone, Guanzhong Plain Urban Agglomeration, Network Structure

THE EFFECTS OF COMMUTER RAIL ESTABLISHMENT ON COMMUTING AND DECONCENTRATION: A SALT LAKE CITY REGIONAL CASE STUDY

Abstract ID: 853

Individual Paper Submission

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Historians and others have chronicled the role of highway construction in population deconcentration in the U.S., finding that building roads encourages households to move to suburban areas. However, little is known about whether commuter rail produces similar outcomes. Instead, commuter rail systems are often built to connect suburban areas to urban cores with the goal of reducing vehicle miles traveled, or creating node-based development opportunities. In doing so, however, it is possible that commuter rail systems simply add another layer of commuting infrastructure, further incentivizing migration to peripheral areas. This paper studies the role of commuter rail stations in population deconcentration, modeled through the relationship between in-migration and out-commuting from Census tracts. Specifically, this paper uses data from over 41,000 origin-destination pairs of Census tracts in the Salt Lake City, UT MSA. This paper finds that increased migration in station areas suppresses the incidence of population deconcentration, a phenomenon which occurs when workers move to areas only to out-commute. Instead, where commuter rail stations exist in high-migration areas, they seemingly enable node-based development, where the move replaces a commute or enables a worker to take a job locally. However, this effect does not hold across all stations. Preliminary evidence suggests that commercial development in station areas facilitates migrants working locally, decreasing deconcentration—and possibly helping regions work toward sustainability goals. This research advances scholarly questions about the role of commuter rail in regional development.

This paper has been published online ahead-of-print in *Regional Studies*.

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Key Words: deconcentration, commmting, commuter rail, infrastructure, case study

THE LAND-BASED URBAN AND REGIONAL DEVELOPMENT: THE IMPACTS OF STATE RESCALING

Abstract ID: 895

Individual Paper Submission

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Decentralization in China has increased the fiscal pressure of local governments dramatically, creating fiscal incentives for them to urbanize and lease more land for extra budgetary revenues. Political centralization increases inter-competition and further give political and economic incentives to local governments in planning more land resources as an instrument to race (to the bottom) and attract capital investment. Local governments also rely on land as collateral to borrow and finance their urban construction, especially for infrastructure projects. Thus, land planning and development tend to fall out of alignment with population and economic growth demand, and generate areas of systematic over-provision and waste public resources, which area commonly referred as “ghost cities”, “zone fevers”, “pseudo-urbanization” etc.

Thus, this paper identifies a new process of regional development that prefectural-level cities have actively engaged in a land-based urban development as a means of revenue generation, regional growth, industrial incentives, infrastructure finance, and foreign capital competition etc. It also reveals the spatiotemporal diversity of local economic, political and financial motives to plan land resources in decentralized, urbanized and globalized China, as well as the consequent uneven regional development landscape.

The data include the most recent socioeconomic data, government finance data as well as land development data for all prefectural-level cities (N=290) from China City Statistical Yearbook, China City Construction Yearbook, China Land Resources Yearbook, and WIND financial information from 2006 to 2015. To control the effects of regional differences and time trend, I conducted a multilevel mixed effects model of commodified land plots, area and conveyance revenues, and land-based bonds as a function of fiscal decentralization, urbanization, industrialization, global competition, infrastructure and real estate development. The model finds that land-based development is not pursued as a function of urban population and economic growth while it is driven more by the political and fiscal incentives, such as fiscal gap and competition.

To further capture the spatiotemporal diversity of land-based regional development, this paper employs the Geographical and Temporal Weighted Regression (GTWR) technique to model how these driving forces have varied across regions and years. By unfolding these institutional impacts under state rescaling, the GTWR model identifies the problematic regions and regional problems. Greater attention needs to be devoted to these institutional incentives and their impacts. Thus, our GTWR model results provide not only context-specific explanations for regional development patterns but also multilevel planning strategies to the problems of oversupply/overplan of land resources, destructive inter-competition, and unsustainability and instability of land-based municipal finance in urban and regional development.

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Key Words: Land-based Urban Finance, Regional Development, State Rescaling, Geographical and Temporal Weighted Regression

THE INFLUENCE OF SB 375 & SB 1059 ON DECISION-MAKING AT CALIFORNIA & OREGON MPOS – CASE STUDIES

Abstract ID: 925

Individual Paper Submission

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State and local efforts to reduce greenhouse gas (GHG) emissions have taken on new importance in the United States as the window of opportunity to forestall the worst impacts of climate change closes (Mengel, Nauels, Rogelj, & Schleussner, 2018; Rogelj et al., 2016; Sanderson & Knutti, 2017) and national-level efforts to deal with the problem stall. Pioneering laws in California and Oregon are the first statewide efforts in the country to attempt to cut GHG emissions from the transportation sector by reducing overall levels of driving. California's Sustainable Communities and Climate Protection Act (SB 375) and the Oregon Sustainable Transportation Initiative (SB 1059) do this by mandating that local governments coordinate land-use and transportation planning to encourage more compact urban development (Barbour & Deakin, 2012; Eaken, Horner, & Ohland, 2012).

To effectively reduce GHG emissions, state-planning mandates such as SB 375 and SB 1059 must translate state-level goals into local action. Empirical studies of state mandates have found that mandates can improve local implementation of state-level priorities (Burby et al., 1993; Burby & Dalton, 1994; Dalton & Burby, 1994; Deyle & Smith, 1998; Norton, 2005; Pendall, 2001). But they do so only indirectly. Instead, mandates encourage local implementation by setting clear goals and creating incentives that increase planning agencies' commitment to

state-level priorities and technical planning capacity (Bunnell & Jepson, 2011; Burby, 2005; Hoch, 2007; May, 1993). Improvements to planner commitment and planning capacity increase the amount, character, and quality of local plans (Berke, Crawford, Dixon, & Ericksen, 1999; Berke & French, 1994; Deyle, Chapin, & Baker, 2008; Mansfield & Hartell, 2012). In turn, high-quality plans are more likely to be implemented successfully, at least partially because they inspire greater acceptance of and commitment to the plan goals on the part of local planners (Berke & Godschalk, 2009; Burby & May, 1998; Lyles, Berke, & Smith, 2015).

Understanding how SB 375 and SB 1059's incentives have influenced planning capacity and planner commitment to state-level goals at MPOs in California and Oregon reveals whether the mandates can serve as policy models for reducing GHGs from transportation in other jurisdictions. Therefore, this study identifies the causal mechanisms that connect state mandates to improvements in plan quality.

This research builds on an earlier study quantifying changes to the quality of climate change-related sections of RTPs (Proffitt, 2017) to answer the following questions:

1. How did planning capacity and political commitment to climate action change at California and Oregon MPOs following the implementation of regional GHG reduction targets mandated by SB 375 and SB 1059?
2. What capacity and commitment factors are the most important for MPOs that produced high quality (climate-related sections of) RTPs and MPOs that produced lower-quality RTPs? Are the incentives and barriers different?

This study uses a multiple-case (comparative), explanatory design to identify the causal mechanisms that explain how SB 375 and SB 1059 influenced decision-making processes at California and Oregon MPOs. The investigation involves interviewing multiple decision-makers at MPOs to determine how commitment and capacity factors affected choices about the climate-related programs and projects included in (or excluded from) RTPs.

Crucially, case studies also provide exemplars of practice that can be used as a heuristic when faced with analogous decisions in the future (Flyvbjerg, 2006). This last point makes case studies especially valuable when evaluating policy. Assessing the influence of SB 375 and SB 1059's mandates across MPOs and among different stakeholders at a single agency provides concrete evidence of the statutes' suitability as models for policy in different jurisdictions.

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Key Words: climate change mitigation, metropolitan planning organizations, California, Oregon, regional planning

MODELING THE REVERSE COMMUTE WITHIN SOCIODEMOGRAPHICALLY DEFINED COMMUTE TYPOLOGIES

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The problem of employment access for the urban poor is often articulated across the urban-suburban divide in metropolitan areas, such that job opportunities concentrate in suburban areas, at a distance from areas of concentrated, racialized poverty in the inner city. The lack of public transit options that reasonably connect urban workers to suburban job opportunities only exacerbates this problem. Transportation scholars have noted, however, that a substantial population of the urban poor take this “reverse” commute.

These studies have grown knowledge on the characteristics of the reverse commuting population and their journey to work, but they do not address to the same extent the demographic characteristics where reverse commuters live in the city and where they work in the suburbs. They also do not address whether greater inequities between home and work geographies may impact the likelihood of a worker taking a reverse commute.

To learn more about the equity issues in the reverse commuting problem, this paper uses cluster analysis to develop typologies of commutes based on differences in key socio-demographic indicators between home (origin) and work (destination) geographies and then builds models within clusters of interest that predict the likelihood of reverse commuting.

We briefly describe how commute patterns (intra-urban, suburb-city, etc.) and the number of jobs nested within these commute patterns concentrate across socio-demographically defined commute typologies. Significant focus is then given to how reverse commutes are distributed across these typologies. Reverse commutes constitute approximately 10% of all commutes in our sample and 10% of primary jobs are held by reverse commuters.

The paper then develops a series of regression models that predict the likelihood of reverse commuting using predictor variables informed by the different literatures framing the study. These variables include jurisdiction measures from the metropolitan fragmentation literature, density measures from the land use literature, and distance and public transit frequency measures from the transportation literature.

We then compare these models, fit within clusters of interest, to determine whether there is a particular effect for the reverse commuting population.

The paper concludes with a number of transportation and social policy interventions that address issues facing particularly low-income, minority, reverse commuting workers.

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Key Words: Reverse commute, Spatial mismatch, Metropolitan fragmentation, Cluster analysis

REGIONAL DEVELOPMENT OR REGIONAL PLANNING? A CROSS-STATE CONTENT ANALYSIS OF STATE-SPONSORED INTEGRATED REGIONAL DEVELOPMENT PLANS

Abstract ID: 1046

Individual Paper Submission

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State-led integrated regional development planning is rare in the United States, but over the past few years several states have undertaken new initiatives in this domain that include requirements to develop plans and funding for implementation. These recent programs have featured little or no role for established regional organizations such as regional planning councils (RPCs) and councils of governments (COGs), but have instead empowered new organizations and planning processes with a larger private sector role (Green and Finn 2017). Unlike many past regional planning efforts that focused on growth management (Weitz & Seltzer, 1998), these newer state-led efforts feature greater emphasis on economic development, sustainability, and downtown redevelopment. At the same time, recent efforts also aim to address long-standing regional concerns such as efficiency and coordination in public service delivery and the preservation of regional amenities.

This research aims to identify and describe common features of these new, state-led programs by analyzing a sample of plans from the three states that are most active in this area (New York, Indiana, and Michigan). Though not strictly an evaluation exercise, the research follows the guidelines for applying content analysis to planning documents put forth by Lyles and Stevens (2014). The goal is to understand the following issues:

1. Whether or not these new regional plans include a regional perspective or whether they consist of collections of individual projects;
2. Whether or not plans from different states (and therefore programs) include similar strategies and approaches;
3. To what degree the content of these plans differs from those in earlier periods as described in the planning literature.

The results of the analysis will be the first attempt to systematically describe this emerging area of state-led planning practice. Since states have shied away from supporting regional plans that limit the actions of developers and local governments in favor of those that prioritize regional visioning, agenda setting, and project identification, it is important to understand what such plans aim to do and what they contain. While land-use controls are an important tool for planners, they are not the only means through which plans can affect the world (Hopkins, 2001). Finally, the results will lay the groundwork for further research to examine how states' prioritization of economic development and sustainable development shape their interest in and support for regional planning.

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Key Words: Regional Planning, State-led planning, New York, Michigan, Indiana

RESTRUCTURING CITIES, RETHINKING PLANNING? THE IMPACTS OF MUNICIPAL MERGERS ON PLANNING PRACTICES IN SOUTH AFRICA

Abstract ID: 1089

Individual Paper Submission

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Municipal mergers, annexations, or the redrawing of municipal boundaries are a common growth management strategy adopted to increase municipalities' tax bases, economic competitiveness, and/ or to achieve coordinated land use planning (Edwards, 2008). Although the fiscal, economic, and political impacts of annexations and mergers have been well-studied, few studies have critically analyzed how mergers transform spatial planning practices. In this study, we discuss how municipal restructuring through a recent merger process has transformed city-regional planning in two small metro municipalities—Mangaung (Bloemfontein) and Buffalo City (East London)—in South Africa. Our specific research questions are — In what ways did planners and planning concerns shape the merger process? What are the strategies that planners adopt to manage post-merger transitions in spatial planning such as the participation and integration of communities from newly merged towns? What are the implications of these post-merger integration strategies for equity?

We adopt an inductive, grounded theory approach using qualitative research methods to answer our research questions. Our methods include in-depth interviews with over twenty key informants and elected officials involved in the merger process as well as with planners engaged in spatial and integrated development planning in these municipalities prior to and after the merger process. Additionally, we analyzed various municipal plans such as the spatial development frameworks, integrated development plans, and the building environment performance plans to assess how planning transformed.

Unlike many merger processes in the global North that are motivated by fiscal or growth management concerns, post-apartheid mergers in South Africa have largely been adopted to integrate racially segregated communities and deliver services in an equitable manner. However, recent mergers as in our cases have been motivated by fiscal concerns. Although mergers seldom involve planners in the decision-making process, they nevertheless, have to grapple with integrated spatial planning in the merged small towns, which have a higher incidence of poverty and sprawl, lower levels of access to basic services, and no community-based professional planners. Borrowed project ideas from bigger metros that have attempted to spatially integrate small towns with the city-region using bus rapid systems have not taken off due to the extremely large, low density nature of the merged municipalities, their poor municipal finances, and limited capacity. The physical and cognitive 'distance' between planners in the core cities of these municipalities and residents in the newly merged towns, the relative lack of budgetary resources, as well as the lower number of planners per capita in these small metros compared to larger cities like Johannesburg necessitate that planners collaborate with elected representatives. They can do so using communicative and political forms of planning that engage with stakeholders to achieve equity and integration across the racial and rural-urban divide (Todes, 2012). In turn, the state will also have to contribute to building the capacity for planning through increased investments and political commitments in smaller and intermediate-sized municipalities.

This paper, thus, provides a view from the global South of the impacts of municipal merger processes. It also articulates the unique challenges and possibilities of planning for spatial integration in intermediate-sized city-regions using municipal mergers as opposed to other forms of regionalism. As several intermediate cities in South Africa aspire to become metros through politically-charged processes of municipal restructuring, findings from this study have immediate policy significance in South Africa and broader theoretical relevance for municipal merger processes elsewhere.

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Key Words: municipal mergers, integrated planning, intermediate cities, South Africa

OVERCOMING INSTITUTIONAL BARRIERS TO REGIONAL TRANSPORTATION: THE TRANSIT GOVERNANCE INDEX DEVELOPMENT AND VALIDATION

Abstract ID: 1090

Individual Paper Submission

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This study examines potential institutional barriers to regional transportation service, which could lead to poor connectivity for low income riders, people with disabilities and others who depend on public transportation. Metropolitan transportation systems (MTSs) span a fragmented political and administrative geography. The 50 largest core based statistical areas (CBSA)—census-defined areas of social and economic unity that we would reasonably expect a truly metropolitan system to serve—have more than 400 transit operating agencies (National Transit Database, 2014), and more than 5,000 general-purpose local governments (U.S. Census of Governments, 2012). MTSs face two persistent problems: (1) local governments that opt-out of fiscal or functional participation and (2) lack of administrative coordination among transit agencies. Both can lead to service gaps that impair the connectivity, coverage, and accessibility necessary to make employment, education, health care, and other amenities available to all residents, regardless of where they live in the region. In this paper, we develop and validate a metropolitan Transportation Governance Index (TGI), a unique indicator that quantifies the average propensity toward regionalist behaviors for an MTS. Extant scholarship has measured metropolitan fragmentation in multiple dimensions for metropolitan areas, often neglecting the complexity and nuance of state rules that structure local autonomy, and tends toward small-n studies within a single state. Such studies have neglected to wrestle with the diverse array of state laws that impact transit service decisions, or the complications presented by multi-state governance in 16 of the largest 50 American regions. The TGI is the first measure of metropolitan governance complexity to focus within a single policy area, recognizing that it varies across policy domains. It will ultimately be measured across the 200 largest metropolitan statistical areas in the United States, though this paper calculates it for 50 metro regions. The index draws on measures of indicators for four factors, including local autonomy, intergovernmental relationships, funding dynamics, regional participation, and administrative fragmentation, to promote high construct validity. The TGI will enable future scholars to calculate the correlation between governance fragmentation and a number of transportation service variables, including frequency, coverage and equity of service access.

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IMPLEMENTING SUSTAINABLE LAND USE: CALIFORNIA METROPOLITAN PLANNING ORGANIZATIONS (MPOS) AND THE ART OF NUDGING LOCAL GOVERNMENTS

Abstract ID: 1128

Individual Paper Submission

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An unprecedented effort to improve regional land use governance has been underway in California. The Sustainable Communities and Climate Protection Act (SB 375) requires the state's metropolitan planning organizations (MPOs) to outline a regional land use vision (called the "Sustainable Communities Strategy" or SCS) that would reduce driving by Californians and reduce transportation-related GHGs. The law reflects general awareness that local government participation is needed to realize sustainability objectives. Specifically, it anticipates that local land use, when oriented toward more compact and more transit-, bike-, and walk-friendly development, will make Californians' travel patterns more sustainable. Yet, it tasks regional transportation planning bodies—MPOs—with crafting that regional land use vision while granting them no land use authority to implement it (Barbour & Deakin, 2012).

By calling for a regional approach to sustainable land use but leaving implementation to individual cities and counties, SB 375 puts California's 18 MPOs in an ambiguous position and creates an institutional collective action problem (Feiock, 2013). A single local government making land use and development choices in its own self-interest can hinder regionally sustainable outcomes.

This study thus documents the range of alternative, non-coercive strategies that MPOs employ to secure or encourage local government compliance with the regional plan. It draws on theories of policy implementation for its conceptual framework, emphasizing factors expected to influence implementation (Sabatier & Mazmanian, 1980). For example, it asks how MPOs communicate the desired development pattern to their member local governments; whether and how MPOs actively monitor and measure local land use and development changes; and what additional policy mechanisms or decision rules MPOs use within their authority to support SCS implementation. An MPO's approach to encouraging compliance with the SCS is expected to reflect underlying preferences among its member local governments and the profile of local-regional institutions. Where local resistance to SB 375 and to "regional interference" is strong, for instance, MPOs are expected to do less to encourage implementation.

This work draws on in-depth interviews with executive planning managers and senior staff at each of California's 18 MPOs about their implementation-oriented activities. These are senior leaders who direct the MPO's land use planning and work closely with staff and local governments to do so. Qualitative analysis of interview data will be supplemented by content analysis of the MPO's own regional plan. These data will be used understand MPO activities and attitudes related to SB 375 implementation.

This study offers practical lessons about the strategies MPOs use to nudge plan implementation and the factors (external and internal) that lead MPOs to do so. Regional efforts to implement more compact land use grow increasingly important as California sets more ambitious GHG reduction targets. Where metro regions in other states would plan and implement more sustainable land use and transportation, the strategies used by California MPOs will be instructive. This work also aims to contribute theoretical insights into the factors that regional bodies might best exploit to enhance policy implementation.

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Key Words: Regional land use planning, Metropolitan planning organizations, Land use, Implementation, Sustainability

HOUSING CHARACTERISTICS OF RESIDENTS IN SMART CITIES: CASE STUDY OF UNDERPOPULATED SMART CITY SONGDO

Abstract ID: 1198

Individual Paper Submission

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Over the last decade, smart city initiatives have globally emerged as sustainable urban planning strategies. Metropolitan cities in Europe, such as Amsterdam, Vienna, Barcelona, and London, have already implemented some of these initiatives to make existing cities more efficient, safer, and smarter. Many cities in the United States also have adopted similar initiatives toward smarter cities and announced investment plans for smart city development. Columbus, Ohio is set to become first smart city in the United States after winning the U.S. Department of Transportation (USDOT)'s first ever smart city challenge. However, the primary focus of Columbus has been on the smart mobility. In next few years, more cities are expected to follow the suit. An appeal of having smart or smarter cities is motivating various countries like South Korea, UAE, and India to invest a lot of money and resources for new smart cities or to introduce smart aspects in existing cities.

However, all smart cities are not created equal. Some newly built smart cities are currently under threat of underpopulation; and, therefore, the economic efficiencies of these smart cities are not fully utilized. Less than adequate population may not be a problem for developing countries, however, underpopulation is a real concern for many developed economies.

Songdo in South Korea is one of the first smart cities in the world that introduced advanced ubiquitous technology infrastructures. The city can provide real-time public services with the help of advanced sensors, Internet of Things (IoT), Big Data, and ICT (Information and Communication Technology). It applies state of the art computing infrastructure system for urban functions and the integration of information systems for the social systems. Yet, Songdo is currently experiencing under population by 50% of the initial population projection. The situation is so grave that the city of Songdo is facing the risk of becoming a ghost town before its completion in 2020.

There is no set framework for successful smart city development. Most of the smart cities around the world have followed different approaches depending on the requirements and standards. This is safe to assume that the smart city initiative in India is likely to have different approaches and different goals compare to same in an OECD country. At the same time, a success of a new city will be heavily dependent on the user satisfaction and their experience thus expanding the role of planners in designing new cities.

The objective of this study is to understand housing and households characteristics of residents in smart city Songdo, and comparing their characteristics with a regular city Pangyo, a rapidly growing new planned city close to Songdo. In particular, identifying the characteristics of people who are willing to live in smart cities is one of the main consideration of this study. The underlying hypothesis is that the underpopulation of Songdo is caused by lack of understanding of housing characteristics and needs of prospective residents. Lastly, this study identifies some of the favorable housing characteristics for smart cities which may make them more successful by attracting more people. The methodology of the research will be the Heckman's two-stage probit model, and the data will be the secondary data of housing census collected by the South Korean government. The result of the study will help policymakers in planning for new smart city development and may contribute to the success new smart city initiatives in developed countries around the globe.

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Key Words: Smart Cities, Urban Planning, Urban Development, Housing, Songdo

CAN CROWDSOURCING SUPPORT TRANSPORTATION PLANNING IN A MEGAREGION? EVIDENCE FROM LOCAL PRACTICE

Abstract ID: 339

Poster

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Public participation is expected as part of contemporary urban planning in democratic societies (Willson 2001). However, traditional approaches to participation align with existing governance structures, creating a problem for megaregional planning involving publics spanning many jurisdictions (Innes, Booher, and Di Vittorio 2011). Yet, information technologies and new transportation systems support growing interest in planning at a megaregional scale—one far beyond the typical geographies of in-person participatory planning. Participation is not the only challenge associated with planning for megaregions, however. Collection of GIS data covering sufficient detail over a large area remains a problem as well. New crowdsourcing methods—online approaches to collect information from the bottom-up in response to a top-down call (Brabham 2013)—suggests ideas that may span beyond typical scales for both problems. One crowdsourcing platform in particular—Ride Report for collecting bicycle travel volumes and route ratings—is growing from their launch at Portland (OR) and Austin (TX) to other locations. However, researchers have shown problems with biases in participation using similar methods (Radil and Jiao 2016; Piatkowski, Marshall, and Afzalan 2016). Meanwhile, traditional approaches for public involvement continue, including face-to-face meetings and other online text-based methods. These issues suggest a primary research question: how does the spatial extent of traditional and crowdsourced participation methods for bicycle transportation planning in Austin and Portland differ? Further, are the biases different between categories of public involvement?

To answer these questions, we use a series of quantitative and qualitative approaches. First, we analyze the spatial extent of participation using these methods through calculating deviational ellipses of mapped participation locations. We further test the spatial sensitivity through frequency assessments of multiple buffers in both cities. Finally, we compare results of interviews with planners to provide more in-depth and contextual evaluation of the potential for crowdsourcing to cover larger geographic areas.

We find the spatial extent of participation is five times larger for crowdsourced participation than with traditional means. Though the participatory biases of crowdsourcing align with other studies of online participation (younger, higher income), we find that this approach may complement the biases of in-person participation (older, lower income). This study is limited by including only one sub-field of planning (bicycle transportation) in two city cases, but it offers promising suggestions for future research and improvements to practice.

This study shows that planners can use crowdsourcing for key issues in participatory planning relevant to large areas including megaregions. First, planners can support the collection of spatially explicit local knowledge covering vast geographies with crowdsourcing, supporting the work with limited resources. Second, the biases currently inherent in online crowdsourcing methods may be counter-balanced with targeted traditional public participation. Our findings do not suggest replacing face-to-face participation, but rather the complementary

approaches may be necessary to expand non-tokenistic involvement. Local planning contexts are not generalizable to all megaregions, of course—more research in ex-ante (before results), ongoing, and ex-post (after results) evaluations are needed.

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Key Words: bicycle planning, crowdsourcing, PPGIS, planning evaluation

REFRAMING THE RESILIENCE OF ASIA'S REGIONALLY-SCALED FLOOD MITIGATION STRATEGIES

Abstract ID: 465

Poster

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Planners and system science scholars have yet to fully synthesize two bodies of research that could measurably advance disaster risk reduction outcomes, regional planning and social-ecological transformation. Regional and hazard mitigation planners have long emphasized the potential for regionally scaled solutions to prevent future disasters, whether they be through regional governing bodies, regional plans, politically and ecologically aligned boundaries (e.g. by watersheds, biomes), or mechanisms for multilevel coordination, cooperation, communication, and capacity-building. Accompanying the relatively recent global shift in deconcentration, devolution, and fiscal decentralization of state authority, scholars and practitioners adhering to "new regionalism" assert that regional planning solutions and incentives (coercive and cooperative) (1) are cost effective, (2) expand democratic and participatory possibilities, (3) address the true geographic scope of disasters, (4) incorporate local knowledge and support, and (5) build on existing cooperative agreements. The outstanding challenge remains to determine what blend of top-down and bottom-up governance creates the most efficiently allocated, politically reliable, environmentally prudent, and locally appropriate disaster risk outcomes for both the most economically valuable assets and the most socially vulnerable groups.

But while international development organizations and regional planners continue to popularize narratives of resilience in post-disaster contexts (defined here as returning to a prior status quo after a shock or stress, with or without regionally scaled components), they have yet to sufficiently explore and embrace equally compelling narratives of transformation, or non-linear systemwide changes. This analysis investigates whether concentrating collective stakeholder actions and authority at the regional scale reduces flood disaster risk and transforms post-disaster urban areas in rapidly growing, hazard-prone Asia. It assumes a broad definition of "region," informed by regional economic development literature and contextually defined by stakeholders, inclusive of both formal and informal arrangements and both hierarchical and horizontal networks of actors.

Upon reviewing three dozen case study outcomes in academic literature and documents authored by international development organizations, this study develops a list of ten indicators to evaluate the extent to which regionally-scaled disaster risk management (DRM) actions (e.g. mangrove reforestation, early warning systems, regional allocation of resources) transformed the adaptive capacity of affected communities. Results suggest that compared to communities with only locally or nationally-scaled DRM strategies, communities with (1) formally

implemented regional plans and governing bodies and (2) self-organized stakeholder actions at the regional scale both marginally increased their transformative capacity to adapt to floods only under certain circumstances. By presenting a viable index to measure transformability (the ability of actors in a given setting to radically alter their political, economic, sociocultural, or environmental relationships), this study sharpens the link between regionally-scaled DRM strategies and factors leading to transformative adaptation outcomes. With these results, hazard planning scholars and development practitioners can more effectively reform maladaptive institutional practices at the metropolitan and megaregional scale, while addressing growing flood risks in ways that locally-scaled and “resilient” DRM strategies cannot.

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Key Words: Regional Planning, Disaster Risk Reduction, Resilience, Transformation, Governance

TRIBAL MOBILITY: CREATING AN AGENDA FOR RESEARCH AND PRACTICE

Abstract ID: 621

Poster

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Tribal communities on Native American reservations in the United States face a wide range of planning and transportation issues, many of which are unique to their tribal context. Though conditions in each community vary widely, there are a number of common challenges facing tribal communities. This paper describes a framework for understanding the combination of conditions unique to tribal communities that impact mobility levels. Our work is funded by the Federal Highway Administration through the Small Urban Rural and Tribal Center on Mobility (SURTCOM) in the Western Transportation Institute at Montana State University and administered by the Eastern Washington University Center on Tribal Mobility.

Through a combination of professional experiences and a literature review, we have identified five dimensions of conditions that shape individual levels of mobility among reservation residents: demographics and culture; governance; land tenure; natural environment; and built environment. On their own and in combination with each other, these dimensions are linked to mobility, which is in turn linked to a variety of health outcomes. These outcomes include incidence of illness both physiological (such as diabetes and heart disease) and mental, as well as the pedestrian/automobile collisions and vehicular crashes.

A combination of cultural norms and demographics shape who decides to live on reservations, who leaves, and influences land use patterns of each reservation. It is also these person-level characteristics that shape patterns of daily life in influencing the places visited over the course of a day and their mode choices in getting there.

Governance on reservations is complicated by the fact that many reservations are recognized as sovereign powers by the federal government, even though they may span multiple jurisdictions including municipal, county, state and, in some cases, national boundaries. Complicating matters is that each reservation is the result of a unique treaty, executive order, or other formal relationship with the Federal government, and with each relationship stipulating different sets of arrangements between Federal and Tribal governments that, in turn, affect self-determination and mobility. Therefore, the influence the U.S. government exerts on tribal lands through Federal Indian laws and policies vary greatly from reservation to reservation. This complexity results in misunderstandings and disagreements about decision making and power. It also dramatically impacts land use patterns, the ability to obtain Federal government funding, and the overall management of tribal lands.

Related to issues of governance is the challenge of land tenure on reservations. Land may be owned by individual Indians, or a Tribe, and/or held in trust by the U.S. Bureau of Indian Affairs. Laws regarding land ownership and/or residence of non-Indians on tribal lands also vary greatly by reservation. Who can own what land and the bundle of rights associated with ownership can vary greatly on the same reservation and between reservations. Land tenure patterns on tribal lands therefore present challenges to typical patterns and processes of land development.

We divide the environment into two dimensions (natural and built) to emphasize the role that natural processes and geography play in mobility, while also acknowledging the importance of land use patterns and other location characteristics including access to food, employment, health care, social, and entertainment resources.

Through these dimensions we are able to specify hypothesized relationships and patterns that impact levels of mobility. At a more basic level these dimensions are useful in determining gaps in our knowledge. This paper introduces our framework of tribal mobility in greater detail and describes our efforts to create an agenda for research and practice.

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Key Words: Tribal Planning, Mobility, Native American, Indian, Transportation

DELINEATION OF THE MEGAREGION OF SOUTH KOREA BASED ON THE FUNCTIONAL NETWORK: USING MARKOV-CHAIN MODEL

Abstract ID: 707

Poster

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Since South Korea's high-speed rail system was opened in 2004, the whole country has been included in a one-day life zone. In addition, various functional networks have been established between cities and regions across the country. While such trend of trans-bordered infrastructure and networks may certainly affect the competitiveness of major corridors at the national level, there would be possible unintended consequences in small and medium cities along the corridors, such as straw effects, and decline in rural areas beyond the corridors.

One of effective planning approaches that minimize such negative effects and at the same time enhance regional competitiveness would be megaregion planning that have been studied in the U.S. and other developed countries. However, the first step for megaregion planning would be to delineate the boundaries of megaregions addressing networks and their effects.

Given this background, the purpose of this study is to identify and delineate megaregions in South Korea by using freight travel data as a functional network index. This study uses Markov-chain model and cluster analysis to delineate megaregions, and interaction indices and local Moran's I to identify the catchment areas of networks. The mean first passage time (MFPT) generated from the Markov-chain model can be interpreted as functional distance of each region.

The study suggests a methodological approach delineating the boundaries of megaregions incorporating functional relationships of regions and their impact areas, and provides policy implications for the national level spatial planning that increases economic competitiveness and balanced development.

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Key Words: Megaregion, Regional planning, Functional network, Markov-chain model, Mean first passage time

RESEARCH ON THE CITY NETWORK OF AREA OF GUANGDONG-HONGKONG-MACAU BASED ON BAIDU INDEX

Abstract ID: 777

Poster

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Accompanying fast informatization and globalization, a growing number of urban research scholars changed their research perspective from 'absolute space' to 'relative space', and their theoretical focus have also shifted from 'location space' which relies on material entities, to 'flowing space' which is based on various flow factors among cities. At the same time, the rapid development of Internet also makes the connection between cities not only rely on the physical space, such as traffic flow, population flow and so on. Therefore, the influence of geographical barriers on the connection between cities has diminished, and the information flow between cities has drawn much attention. In this study, we took cities in three provincial administrative units- Guangdong, Hongkong and Macao in Southern China as an example. Since the Area of Guangdong-Hongkong-Macau is a new world-class urban agglomeration which is still growing and the administrative division and economic systems are different in the three provinces, few studies have investigated the relationship between cities in Guangdong, Hongkong and Macau. In this research, the development of the Internet gives us this opportunity to analyze the relationship between the cities in this region by looking at the information flow. Using the area distribution model in Baidu index-a website of Baidu company, this paper records the web search amount, simulates the information flow, and analyzes the network correlation degree between cities in Guangdong, Hongkong and Macau. And then the results are also used to make a comparative study with some important traditional statistical data. The preliminary findings reveal that: (1) From the perspective of information flow, connection between cities can reflect the objective situation of the relations among these cities to a certain extent. Since the big cities have stronger control

of information, the difference in urban hierarchy structure between the big and small cities will be amplified under the view of information flow; (2) The "fault line" between the traditional Pearl River Delta core region (11 cities) and its peripheral radiation area is more obvious in the perspective of information flow than conventional statistics; (3) Comparison of the network analysis and the main statistical economic data provides a better understanding of the relevance of the statistical data. In the information age, the city network research based on the information flow will become more and more comprehensive and accurate, it can provide a certain reference for the planning at the macro level.

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Key Words: City Network, Area of Guangdong-Hongkong-Macau, Information flow, Baidu Index

ANALYZE, LINK, TALK AND REPEAT: A CASE STUDY EXPLORING DATA COMMUNICATION IN AN EFFORT TO BUILD ECONOMIC RESILIENCE

Abstract ID: 1189

Poster

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There has been recent governmental interest in developing economic resiliency in defense-dependent communities. The Defense Manufacturing Assistance Program (DMAP) at Purdue University assists communities who have witnessed a loss of jobs and/or an economic downturn as a direct consequence of fluctuations in defense-related contracts.

The Michiana Area Council of Governments, consisting of five northern Indiana counties, experiences economic volatility during each national downturn. As a result, they engaged with Purdue to help develop a strategic roadmap for strengthening the defense industry. The region may be divided into two economically disparate areas. The Elkhart-Goshen economy held the nation's highest unemployment rate during the 2007 recession, followed by low unemployment during the latest economic upturn. On the other hand, the South Bend-Mishawaka economy tends to be more stable with moderate gains and losses over time.

The analysis stage of this project became twofold: delineate defense sector data which may provide insight into economic stability for other regions during downturns; and lead MACOG through an economic data engagement process. We sought to present and engage MACOG with a deep dive of secondary data sources pertinent of four industry clusters (Porter, 2011) developed with the client. These included Metalworking, Paper and Packaging, Downstream Chemicals, and Distribution and E-commerce.

The link stage of the project involved finding connections with the four defined industry clusters with the defense sector. Once this was accomplished, we led MACOG through a decision-making process using the data. This secondary data focused on industrial and occupational indices, shift share analysis over a five year period, a cursory supply chain leakage analysis, and contributions by each county to the defense sector.

While the data dive represented a breakthrough to the academics involved in the process, this pivotal moment was not grasped by the client. For example, we found that nearly 20% to 25% of the defense contracts awarded to the companies in the MACOG region leaked out to other locations, thus representing significant outflow. However, talks between Purdue and MACOG stalled at this stage. The data discussions generated little response or feedback. This propelled a separate engagement between the Purdue team and MACOG to find the best way to connect the client with the data.

As economic data products will continue to proliferate the field of urban planning, it will be necessary to strategize how to best connect clients with information to make decisions without being bombarded by numbers. MACOG lacked an immediate connection with the data, thereby it became important for Purdue to identify the key points of interaction with the data among the MACOG staff. In the spirit of inclusion, our team needs to adapt as planners to become more expansive in our approach. The presentation will conclude with lessons learned pertaining to opportunities for economic stability in defense-dependent communities. It will also focus on ways to foster greater interaction with technically complex materials.

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Key Words: defense sector, economic data, regional resilience

ASSESSING POTENTIAL IMPACTS OF AIR QUALITY ON VULNERABLE POPULATION IN SOUTHERN CALIFORNIA REGION: AN APPLICATION OF REGIONAL ROADWAY EMISSIONS ESTIMATING AND DISPERSION MODEL

Abstract ID: 1220

Poster

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This study assesses the impacts of particulate matter (PM) in environmental justice areas by using dispersion model. Southern California has about half the entire state's population, is home to roughly 19 million people, and has 15 million licensed drivers[1]. According to United States Department of Transportation, motor vehicles, particularly those used for freight, are a leading source of air pollutants and fine particular matter that affect human health[2]. The research conducted by the American Thoracic Society and New York University's Marron Institute of Urban Management found that in southern California, about 1,341 people estimated in Los Angeles-Long Beach-Glendale area, 808 people estimated in Riverside-San Bernardino-Ontario area, and 64 people estimated in Santa Ana-Irvine area to die annually due to air pollution[3].

According the California Air Resource Board (CARB), the concentration of air pollution in environmental justice (EJ) areas still exists although the state's air pollution, such as PM 2.5, has been decreasing over time[4]. The particulate matter is extremely small particles and liquid droplets associated with dust, soot and combustion products that linked to significant health problems, such as asthma, adverse respiratory problems, chronic bronchitis, decreased lung function and premature death. Most particles are formed in the atmosphere as a result of complex reactions of chemicals such as carbon monoxide (CO), sulfur dioxide and nitrogen oxides (NOx), which are pollutants emitted from power plants, industries, and automobiles[5].

As the designated Metropolitan Planning Organization (MPO), Southern California Association of Governments (SCAG) is faced with assessing the impacts from regional transportation planning and policies; not only for conformity but, perhaps, more importantly for public health and environmental justice (EJ) determinations¹. Current efforts to examine these issues rely upon emissions. However, wind transport and turbulent mixing of those emissions are the mechanisms that distribute the emissions throughout the region. The resulting ambient air concentrations and population exposure are the metrics of interest and should be directly addressed. The state and national air quality standards are expressed in terms of concentration. As the result, SCAG is continuing in its development of an accurate method for assessing air pollutant concentrations as part of the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) process, especially focusing in EJ areas.

This study utilizes SCAG's TAZ Roadway Emission Estimator Tool (TREET) can evaluate existing and projecting impacts of PM 2.5 and 10 on vulnerable population in the region, by using transportation analysis zones (TAZ) as unit of analysis. TREET is an application that can translate SCAG's travel demand model (TDM) data into TAZ-level direct exhaust emissions (CO, NO_x, and PM) from on-road activities for the Regional Emissions Dispersion Model (REDM). REDM provides estimation of road-based pollutant concentration levels, allowing identification of any TAZ where concentrations, and thus exposures, could be adverse or disproportionately high. The concentration levels of emission can be spatially analyzed with EJ areas.

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[4] California Air Resource Board. "Geofencing as a Strategy to Lower Emissions in Disadvantaged Communities" (October 2017). Web. 17 Mar. 2018.

[5] United States Environmental Protection Agency. "Particulate Matter (PM) Pollution" (September 12, 2016). Web. 19 Mar. 2018.

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Key Words: air pollution, transportation, land use, environmental justice, dispersion model

TRACK 14 - TRANSPORTATION & INFRASTRUCTURE PLANNING

ROUNDTABLE: HOW CAN PLANNING THEORY INFORM THE CHALLENGES OF PLANNING FOR AUTOMATED VEHICLES?

Abstract ID: 944

Roundtable

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The rapid pace of innovation in automated vehicle (AV) technology has positioned urban areas on the precipice of massive spatial, economic, and social change. Exuberant media coverage of the emergence of AVs parallels statements by auto manufacturers, technology companies, and futurists touting AVs as a ‘savior technology’ with potential to solve some of society’s most vexing challenges. Predicted benefits of AVs include alleviation of congestion, reduced fossil fuel dependence, improved safety, enhanced urban vitality, and expanded mobility options for low-income travelers and non-drivers.

Despite recent announcements by automotive companies of plans for wide-scale deployment of driverless cars, many experts agree critical limitations in AV technology remain unaddressed (Combs et al., 2018). Given consumer and political pressures to expedite production, the burden of closing technological, infrastructural, and regulatory gaps likely will fall to the public. That is to say: rather than expecting manufacturers to design for today’s transportation systems, our systems must evolve to accommodate the specialized yet uncertain operational needs of self-driving cars. The full integration of AVs into contemporary cities will require massive adaptations and investments in infrastructure and new regulations. It will also require an evolution of norms and expectations around access to the street (Millard-Ball, 2016; Stone et al., 2018). However, both the pace of change, and the changes themselves, are likely to introduce a host of unintended consequences and uncertainties that may exacerbate inequalities in transportation, housing, and access to opportunities; disrupt most of what we know about urban and suburban land markets; and even undermine the anticipated benefits of AVs themselves.

The planning profession is uniquely positioned to handle such change. Planners are trained to identify and mitigate unintended consequences, and are accustomed to working under conditions of extreme uncertainty. However, the profession’s previous experiences with novel, potentially transformative or disruptive ideas leave room for doubt regarding the profession’s readiness for a new technological revolution (Guerra, 2016). Blind faith optimism in “progress” and the belief that rationally-instituted plans, using the latest technology, can “modernize” the city and sweep away a host of social ills was at the heart of Urban Renewal and other prominent 20th century planning interventions. Plans based on such innovations have been widely criticized not only in terms of their unintended negative and inequitable outcomes but also because of the epistemological hubris of the planners hired to design and carry them out at the time.

The impending and likely inevitable shift toward automated mobility presents both an opportunity and an urgent need to re-examine the role of planning during times of transformation and uncertainty. Due to the rhetorical similarity between AV proponents today and Urban Renewal boosters during the post-war era, it is an interesting time to reconsider the role of planning in promoting “progress.” What should “progress” mean today compared to previous attempts by the planning field to manage rollouts of disruptive innovation in the public interest?

This roundtable brings together academics with interests in planning theory, transportation equity, and automated mobility to explore new models of planning that might bridge the divide between the rational facilitation approach to progress and Luddite resistance in the face of uncertainty. In doing so, we will engage in a conversation on how planning theory can equip us to plan for the AV era. We will explore questions such as: How do we redefine “progress” in urban development in the AV era? What can planners learn from previous failures in managing

technological rollout (or how do existing planning models fail to prepare us)? How can planning models be adjusted to mitigate negative impacts of AVs? Who is left out of planning efforts to support AVs?

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Key Words: automated vehicles, transformation, uncertainty, technological innovation, planning theory

PRE-ORGANIZED SESSION SUMMARY MOBILITY JUSTICE PERSPECTIVES

Summary ID: 17

Abstract ID: 207

Abstract ID: 208

Abstract ID: 209

Abstract ID: 210

Abstract ID: 211

The issues relevant to planning for an equitable transportation system are wide-ranging, cutting across transportation modes, trip purposes, and travel outcomes. This panel reflects this diversity of perspectives on mobility justice. It brings together five papers, encompassing those that address methods of planning, including the racial implications of streetcar planning and developing community-engaged performance metrics for accessibility; results of planning, including transportation safety disparities and the travel behavior of transit-oriented affordable housing residents; and discrimination in new forms of transportation service such as Uber and Lyft. The breadth of topics illustrates the need for an expansive view of mobility justice.

Objectives:

- Attendees will learn how methods for planning, planning outcomes, and new transportation services contribute to perspectives of mobility justice.

TRAVEL AND ACCESS IN TRANSIT-ORIENTED AFFORDABLE HOUSING

Abstract ID: 207

Group Submission: Mobility Justice Perspectives

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Many metropolitan areas face a significant shortage of housing causing substantial affordability and availability challenges. As one solution to the problem, some transit agencies have instituted policies that require a proportion of housing units developed at rail stations to be designated as affordable. The San Francisco Bay Area Rapid Transit District (BART), for example, requires residential development at their stations to contain no less than 20 percent affordable housing and has a long-term goal that 35 percent of units be affordable systemwide. These types of policies have the potential to contribute towards addressing multiple problems. Apart from increasing the total supply of housing, they add to the supply of affordable housing, improve low-income households' access to transit, promote housing affordability, and reduce the extent of transit-induced gentrification (Dawkins and Moeckel 2016). Furthermore, these policies place low-income residents in locations central to the transit network, which may improve their access to the region and reduce the access gap between cars and transit (Welch 2013; Boarnet, Giuliano, Hou, and Shin 2017). In addition, many transit agencies (such as BART) face crowded peak hour conditions, but declining ridership during off-peak times. Using the San Francisco Bay Area as a case study, this research asks how residents of transit-oriented housing at BART stations travel, and whether transit-oriented development (TOD) is meeting the needs of residents in terms of evaluating travel affordability, access to regional employment, and access to other opportunities. We build on two earlier studies of San Francisco Bay Area TODs (Cervero 1993; Lund, Cervero, and Willson 2004) to develop a repeated cross-sectional study of travel trends over time.

Via a travel diary and survey and follow-up focus groups, this study asks residents to provide information about their daily travel, how often and why they use BART, vehicle ownership and use, travel costs, and why they chose their current residences. The survey will be administered to residents of affordable housing and market-rate housing in TODs, defined as those units within one-quarter mile of a BART station. Our analysis will include tests of comparison between affordable housing residents and market-rate residents, differences in accessibility and transit use by residential type and neighborhood, and differences in how transportation costs factor into housing choice.

The results from this study will be useful to transportation planners trying to understand the impacts of affordable housing, both affordable and market-rate, in TODs on trip-making and transit use. Findings will also enable planners to assess the equity of affordable housing at TODs with respect to regional access and housing/transportation affordability.

Citations

- Boarnet, Marlon G., Genevieve Giuliano, Yuting Hou, and Eun Jin Shin. 2017. "First/Last Mile Transit Access as an Equity Planning Issue." *Transportation Research Part A: Policy and Practice* 103: 296–310. <https://doi.org/10.1016/j.tra.2017.06.011>.
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Key Words: Transit-oriented development, Affordable housing, Transportation costs, Travel behavior, Transportation equity

OFF-TRACK? THE RACIAL DIMENSIONS OF THE MODERN STREETCAR TREND

Abstract ID: 208

Group Submission: Mobility Justice Perspectives

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Transportation enables access to a wide range of essential activities, but the quality of transportation service is unequal by race and ethnicity. Within the realm of public transit specifically, White, non-Latino users are more likely to use relatively speedy rail, while people of color disproportionately use slower bus service. The U.S. trend in rail investment for “modern” streetcars may represent costly investments that exacerbate racial disparities in mass transit access and contribute to processes of gentrification and displacement.

Most cities and transit agencies are building short streetcar segments in general traffic lanes where streetcars, like buses, have to contend with vehicular traffic. Although streetcars often perform poorly as speedy transportation options (Brown, 2013), civic leaders are embracing them as an economic growth or planning strategy (Culver, 2017; King & Fischer, 2016; Ramos-Santiago, Brown, & Nixon, 2016). While scholars have identified the limited transportation benefits of streetcars and problematic economic development claims, the role of race and differential impacts by race is under-researched.

This comparative case study examines the influence of race on recent streetcar investment choices, and the transportation impacts for people of color who rely on public transit. Case studies of the H Street Streetcar in Washington DC and the Rampart/Loyola Streetcar in New Orleans allow examination of differential impacts of streetcar investment in cities with large, historically Black populations and recently opened streetcars. Authors conducted site visits and semi-structured interviews with stakeholders from the non-profit, government, and business sectors during 2018 and reviewed planning documents, organizational materials and media coverage. We suggest that racial bias and stigma associated with bus service contribute to public sector preference to invest in streetcars, despite little collective benefit. We show direct and indirect burdens on transit dependent populations of color, including longer transit trips and worsened bus service. Streetcars can have operational impacts on bus services which typically travel for longer segments and may be faster and also represent a lost opportunity cost and regressive subsidization versus improved bus service. Besides these transportation impacts, there may be important race and gentrification concerns as well.

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Key Words: streetcars, mass transit, equity

COMMUNITY-ENGAGED PERFORMANCE MEASURES FOR PUBLIC TRANSIT ACCESSIBILITY AND EQUITY ANALYSIS

Abstract ID: 209

Group Submission: Mobility Justice Perspectives

KARNER, Alex [University of Texas at Austin] alex.karner@utexas.edu, presenting author

In the United States, state departments of transportation, metropolitan regions, and transit agencies must comply with laws and regulations that both prohibit discrimination in the delivery of services and require the timely receipt of benefits across geographic areas and demographic groups. In the best case, these laws and regulations should help address ongoing challenges associated with disparate access to opportunities that continue to affect US cities.

Despite the existence of such guidance related to transportation equity, we appear to be making only limited progress on these challenges. Most notably, contemporary patterns of urban development indicate that many US cities are experiencing a wave of reurbanization and wealth concentration. Relatedly, vulnerable populations are suburbanizing and locating further from areas where public transit is convenient and accessible to key destinations. Although automobile access can sometimes compensate, effective and affordable public transit systems are important to keep household transportation costs down and for the positive externalities they generate.

One reason why inequity persists is that commonly used approaches for understanding the impacts of transit investments and measuring system connectivity can be misleading or uninformative. Although agencies at various levels of government routinely conduct equity analyses, evidence is mounting that, without substantial reform, such analyses are rarely meaningful.

In this two-year project, with support from the Federal Transit Administration, we are institutionalizing such reform by developing rigorously calculated, community empowering, and informative metrics that can be used to guide the measurement and evaluation of multimodal transit system connectivity for vulnerable populations. The measures we are developing will be applied across six case study locations across the US, representing diversity in terms of transit modes, ridership, strength of local advocacy networks and other factors.

Three key aspects of this work make it different from existing tools and methods. First, information on current and projected public transit system users are integrated into the analyses to identify more precisely how service plans will affect different demographic groups. This approach contrasts with more typical accessibility measures that evaluate changes in generic “access to opportunities” for geographic areas without understanding how proposed system changes affect actual transit riders from different demographic groups. Second, recognizing the varying levels of resources and sophistication across public transit agencies, the tools and recommendations developed through this work are being tailored to agencies’ capabilities and needs, ranging from small rural to large urban organizations. The result will be “tiered” recommendations of increasing sophistication that agencies can adopt as appropriate. Third, two types of advisory groups have been formed to support the work and provide feedback and input at critical points. One group consists of agency and industry professionals familiar with the technical data, service details, and existing methods for evaluating access and equity issues and the other includes representatives drawn largely from non-profit advocacy groups and the public sector.

Because of the approach taken to their development, specifically the inclusion of non-academic voices and perspectives, the methods and metrics created as part of this work will have wide-ranging buy-in from both community and agency stakeholders across many different contexts. Their application in the real-world will demonstrate their viability and potential to move transit agency decision-making towards more just outcomes.

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Key Words: transportation equity, public transit, accessibility, connectivity, community engagement

MAKING THE LEAP WITH TECHNOLOGY: DISCRIMINATION IN TAXIS AND RIDEHAILING

Abstract ID: 210

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Until the launch of ridehailing services such as Uber and Lyft in 2012, car access in the U.S. was nearly synonymous with car ownership, and one of the few ways to access a car without owning one was by hailing a taxi. But taxi access has long proven far from equitable. Instead, previous studies have found that taxi drivers frequently discriminate, and black riders are refused service or passed by at higher rates compared to white riders. Uber and Lyft upended taxis in 2012 by infusing the industry with new technologies to connect drivers to riders through smartphone applications. While these services offer new mobility options, we do not yet know if discrimination persists despite the fundamental technology shift. Understanding discrimination and potential service exclusion in this still nascent industry is critical as policymakers and planners design ridehail regulations and incorporate services into broader transportation systems. In this research, I ask: is there evidence of ridehail service discrimination—manifested in higher cancellation rates and longer wait times—by rider race, ethnicity, or gender?

To answer this question, I conducted an audit study of the ridehail industry, in which “auditors” hailed Lyft, Uber, and taxi rides to and from two locations in Los Angeles. In total, auditors completed 1,704 trips during nine weeks in 2016. On each trip, auditors collected data on wait times, cancellation rates, and driver characteristics. Using these data, I estimated logistic and linear regression models to determine if and how trip wait times and cancellation rates varied by riders race, ethnicity, or gender.

Overall, findings suggest that Uber and Lyft represent marked improvements relative to taxis and provide faster, cheaper, and more reliable car access. However, I find evidence that driver discrimination has made the leap with technology: driver biases manifest on Uber and Lyft as longer wait times and higher cancellation rates for black riders compared to Asian, Hispanic, or white riders. While this service gap between riders is evident on Uber and Lyft, it is narrower than the one on taxis. On average, black riders wait about 1 minute longer than other riders on Uber and Lyft, and 6 minutes longer on taxis. In addition, the technological differences between Uber, Lyft, and taxis mean that discrimination yields different effects on mobility. On taxis, discrimination often results in a trip being cancelled and a rider not being picked up; for example, black riders fail to be picked up by a taxi for 26 percent of their trip hails compared to about 14 percent of white rider hails. On Uber and Lyft, discrimination results in longer wait times, but unlike taxis, nearly all (99.6%) are picked up. In other words, while taxi driver discrimination prevents mobility, Uber and Lyft driver discrimination delays mobility. Findings suggest that discrimination occurs at the moment when drivers learn of rider characteristics and that driver characteristics themselves do not predict discriminatory behavior.

Findings yield implications for taxi and ridehail policy as cities partner with these new services. Specifically, services should consider removing rider information from the hail process to minimize opportunities for driver bias. Companies may also offer carrots or sticks to discourage drivers from cancelling on riders and implement driver training policies to induce cognitive dissonance, combat stereotyping, and discourage drivers from acting on biases. As they begin to pilot ridehail partnerships, cities and public agencies should provide oversight to ensure ridehail companies do not violate federal anti-discrimination laws.

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Key Words: Ridehailing, Taxis, Equity, Discrimination

ENGINEERING, EDUCATION, AND LAW ENFORCEMENT: JUSTICE ISSUES OF TRANSPORTATION INJURY DISPARITIES BY RACE AND ETHNICITY IN THE U.S.

Abstract ID: 211

Group Submission: Mobility Justice Perspectives

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Road safety is an important point of entry into questions of social justice in transportation. In both developing and advanced economies, it is commonly believed that lower income and minority populations are disproportionately at risk of being injured or killed in a motor vehicle crash, especially as pedestrians (e.g., Pollack et al, 2011). This study examined empirical patterns in road safety disparities to further the evidence base for transportation system design, professional education, policy agenda change, and local activism. We compared the injury risk of travel by mode, race/ethnicity, age, and gender. We accounted for trip frequency, time, and distance traveled to make vehicle and non-vehicle trips comparable. The data represent Wisconsin in 2001-2009. The results show, for example, that not all pedestrians are less safe than motorists. White women were equally safe as pedestrians and motorists, whereas African American female pedestrians faced twice the risk of injury and death as their motorist counterparts and twice the risk of injury and death compared to white female pedestrians (McAndrews, Beyer, Guse, Layde, 2017 and 2013). Such differences in transportation injury risk by race/ethnicity are consistent with disparities in other health outcomes, but this does not make them mundane. Instead, they warrant deeper analysis to understand the underlying reasons, such as whether certain groups of travelers are exposed to qualitatively different hazards when they travel. This proposition of differential risk in the built environment may seem impossible to an engineering culture based on standards and metrics, but differences in the socio-physical landscape help explain racial and ethnic health disparities (LaVeist et al., 2011). We also need to explore other contributing factors such as inequities in medical care and emergency medical services, deficient public engagement processes, lack of education among system designers (including planners), and concerns of bias by law enforcement (Fleisher et al., 2016; Wier et al., 2009; Elvik, 1999).

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Key Words: Transportation , Injury prevention , Health disparities, Social justice

PRE-ORGANIZED SESSION SUMMARY

PLANNING AND DESIGNING FOR AUTONOMOUS MOBILITY: INTERNATIONAL PERSPECTIVES

Summary ID: 28

Abstract ID: 350

Abstract ID: 352

Abstract ID: 353

Abstract ID: 734

Autonomous mobility is already here and will likely be a reality on city streets by the mid-2020s. Autonomy has the potential to turn many aspects of transportation and city planning on its head. What does autonomy mean, for example, for the value of time and generalized costs of travel and tolerance for congestion? How will consumers respond to autonomous vehicles and the mobility services they enhance and enable? What does autonomy imply for the future of parking provision and design, infrastructure design, urban design and the interface between public and private spaces? How can and should governments plan and respond to the coming of autonomy and what roles can models play in helping? This session will examine some of these questions, drawing from a range of international perspectives: Singapore, from an ongoing project focusing on the planning, design, and simulation of an “autonomous district;” the European perspective to planning for automated vehicles; and, an initial analysis of a new data set on how the top 600 cities in the USA are exploring the issue of autonomy.

Objectives:

- Planning and Design Implications of Autonomous Mobility
- How simulation tools can inform urban designs and plans for autonomy
- The similarities and differences in planning, design and policy for autonomy across contexts

SIMULATING AUTONOMOUS MOBILITY AT THE PLANNING DISTRICT LEVEL: THE SIMMOBILITY APPROACH

Abstract ID: 350

Group Submission: Planning and Designing for Autonomous Mobility: International Perspectives

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Introduction: Autonomous Mobility (AM) might trigger a new era of integrated land use and transport planning, potentially influencing individual choices related to activity patterns, modes, residential locations, etc., as well as the design of infrastructures and spaces. In highly dense cities, with severe land constraints, autonomy has some potential to relieve space demands if, for example, it reduces demand for parking and enables “road diets.” In the end, however, the impacts will depend largely on how AM manifests itself (e.g., in a “shared” or “individual” mobility model) and the planning, policy and design responses.

State of the art: Recent years have seen a growing number of studies focused on a range of relevant topics, such as preferences for autonomous vehicle (AV) ownership, sharing systems (Lavieri et al. 2017), and various automation levels (Bansal et al. 2016); design of parking facilities (Nourinejad, et al. 2018); and even how MPOs are preparing for AVs (Guerra, 2016). However, little research to date has examined potential impacts of AM on households’ and individuals’ long-term choices (e.g. residential and workplace location choice, vehicle ownership, etc.).

Research question: This study aims to investigate planning district-level impacts of AVs via their possible effects on households’ and individuals’ long-term choices, specifically: (1) How might households’ vehicle availability change? (2) If AVs lead to changes in households’ accessibility, how might this affect households’ choice of residence and job location? (3) What do these possible changes mean for planning and urban design?

Methodology: We will use SimMobility, a multi-scale agent-based simulation platform that considers land-use, transportation, and communication interactions (Adnan et al. 2016), to simulate households’ transportation and land use behaviour under three different scenarios for 2030: (1) status-quo (baseline), (2) mixed traffic (AVs as an

additional mode to existing modes), and (3) AV-exclusive. The simulation will be conducted in a selected study area, the planning district of Toa Payoh, Singapore, one of the busiest residential towns in Singapore, with a good mix of land use types.

Findings: We expect that the implementation of AVs will lead to changes in households' accessibility, and this will affect the choices of vehicle ownership, housing, and job locations. For example, improved accessibility (e.g. by using AVs as first mile/last mile transfer) may motivate households to give up their cars, and make "remote" neighborhoods more attractive than before. We will compare and evaluate the simulated results from different scenarios based on several criteria such as job and population density, vehicle ownership, and overall levels of accessibility.

Implications: The paper will shed light on the possible planning and design implications of different possible AV service scenarios and will also show how integrated microsimulation tools can be used to better understand autonomy's impacts on land use and mobility.

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Key Words: Autonomy, Integrated land use and transport simulation, vehicle choices, residential location choices, job location choices

VALUE-BASED PLANNING (FOR) AUTOMATED VEHICLES: A EUROPEAN PERSPECTIVE

Abstract ID: 352

Group Submission: Planning and Designing for Autonomous Mobility: International Perspectives

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The recent convergence of sensing, processing and communication technology has resulted in a rapid development of automated vehicle (AV) technology. This development is manifesting itself in a series of pilots in urban environments across the world, with over 90 cities having or planning AV deployment. However, we have to acknowledge that AV technology remains in the foundational development stage, as technology is still not widely societally accepted, and there are multiple competing premises behind relevant issues (e.g., traffic safety, climate change mitigation, public health, social inclusion; see Milakis et al, 2017a) as well as visions of futures (Milakis et al., 2017b).

At this stage of societal deployment, a range of interdependencies between societal aspects shaped by AV technology inevitably raise questions about a wide range of uncertain consequences. In particular, a fundamental challenge appear when one tries to imagine AVs as technology to be embedded into the urban built environment. This challenge originates from a difference in the dynamics of technological and built environment development, with the latter often having a relatively slower development cycle to the former. Thus, consequences of AVs

embedded into built environment are much harder to estimate in comparison to other, less pervasive technologies. With this in mind, this research aims at understanding potential planning strategies and instruments to cope with contingencies stemming from AV deployment.

The analysis bases upon a series of workshops with over 80 expert participants, using PESTEL methodology. Based on the divergent, iterative, and deliberative approach, PESTEL methodology allows participants to classify factors into several categories (i.e., political, economic, social, technological, environmental and legal), and infer connections between them. Workshop discussion in groups has been centered on the mobility plan for a neighborhood area in the Helsinki Capital Region, forcing participants to simultaneously think about AV technology and its urban context. Presented as the concept of Self-Driving Urban Area (SUA), the vision included consideration about:

- Shared self-driving electric shuttles with fixed and on-demand routes;
- Proximity to high capacity transport nodes;
- Integrated land use, transport and energy infrastructure planning;
- Emphasis on street design for walking and biking;
- Restricting car access through parking management;
- Public transport and pricing policy;

Analysis of PESTEL outputs in relation to SUA planning identified a wide range of built environment, institutional, and behavioral factors that could be affected by the AV deployment, as well as their interdependencies, thus further underlying a wider societal disruption. Findings indicate that development of future planning strategies should be addressing the limitations of the conventional infrastructure programming practices anchored in forecasting-based travel behavior modeling or ex-ante project appraisal, using such tools as cost-benefit and environmental impact analysis, due to their limitations in coping with uncertainty. These limitations could be addressed with a focus on envisioning approach and change in performance measures. Second, findings point towards the need for more effective technology development processes, by avoiding development of all the possible AV versions in order to minimize the time for reaping societal benefits. Third, a paradigm shift should be encouraged, using the deliberation about underlying values as a point of departure of long-term and large-scale planning and technology development processes (Van de Poel, 2013). Fourth, change in planning instruments will imply changes in roles in the planning process, and greater emphasis on the wider societal participation. Finally, planning organizations need to be encouraged towards increased experimentation and piloting, both with technology and with new forms of collaborative networks of organizations.

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Key Words: self-driving vehicle, value-based planning, transport futures, planning methods

PLANNING FOR URBAN AUTONOMY IN THE UNITED STATES: BENCHMARKING URBAN POLICY AND PROGRAMS

Abstract ID: 353

Group Submission: Planning and Designing for Autonomous Mobility: International Perspectives

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Over the past year there have been many technological revelations that have made it clear that autonomous technology will become increasingly prevalent in our communities. Despite optimism about the technology (Fagnant & Kockelman, 2014; Litman, 2014; Sperling, 2018; Thrun, 2010), there is a high degree of uncertainty about how it will outlay in urban environs, and there is very little work to planning and decision-making--especially given that land use and transportation actions have long inertial properties (Riggs & Boswell, 2016; Riggs & Boswell, 2016). Academic research has indicated that only 2 of the 25 largest metropolitan areas mention autonomous or connected vehicles their planning documents (Guerra, 2015) and more recent reports from Bloomberg list approximately 30 cities globally with distinct plans; 17 of which are in the US.

In this context, study benchmarks local planning policy response to autonomous vehicle technology in the United States where the pace of technology appears to be exceeding the pace of empirical planning. As a part of the 2018 Web Benchmarking Study (Riggs, Steins, & Chavan, 2015) which has been conducted biannually since 2014, this study documents how planning policies for the top-600 cities in the United States are responding to new and emerging mobility—including both transportation network and autonomous vehicle policy. It then develops cases for best practice that are presented in the context of a 2018 (forthcoming) Planning Advisory Service report on the topic. In doing this best practice policy is identified, including curbside policy, roadway thinning and parking removal. The ultimate goal is to offer planners a framework to appropriately respond to the uncertainty of autonomous vehicles: providing a roadmap for cities planning in such a time of uncertainty.

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Key Words: autonomous vehicles, transportation planning, technology, cities

PLANNING FOR AUTONOMOUS VEHICLES IN SINGAPORE: ITERATIVE DESIGN EXPERIMENTS

Abstract ID: 734

Group Submission: Planning and Designing for Autonomous Mobility: International Perspectives

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Flows of people, materials and energy course through the urban infrastructure and constantly shape urban form. Historically, innovations in transportation flows have deeply impacted how cities were shaped. The emergence of autonomous vehicles and shared mobility is poised to transform transport flows in cities. Some scholars suggest that this amounts to an ‘urban revolution’ where automation will restructure the relationship of transport flows to urban forms. The aim of this paper is to understand how urban form and transport flows might change as a result of high automation, investigate the effects of such a change, and search for new and appropriate methods to conduct urban design in this shifting technological context.

These research aims are approached in an inter-disciplinary way that combines scholarship in urban design and transport planning, using scenario building and activity based Multi-Agent Transportation Simulation (MATSim) as primary methods of investigation. This work is grounded empirically in the context of Singapore, under the aegis of an ongoing research project between government agencies and academic institutes in Singapore to plan for automated vehicles (AV) in dense urban settings.

While the rise of shared mobility and automated vehicles is rapidly transforming transportation flows in cities, research on city planning for automated vehicles is not nearly enough given their potentially far-reaching consequences on future urban forms. New paradigms of shared mobility enabled by AVs might, on the one hand, ameliorate the worst excesses of car-dependent urban form and, on the other, enable urban designers and planners to envision new urban models that deliver higher environmental standards and qualities of life. In order to achieve the latter, appropriate methods of conducting urban design informed by transport flows need to be explored.

Given the complex interdependencies surrounding AVs, scenario based thinking is a useful method of inquiry, to guide the research of complex issues involving long range dynamic processes in uncertain contexts by comparing different perspectives, and accommodating a number of iterations. These iterations can then be tested and revised under different conditions of AV deployment systems to derive insights on future form-flow interactions. Recent advances in MATSim (Multi-Agent Transportation Simulations) enable this quick iterative design-evaluation cycle, in a customised version of the software that we refer to as ‘Quick MATSim’.

Quick MATSim uses an agent-based transport simulation to interactively estimate traffic volumes and speeds produced by an urban design. It approximates the peak hour inflow and outflow from a study area based on imposed rules of trip attraction and production. This makes the output coarser and less accurate, but the result generation process much quicker and data requirement less stringent, thus making it more suitable for quick data informed iterative design process, and providing a novel method to incorporate transport flows in urban design process. The simulation is capable of testing various possible deployments of autonomous vehicles; e.g. as private or pooled mode, travelling between transit stops or door-to-door, as well as any mix of vehicle passenger capacities, thus allowing the planner to explore how well an urban design will perform when these operational parameters are varied.

Four Design experiments have been developed to build an understanding of trade-offs involved in AV deployment systems and desirable urban form. This paper discusses the setup of the pilot iterative design experiments, which tests several options of network grid types and corresponding AV deployment system, for a housing development in Singapore.

While our design and simulation outputs are still under review, we expect to have some general findings approved for publication by the time of this paper’s presentation.

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Key Words: Autonomous Vehicles, Urban Design, Scenario Planning, MATSim

PRE-ORGANIZED SESSION SUMMARY TRANSPORTATION AND VULNERABILITY

Summary ID: 40

Abstract ID: 696

Abstract ID: 697

Abstract ID: 698

Abstract ID: 699

Abstract ID: 1372

Lately, transportation planning has been various efforts to improve the transportation vulnerable's the right of movement. Beyond automobile oriented transportation policies and planning, transportation planners plan, design, operate, and maintain to enable safe, convenient and comfortable travel and access for users of all ages and abilities regardless of their transportation. The purpose of this session is to support transportation planning for vulnerable by promoting better understanding on the behavior of transportation vulnerable under the variety of situations. This session consists of five papers that covers the variety of vulnerable travelers and transportation infrastructure. They include the elderly, pedestrians, and evacuee from a disaster situation as well as victims of traffic collision and vulnerable highway sections.

Objectives:

- Understanding on the behavior of vulnerable travelers
- Identifying vulnerable infrastructure

THE TRANSPORTATION SAFETY OF ELDERLY PEDESTRIAN: MODELING CONTRIBUTING FACTORS TO ELDERLY PEDESTRIAN COLLISIONS

Abstract ID: 696

Group Submission: Transportation and Vulnerability

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The aging of population is one of the most significant demographic trends in the history of the United States. In 2050, the population aged 65 and over is projected to be 83.7 million, almost double its estimated population of 43.1 million in 2012 (Mather, et al., 2015). With the growing elderly population, living and working environments must be designed to meet the needs of the aging population. As people age, walking becomes critically important in maintaining their mobility. While vehicles are the primary mode for the elderly, walking is the second most relied upon mode of transportation for the elderly. However, it is inevitable for the elderly to lose their physical and/or sensory ability to drive as their age increases (Bailey, et al., 1992). Therefore, the elderly depend more heavily on walking as a means of mobility.

However, the danger of unsafe roads is a significant barrier to the promotion of pedestrian activities. Elderly pedestrians increasingly become the victim of collisions and have an increased risk of fatality due to not only increased frailty but also issues such as reaction speed and confidence on the streets. While a large volume of research has paid attention to the safety of elderly drivers, there has been lack of research that addresses the safety of elderly pedestrians. While some studies have examined elderly pedestrians' walking pace when crossing the street (Carmeli, et al. 2000; Dommès, et al. 2012), physical conditions in urban environment that may contribute to elderly pedestrian collisions have not fully analyzed. However, it can be hypothesized that physical conditions influence elderly pedestrian collisions due to their physical and sensory limitations and distinct travel behavior and lifestyle from younger population.

The purpose of this paper is to identify the built environmental contributing factors to elderly pedestrian collisions in the County of Los Angeles. After aggregating elderly pedestrian collisions into intersections, this paper discovers the intersections presenting the high concentration of elderly pedestrian collisions by employing a geo-

spatial cluster analysis. Then, this paper constructs a binominal logistic regression model that tests the influence of built environment on the concentration of elderly pedestrian collisions. The built environment includes roadway characteristic, land use, and trip destination. The findings from this paper can contribute to the development of the programs for the transportation policies like Complete Streets and Vision Zero.

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Key Words: Transportation safety, Elderly pedestrian, Elderly pedestrian, Spatial modeling

IDENTIFYING VULNERABLE HIGHWAY SECTIONS AGAINST INCLEMENT WEATHER

Abstract ID: 697

Group Submission: Transportation and Vulnerability

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Inclement weather decreases the average freeway traffic speed, increasing the likelihood of accidents. The mechanism of interactions among inclement weather conditions, accidents and freeway speed has not been clearly elucidated so far (Garber and Gadirau, 1988; Quddus, 2013).

Many studies have measured the magnitude of inclement weather conditions on traffic speed (Zhao, Sadek & Fuglewicz, 2012; Kyte et al., 2001). They employed similar but different weather categories, weather-related factors and other explanatory variables in order to explain traffic speed. Most common weather factors were snow and rain while some studies included wind speed, visibility and road conditions. Even though many analytic models were introduced to this type of study, they basically applied a sort of regression models. However, freeway traffic speed under inclement weather has multilevel characteristics in two ways. First, inclement weather conditions affect traffic speed of all drivers on freeways. Also, the degree of speed reduction is influenced by unobserved factors that include characteristics related with locations and freeway segments such as volume of traffic, speed limits, number of junctions, steep grade, horizontal curves, surface conditions and more (Shankar, Mannering & Barfield, 1995). Second, the severity of inclement weather conditions has spatial heteroscedasticity while weather data include only one record for the entire region. The weather information was collected from weather stations that are usually located in airports. The weather data reflects weather conditions of the station location. However, weather conditions in remote areas from a station can be diverse from the recorded data in severity or even by weather category. Further, the speed variance of between-segment freeways must be significant when the spatial difference of weather severity is combined with freeway segment specific factors. Therefore, under the same record of weather conditions, the weather effects in traffic speed can be different per each freeway section.

This study investigated the relationship between the existence of between-segment variance of freeway speed and the variance of speed drops between freeway sections under inclement weather. Accidents and various control variables were employed. We applied various multilevel models to the freeway sections in the Buffalo-Niagara Falls Metropolitan Area, New York, where icy, snowy and heavy rain conditions are typical. The results of this study established the existence of significant between-segment variance of average speed and inclement weather. Variance between freeway segments explained more than 70% of the total variance. Further, snow conditions explained between-segment variance much greater than heavy rain conditions. The between-segment variance could explain relatively large drops of freeway speed under inclement weather that may increase the likelihood of

accidents. This study contributes to developing an indicator of freeway vulnerability, which will be useful for freeway risk and infrastructure management.

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Key Words: Inclement weather, Highway speed, Multilevel models, Highway vulnerabilities

A COMPARATIVE STUDY OF GIS AND AGENT-BASED EMERGENCY EVACUATION MODELS

Abstract ID: 699

Group Submission: Transportation and Vulnerability

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Recent major flooding events such as Hurricanes Katrina or Rita not only exposed gaps in emergency preparedness planning, but also brought out physical, social, and economic inequalities among population groups (Callaghan et. al., 2007). Vulnerable population group to disaster includes frail elderly, people living with chronic sensory, mobility, or cognitive impairments, and individual dependent upon assistive devices or complex medical regimens in order to survive. It might be realistic to expect that this vulnerable population might be increased with the rapidly aging population in the near future.

However, conventional approaches to evacuation modeling adapt GIS-based accessibility analysis function or applied network topology analysis function in the traffic demand model as an advanced form of the GIS approach (Hakim, 2016; Sin et al, 2013). This conventional approach treats the entire population as a homogeneous group and does not reflect their individual characteristics. While this simple approach has some merits such as promptness, inexpensiveness, and understandability of model outcomes, this approach might scarify the necessary degree of complexity to capture the core of the problem under investigation: evacuating diverse groups of population in a limited time.

This paper aims to develop an agent-based model(ABM) for urban flood evacuation and to compare the model outcomes with the conventional GIS approach using real road network data in Portland Maine where experiences coastal flooding from high tide and powerful storms. In the conventional GIS approach, network analysis function is used to analyze the accessibility to the evacuation shelter. In the ABM approach, evacuee agents are classified by their gender, age, health condition, car ownership, and disaster preparation training experience to reflect their preparedness and vulnerability to urban flood situations (Chooramun, 2011; Yi, S. J. 2009).

The model outputs from both approaches include evacuation rates and survival rates, and, additionally, the ABM approaches generates emergence of the bottleneck points during the evacuation. The findings from this paper contribute to many local governments' selection of an appropriate evacuation modeling tool for their communities based on their available data, budget and time, modeling capability, and the model's effectiveness of public outreach.

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Key Words: Vulnerable population, Agent-based model, GIS, Evacuation

ESTIMATING PROBABILITY OF AUTOMOBILE ACCIDENT USING CENSORED REGRESSION MODEL

Abstract ID: 1372

Group Submission: Transportation and Vulnerability

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Automobile deaths have long been among the leading causes of death. Given the significant number of fatalities and serious injuries from automobile accidents, it places greater importance to understand the fatality risk associated with each automobile model. The basic data on fatalities in automobile accidents provide a census of accidents with at least one fatality. Hence, the probability of an accident being included in the data set depends on the number of individuals involved in an accident as well as the characteristics of the vehicles and driving behavior.

This paper develops an econometric model for vehicles' inherent mortality rate and estimates the probability of accidents and survival by applying logistic and censored regression model using several influencing factors. The multiplicative heterokedasticity censored regression model is compared with symmetrically trimmed least squares (STLS) method and estimate the probability of automobile accidents.

The basic structure of the model of the risk of having fatality in an accident is to distinguish between one-vehicle, two-vehicle and multiple-vehicle accidents. In addition, due to systematic difference of survival rates between one-vehicle and two-vehicle accidents, it provides another reason for modeling one-vehicle and two-vehicle accidents separately. The justification for separating multiple-vehicle accidents from two-vehicle accidents is that it is impossible to identify the "other" vehicle from the data for multiple-accidents. The characteristics of individual and vehicles, location of seat positions, and type of vehicles are also distinguished in the model.

The estimation results indicated that the probability of survival is influenced by the physical characteristics of the vehicles involved in the accident, and possibly by the characteristics of the driver and the occupants. The probability of an accident, on the other hand, is mainly influenced by the driving behavior of individuals and horsepower of the vehicle. Overall, the driving behavior and characteristics of vehicle does matter and affects the probabilities of having a fatal accident for different types of vehicles.

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Key Words: Automobile fatality risk, Automobile safety, Logistic regression, Censored regression

IS ACTIVE TRAVEL A STABLE PHYSICAL ACTIVITY BEHAVIOR? EVIDENCE FROM THE GERMAN MOBILITY PANEL

Abstract ID: 27

Individual Paper Submission

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Governments at national, state, and city levels promote walking and cycling—active travel (AT)—as sustainable and healthy means of daily transport. Walking and cycling for daily trips can serve as consistent source of physical activity (PA), improve cardiovascular health, and help prevent obesity and diabetes. AT can also help achieve the World Health Organization's recommended 150+ minutes of moderate-intensity aerobic PA per week for adults.

Data on walking and cycling trips recorded as part of household travel surveys (HTS) can be used to measure population levels of and changes in AT and related PA. Most HTS only capture trips made during one specific day. However, public health researchers often approximate health-enhancing PA levels relying on the WHO's cut-off of 150+ minutes of moderate-intensity aerobic PA per week for adults. One-day trip diaries, used by most HTS, do not capture day-to-day variations in AT over an entire week—and cannot be used to assess weekly PA from AT. In addition, the vast majority of HTS are cross-sectional, eliminating the possibility of repeat observation of the same respondent over time and thus assessment of changes or maintenance of 150+ minutes of AT.

Based on a nationally representative panel-survey of daily travel in Germany, this study assesses weekly minutes of active travel by adult respondents participating in the panel study over two consecutive years. The paper first identifies covariates for achieving 150+ minutes of active travel during a week in year 1 of panel participation. The analysis then compares the patterns of four groups of active travel over the two survey years: 'high maintainers' who achieved 150+ minutes in both year 1 and year 2; 'low maintainers' who did not achieve 150+ minutes in either year 1 nor year 2; 'adopters' who did not achieve 150+ minutes in year 1, but did so in year 2; and 'relapsers' who achieved 150+ minutes in year 1, but not in year 2.

About half (48%) of respondents achieved 150+ minutes of active travel per week in their first year of panel participation. Of those, about three-quarters were 'high maintainers' with 150+ minutes of active travel in both years. Logistic regressions showed that 'high maintainers' were more likely to be 30 years or older, not employed, have a monthly public transport pass, live within 2km of a shopping destination, and less likely to own cars. Transport and land-use policies can help influence several of these factors. Compared to 'low maintainers,' policy interventions to increase population shares achieving health-enhancing levels of physical activity from active travel may be most promising when targeting 'adopters' and 'relapsers.' These groups are more similar to the 'high maintainers,' with at least one year reporting of health-enhancing physical activity from active travel—compared to the 'low maintainers.'

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Key Words: active travel, physical activity, maintenance, stability, German Mobility Panel

THE CONNECTION BETWEEN INVESTMENTS IN BUS STOPS, RIDERSHIP, AND ADA ACCESSIBILITY

Abstract ID: 29

Individual Paper Submission

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Improving bus stops by providing shelters, seating, signage, and sidewalks is popular with decisionmakers and transit riders, but do such improvements result in measurable changes in ridership demand and behavior? In previous research, the authors compared ridership and ADA paratransit demand before and after the Utah Transit Authority (UTA) implemented improvements at a set of 24 bus stops in Salt Lake County, Utah. The researchers compared these data with similar data from 24 ~~un~~improved stops selected using propensity score matching to control for demographic, land use, and regional accessibility influences. The analysis showed that the improved bus stops were associated with a statistically significant increase in overall ridership and a decrease in paratransit demand, compared to the control group stops. Though encouraging, the conclusions the authors could draw from the results were limited by a number of factors, including (1) the limited number of stops analyzed, (2) the possibility that the increase in ridership at improved stops was due to pre-existing riders simply switching to those stops, (3) the possibility that the reduction in ADA paratransit demand was the result of factors other than a presumed shift from paratransit to fixed-schedule service, (4) possible synergistic effects of UTA's decision to concentrate the stop improvements into single-route corridors; and (5) the short amount of time between the before and after data collection periods (3 years) and the necessity of collecting the after data immediately after UTA had made the improvements. This paper reports of funded research designed to address these limitations, with the aim of creating a clearer understanding of the associations between stop improvements and demand.

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Key Words: Bus Stops, ADA Accessibility

EXPLORING RIDER SATISFACTION WITH ARTERIAL BRT: A INTEGRATION OF THE IMPACT ASYMMETRY ANALYSIS AND MACHINE LEARNING

Abstract ID: 33

Individual Paper Submission

The development of bus rapid transit (BRT) has escalated across the world over the last two decades. Besides full-service BRT, arterial BRTs that have most BRT features but operate in mixed traffic have also gained popularity in many cities, such as the select bus service (SBS) in New York and the A Line in the Twin Cities, Minnesota. However, there are a limited number of studies regarding rider satisfaction with arterial BRT. To fill this research gap, this study explores how service features affect rider satisfaction with the A Line. It contributes to the state of the art in three ways. First, it adds more insights to the insufficient studies on rider satisfaction with arterial BRT. Furthermore, it uses a machine learning algorithm, which resolves some limitations of traditional regression approach. Moreover, it introduces the methodology of impact asymmetry analysis (IAA) to the research on rider satisfaction, thus enabling researchers to provide better-reasoned policy implications for transit agencies.

Based on the impact on overall satisfaction, the IAA classifies service attributes into five categories of factors: dissatisfiers, frustrators, hybrids, satisfiers, and delighters. Among these five factors, dissatisfiers have negative impacts on overall satisfaction if not delivered, but do not lead to satisfaction if delivered. Frustrators are extreme cases of dissatisfiers and have greater negative impacts. On the contrary, satisfiers can increase satisfaction if delivered, but they do not lead to dissatisfaction even if they are not delivered. Delighters are extreme cases of satisfiers and have greater positive impacts. Finally, hybrids are the middle ground and can lead to both satisfaction and dissatisfaction.

Using the 2016 transit rider survey of the A Line, this study first employs the gradient boosting algorithm, a machine learning technique, to calculate the relative influence of services attributes on overall satisfaction. Then it applies the IAA to generate satisfaction/dissatisfaction of each service attribute and identify the factor classifications. The results are summarized in Table 1, where we include the factor classifications and average performances of the 12 service attributes that have relative influences higher than 2%. Then, we plot these 12 attributes in an impact asymmetry graph based on their ability to generate satisfaction/dissatisfaction and ranges of impact on overall satisfaction. The relative positions of service attributes on the plot would help us develop nuanced policy implications.

The results show that the attribute “paying fare is easy” has the largest contribution (21.81%) to overall satisfaction and can delight riders if delivered. “Hours of operation”, as a satisfier, is the second most important factor. “Handling of concerns/complaints” is the third most important one and is a frustrator that has a negative impact if not delivered. Based on the factor classifications and the average performance of the service attributes, we recommend that transit agency should consider improving poorly-performed dissatisfiers, frustrators, and hybrid such as shelter condition, drivers’ courtesy, and reliability to reduce rider dissatisfaction. If resources are abundant, they could improve important delighters and satisfiers that does not perform well, such as riding safety and vehicle comfort.

Table 1 Factor classifications and average performance of the A line service attributes

Classifications	Service Attributes	Average Performance	Relative Influence (%)
Delighters	Paying my fare is easy	4.50	21.81
	Personal safety while riding	4.08	5.77
	Vehicles are comfortable	3.90	4.88
	Accessible for people with disabilities	4.11	2.17
Satisfiers	Hours of operation	4.26	9.07
	Behavior of other passengers and atmosphere	4.32	2.08
Hybrids	Total travel time is reasonable	4.19	4.34
	Reliability	3.99	3.86
Dissatisfier	Transferring is easy	4.38	2.17

Frustrators	Handling of concerns/complaints	4.25	8.72
	Courteous driver/conductors	3.65	5.25
	Shelter/station conditions/cleanliness	3.87	2.04

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Key Words: transit quality of service, customer satisfaction, important-performance analysis, machine learning

NOT YOUR FATHER'S TRANSIT: REVIEWING THE MODELING LITERATURE ON AUTOMATED TAXIS AND SHUTTLES

Abstract ID: 35

Individual Paper Submission

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As the technology for automated vehicles matures, many researchers and transportation analysts expect the advent of new transportation modes, falling somewhere between privately-owned vehicles and traditional public transit. Here we group such possible new modes under the term "automated flexible transit".

Assuming that some form of automated flexible transit is coming, it is necessary to understand its potential implications for transportation systems, and correspondingly a small but rapidly expanding literature on the subject has emerged. In the absence of empirical data on how such systems work and how much market share they will obtain, the best way to understand these hypothetical new modes is via modeling and simulation. By necessity, such models must extrapolate or hypothesize ways these new modes will interact with the existing transportation system. As the field has grown, a variety of research methods and questions have been implemented, however the findings across these studies have often been starkly different.

This paper is a literature review of the modeling and simulation literature on automated flexible transit systems. The goal of this review to synthesize this literature as a whole, i.e. to see if generalizations can be made across the several dozen papers published in this area.

This literature review attempts to place these various research efforts in a common framework, allowing for a better comparison across various modeling approaches and results. We have two intended audiences for this literature review: 1) A transportation policy audience, which seeks to understand the potential implications of automated flexible transit without having to become experts in various modeling approaches; and 2) transportation modelers of automated flexible transit modes, to inform them about the current state of the research, the need for standardization in reporting, and the identification of future research needs.

Although still in progress, some preliminary findings are available. Transportation system performance results that seem to generalize or apply across many simulation studies include the following:

- Shared, automated services are likely to be economically viable and successfully compete for at least some share of the transportation market. Such services are likely to be significantly cheaper on a per-mile basis than human-driven taxis.
- Fleet sizes must be sufficient to meet peak-hour demand. If fleet sizes are too small to meet such demands, then wait times rise rapidly. Excess vehicles over this requirement do little to reduce average passenger wait times.
- Shared, automated systems have minor improvements to performance with increased trip density, but the ability to generalize across current studies is limited.

Our recommendations for future research include:

- Standardize reporting features, such as reporting both occupied and empty vehicle mileage and hours, to facilitate comparison across research efforts
- Research efforts should vary geographic context, types of transit service, and levels of market penetration as independent variables to understand what role these underlying factors play in system performance
- Mode choice and traffic impacts should ideally be modeled endogenously in order to gain better insights into the likely impacts of shared, automated transit systems on the transportation system as a whole
- Report in greater detail variations in performance across time and space

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Key Words: Vehicle automation, Simulations, Shared mobility, Transit, Transportation policy

WHO HAS TRANSPORT PROBLEMS? A SURVEY IN FOUR NEIGHBORHOODS IN THE TEL AVIV METROPOLITAN AREA

Abstract ID: 37

Individual Paper Submission

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Over the past decades, transport researchers have developed a myriad of ways to observe, measure and analyze travel behavior. In contrast, very few approaches have been developed to systematically identify the transport problems and difficulties people may experience (with some notable exceptions: Delbosc and Currie 2011). This is strange, as one might expect that a good understanding of people's transport problems is a key input for effective and efficient transport planning and policy (Nutley 1996).

Against this background, I will present an experimental survey to directly identify people's transport problems and difficulties. The survey was designed in such a way that it can be conducted and repeated against relatively low cost across an entire population. For this reason, the questionnaire consists of a limited set of questions that aim to elicit the range of transport problems and difficulties as they may occur across a population. The questionnaire deliberately refrains from obtaining a detailed understanding of respondent's travel patterns in terms

of travel purpose, travel destinations or mode choice, as is common in widely used household travel surveys. The focus is instead on the scale, scope and depth of the experienced transport problems.

The survey has been administered for the first time in four areas in the Tel Aviv metropolitan area, Israel. The areas differed in terms of the level of accessibility by car and public transport and encompassed a neighborhood close to the city center of Tel Aviv, a neighborhood on the edge of the Tel Aviv, a suburban town with a strong urban center, and a set of small suburban communities.

The preliminary results of the survey are largely in line with expectations (Martens 2018). For instance, a clear connection was found between income and general satisfaction with travel and transport problems related to the cost of transport. Likewise, people without access to a private car were more dependent on others for their trips and indicated to have given up on trips more frequently than people with access to a private vehicle. Perhaps against expectations, car-owners indicated to experience more transport problems related to excessive travel times than people without a car.

The overarching aim of the research is to develop a tool that can meaningfully inform transport planning and policy. Currently, transport planning is based on only indirect evidence of transport problems. A systematic account of the range, scope and depth of transport problems and difficulties may provide valuable information on the level-of-service provided by the transport system to differently positioned people, information that is dearly missing in current approaches to transport planning. Clearly, much more trial and error is needed before a reliable survey tool has been developed. Yet, if successful, such a tool may substantially alter the current perspectives on what constitutes a transport problem and what not. This, in turn, may fundamentally change the type of interventions proposed by transport planners across the world.

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Key Words: transport problems, questionnaire, transport planning

MORE THAN JUST THE HELMET: THE RELATIONSHIP BETWEEN BICYCLE HELMET USE AND RISK-TAKING AMONG AMERICAN ADOLESCENTS

Abstract ID: 39

Individual Paper Submission

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Bicycle helmets are seen as a simple means of reducing injury in a bicycle crash, and thus helmet-promotion campaigns often advocate for laws requiring helmets. But helmet laws may unintentionally discourage riding, and for adolescents – a group already associated with increased risk behind the wheel (Constantinou, et al., 2011) – helmet laws can “push” them to drive instead (Carpenter & Stehr, 2011). This study examines associations between helmet use and risky behaviors among adolescents to inform helmet effectiveness research and to understand the implications of helmet laws inadvertently pushing risk-prone adolescents to drive instead of ride a bike.

The goals of this research are, first, to understand behavioral and demographic characteristics of both helmet users and non-helmet users in a generalizable sample of US adolescents. Second, we aim to inform helmet safety

studies by determining the extent to which helmet-wearing populations differ along demographic characteristics and propensity to engage in risky behaviors. The data for this research is drawn from the CDC's 2015 national Youth Risk Behaviors Survey (YRBS). A principle components analysis of variables measuring a variety of risk-taking behaviors is used to reduce the dimensionality of the data, and multinomial logistic regression and analysis of variance (ANOVA) are used to identify associations between risk-taking and helmet use as well as to describe risk-taking behavior based on reported helmet use frequency. We identify three adolescent populations: one that tends not to engage in risky behaviors and wears a helmet consistently when riding a bicycle; another that engages in risky behaviors and never wears a helmet when riding a bicycle, and a third that engages in risky-behaviors and does not ride a bicycle at all.

Our findings call into question a key assumption underlying helmet safety research: that helmet use alone accounts for bicycle crash safety outcomes. Helmet safety studies tend to examine mortality and injury rates of riders involved in crashes while wearing a helmet to those who were not wearing a helmet (see Olivier & Creighton, 2017) for a recent meta-analysis of the literature). Such studies are often unable to account for built environment (such as presence of high-quality infrastructure), personality traits (such as propensity to engage in risk-taking behavior), and socio-demographic characteristics. For example, if an adolescent is riding a bicycle on a dark road without a designated bike facility, while drunk and not wearing a helmet, and is involved in a fatal accident, what factor do we attribute their death?

Our research also raises concerns regarding bicycle and helmet-promotion strategies in the US. Bicycling to school is extremely rare in the US (Pucher & Buehler, 2008), and helmet use even more so (Risk, 2009). Riding a bicycle has many documented health benefits, and while helmets may improve safety outcomes in the event of a crash, helmet-laws may unintentionally discourage bicycling. Whether this is because of fear of punishment for violating a helmet law, challenges or inconveniences of procuring a helmet, or the "culture of fear" around bicycling that such policies may contribute is unclear. What is clear is that few adolescents ride a bike, and even fewer wear helmets. If helmet-promotive strategies have the effect of discouraging bicycling among risk-taking adolescents in particular, then our findings raise difficult questions (e.g., if an adolescent is going to binge drink, is it better for them to ride a bike without a helmet or drive?). We suggest caution in prioritizing helmet use as a primary priority for adolescents. Failing to do so may have unintended consequences for both the individual and society.

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Key Words: Bicycle Helmets, Adolescents, Safety, Risky Behaviors

ACHIEVING VISION ZERO: APPLYING THE LESSONS OF SYSTEMS ENGINEERING TO LAND USE AND TRANSPORTATION PLANNING

Abstract ID: 46

Individual Paper Submission

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Planners have increasingly advanced “Vision Zero” as a policy goal. Vision Zero begins from the perspective that no one should be injured or killed as a result of their travel. While first introduced in the United States in 2014, it is already having a transformative effect on professional practice, re-directing attention away from motorists, and towards the transportation system’s most vulnerable users—pedestrians and cyclists (Organisation for Economic Co-operation and Development, 2016). Nonetheless, a major shortcoming of Vision Zero is the absence of a unifying theory that spans the safety-related disciplines. There is little consistency in the Vision Zero policies that have been adopted, and no concrete guidance on how to reconcile these individual differences in practice (National Highway Safety Administration, 2017)

To address this issue, the Collaborative Sciences Center for Road Safety was authorized by the USDOT to develop a “safe systems” approach to traffic safety. Safe systems seeks to apply the lessons of industrial systems engineering to the planning and design of the surface transportation system. This presentation details how the principles of industrial systems engineering can be applied to achieve Vision Zero, provides a review of international practice, and presents a model for how a systems approach to safety can be applied to achieve Vision Zero.

A safe systems approach represents a radical departure from conventional safety practice, which has focused principally on the behaviors of road users immediately prior to a crash and the provision of “forgiving” design solutions to minimize their consequences. This has led to the ongoing professional assertion that 90% of all crashes are attributable to human error. The presumption is that if these persons had behaved “appropriately,” the crash would have been avoided. This is a perspective that blames the victim, and shifts attention away from the underlying causes that may have influenced the crash, causes that are embedded in our broader development policies and design practices (Hauer, 2016).

Examined from a systems perspective, we need to distinguish between active failures, which are the specific actions that resulted in injury or loss of life, and the latent conditions which may encourage active failures (Reason, 1997). This entails understanding not only the events that occurred immediately prior to a crash, but also the broader policies and practices adopted by planners and engineers that shape the built environment, and which established the conditions for the crash to occur.

This presentation details a four-layered chain of defenses that can be applied by planners and transportation stakeholders to minimize active failures and eliminate the latent conditions that produce them. The first layer is organizational, which includes the development policies established by local governments, such as zoning ordinances, subdivision regulations, parking policies, and performance measures, which inform the design of the built environment. The second is environmental, which relates to the physical design of the right-of-way, including the provision of pedestrian and cyclist infrastructure, and relates these designs to the project’s development context. The third are individual factors, such as education, enforcement, and legal sanctions, which moderate user behavior. The last layer entails engineering countermeasures, which moderate the severity of crash events, which may include automated and intelligent vehicles, traversable hardware, and forgiving design practices. The resulting model identifies the specific actions that planners can take throughout the land use, transportation planning, and project development process to minimize the incidence of traffic-related deaths and injuries.

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Key Words: Transportation, Safety, Land Use, Urban Design

IDENTIFYING SPATIAL GAPS IN TRANSPORTATION OPTIONS FOR OLDER ADULTS

Abstract ID: 55

Individual Paper Submission

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Background:

The ability to move from one place to another is important to everyone since mobility ensures individuals' social needs and well-being. However, unfortunately, as individuals grow old, they face a limited transportation accessibility due to physical limitation or unaffordability. In light of this issue, it is crucial to provide suitable solutions that can facilitate mobility among older adults. Although many studies have recognized this issue, previous studies have typically been focused on a single aspect of transportation accessibility for older adults or have pointed out only broad geographic gaps at the state or county level. Thus, it is necessary to consider all viable transportation options such as fixed route services, specialized services, and Door-to-Door Services. The purpose of this study is to measure the spatial coverage of such transportation services in order to identify where gaps in service exist for older adults. To find these gaps we use GIS to model a supply-demand approach. The results can guide urban and transportation planners to improve transportation provisions for the elderly populations.

Study Design:

This study develops a GIS-based methodology for calculating a comprehensive transportation supply index that takes into account three transportation categories: fixed route services, flexible route services, and Door-to-Door services at the census block group level. Layers of service accessibility are created for each category of service provider on the basis of gravity model using Origin-Destination (OD) matrix and network travel distances. For fixed route service, we use bus stops as origin and destination and route distance between stops as impedance. For flexible routes and Door-to-Door service, we use each census block group centroid as origin and the property parcel layer as destination. Each service category layer is normalized using standardized scores, and the three resulting accessibility layers are combined into a single supply layer that represents a comprehensive transportation accessibility. The demand layer is based on the volume of the older adult population by census blockgroup. Finally, by overlaying the demand layer of older adults population with the comprehensive transportation accessibility layer, this study determines transportation service gaps as areas of higher demand and lower supply. The study area is Orange County, Florida, selected due to its high priority issues regarding lack of choices for older adults.

Results:

We found 27 deficient areas, representing 23.16% (28,387 people) of the total 122,538 of older adults in Orange County. The general assumption prior to this study was that the deficiencies would be expected mostly in the large unincorporated part of the Orange County. However, in particular, we found 12 deficient areas located within the cities, which include Apopka, Bay Lake, Lake Buena Vista, Oakland, Ocoee, Windermere, and Winter Garden, or adjacent to it. These findings show the value of this proposed method which enabled us to identify gaps that otherwise were not obvious by simply observing the data.

Conclusion/Contribution:

This study presents a geospatial method for identifying gaps in transportation service accessibility for older adults. This research will help in planning of various transportation options to reduce gaps in service at the state and local level while addressing the proper services to support the individual mobility needs of older adults.

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Key Words: Transportation accessibility, Older adults, Service providers, Public transportation, Door-to-Door service

SHOULD WE FOCUS ON GETTING RICH PEOPLE OUT OF CARS, OR PUTTING POOR PEOPLE INTO THEM?

Abstract ID: 64

Individual Paper Submission

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Undeniably, auto travel comes with social costs. However, the auto has considerable private benefits in terms of mobility, freedom, self-esteem, and much else. Thus if monetary constraints lead to the lack of a private vehicle, troubling equity questions arise.

Prior research finds that lacking an auto is a considerable impediment to getting and keeping a job. Our research examines access to other out-of-home activities, including work but also education; caring for others; eating and drinking; arts and entertainment; socializing and leisure; media consumption; sports, exercise and recreation; volunteering; and religious observance. We also explore the subjective well-being (SWB) associated with engaging in these activities.

Our data in our models of activity participation are drawn from time use surveys from Canada, the Netherlands, and the UK. We selected these because they included a question on vehicle access. To gauge the SWB associated with activities we employ the American Time Use Survey. Our samples in the models of activity participation are limited to individuals in the bottom income quartile.

To model time use, we employ Cragg two-part hurdle regression. This involves probit models to determine the factors that contribute to the likelihood of activity participation, and separate OLS models to determine the factors that contribute to activity duration provided the respondent takes part in the activity. We then predict unconditional activity time for individuals who have access to a vehicle versus those who lack it.

To model the SWB associated with activity participation, we use fixed-effects panel regression models which capitalize on the fact that we observe emotions for three activities per individual. We observe whether individuals said they were “happy” during the activity and whether they found the activity “meaningful.”

Respondents with autos are significantly more likely to travel on the study day and to spend more time traveling if they do travel, with a prediction of around 10 more travel minutes per day. Those with autos spend more time traveling by auto, while those without autos spend more time taking transit, walking, and bicycling. These differences are mixed in terms of their implications for SWB, as transit is associated with feelings of low happiness and meaningfulness, but walking and bicycling are seen as meaningful activities.

To explore whether greater reliance on transit and active travel may have health benefits, we perform ordered logit regression on our physical health variable. We find that, all else equal, those who have access to autos are in better health than those who lack them.

Our results suggest that lacking an auto constrains out-of-home activity participation, in total by about 10 minutes per day. Having no access to an auto is associated with being significantly less likely to leave home, and to be less likely to care for others, shop, participate in social and leisure activities, participate in sports/exercise/outdoor activities, volunteer, and participate in religious activities. In no case were those without autos more likely to participate in an activity.

How might this detract from SWB? Time spent outside the home in general is associated with high happiness and meaningfulness. Specific activities which tend to be foregone by those without auto access, and which are associated with high SWB, include caring for others, sports/exercise/outdoor time, volunteering, and religious observance. Shopping is the only foregone activity associated with poor SWB.

In sum, auto access benefits those with low incomes in terms of enabling participation in high-value activities. This finding suggests that policies that facilitate, or at least remove impediments to, auto ownership by the poor would improve their quality of life.

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Key Words: Vehicle access, Activity patterns, Subjective well-being, Low income

DYNAMIC PARKING MANAGEMENT STRATEGIES AND CO-BENEFITS TO COMMUNITY HEALTH

Abstract ID: 100

Individual Paper Submission

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Dynamically priced parking is becoming an increasingly common tool to manage congestion in urban areas. The overall goals of dynamic pricing are generally two-fold: to reduce traffic congestion and the negative externalities associated with cruising, and to raise municipal revenue. Dynamic pricing requires more sophisticated technology than traditional pricing meters, and are able to sense congestion and allow parking rates to fluctuate automatically with demand. Limited evidence suggests that dynamic pricing does in fact reduce congestion and raise municipal revenue by responding more accurately to peak and off-peak demand; however, the full benefits of dynamic pricing as a parking management strategy have not been examined. Exposure to traffic exhaust from congestion, including from idling or cruising vehicles, can have a direct and measurable negative impact on human health. Particulate matter air pollution is associated with increased risk of lung and related health complications, up to and including mortality. Although air quality improvements represent an important community co-benefit of parking management innovations, particularly at the local level, there is presently no evidence known to the author in the urban planning literature or otherwise relating dynamic pricing with improved community health outcomes.

To begin to address this gap, this paper explores local air quality impacts in two US cities – Boston and New York City – where smart meter technologies have been implemented at the neighborhood scale. These cities were selected among a limited number of other US cities with similar recent parking experiments because they had air quality monitors operating in close proximity to the sites both before and after implementation. Data on air quality were compared pre- and post- dynamic pricing roll-out, and controlled for seasonal and weather

differences across the two periods. The results suggest a measurable improvement of the parking management strategy on local air quality in both Boston and New York City. This paper provides a rough estimate of the monetary value of improved air quality on the local population in these two case cities that can be used to inform local transportation policy and planning decisions.

This topic is timely and relevant to planners, who need to evaluate the full range of benefits when choosing among parking management strategies. This is particularly important in the case of smart meter technology, where the cost of implementation is relatively high. From an urban policy perspective, information on the air quality co-benefits are directly relevant to cost-benefit analyses and health impact assessments that consider changes in parking management to reduce congestion in urban areas.

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Key Words: Dynamic pricing, Parking management, air pollution, congestion

"KNOWING WHAT WE NEED: OLDER AMERICANS' REFLECTIONS ON TRANSPORTATION IN SUBURBIA"

Abstract ID: 118

Individual Paper Submission

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The percentage of older adults residing in America's suburbs is projected to grow significantly in the coming decades. When older adults residing in these auto-oriented places are no longer able to safely drive, they must rely on alternative transportation. In many metro areas, robust public transit exists in the urban core but can be sparse or inaccessible in suburban areas, thus creating a service gap. Flexible paratransit options are often available, but can be complex to use and unfamiliar to those older adults who may be uncomfortable with a new mode of travel. At the same time, a growing number of elder-service nonprofits have begun to offer transportation services for older clients, leveraging staff expertise with elder-care issues and flexibility in order to fill the service gap. The ways in which older adults utilize these transportation options, as well as their opinions and preferences regarding the various means of getting around, are notably understudied in the literature on transportation and aging. This study centers on six focus groups of older adults residing in three American metropolitan areas who use one or more of the following modes of transportation: Driving, transit, paratransit, and nonprofit-managed transportation. Using a process of axial coding, pattern-matching, and organic consensus, analysis focuses on the experiences and preferences that shape older adults' decision-making process when planning trips. The results show a strong preference for driving independently (or riding in a car as a passenger), an emotive respect for nonprofit-managed transportation, and a colorful disdain for public transportation programs. Results also show a desire for flexible and personalized transportation services that could potentially replace some or all of the participants' trips taken by car. The consensus of the six focus groups holds across all three metros. Participants show an effusive respect for elder-service nonprofits, viewing them as uniquely qualified to improve the health and wellbeing of older adults. At the same time, participants share a rich and generally negative view of public transit and paratransit, fed in large part by negative personal experiences and those of peers. The results indicate a unique opportunity for community transportation planners to leverage elder-service nonprofits' positive reputation and abilities to address the mobility gaps facing suburban older adults. Given the growing demand for transportation services tailored to serve older adults, and given the potential for nonprofit-public partnerships to reduce costs and

improve wellness outcomes, the potential for nonprofit organizations to improve mobility through information-sharing and operational partnerships is worthy of deeper exploration.

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Key Words: Transportation, Aging and Older Adults, Nonprofits, Focus Groups, Suburban

EXPANDING THE GREEN INFRASTRUCTURE PARADIGM; AN EFFICIENT, EQUITABLE, AND EFFECTIVE LENS ON PROVIDING PUBLIC INFRASTRUCTURE

Abstract ID: 125

Individual Paper Submission

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The paper illustrates how the expanding green infrastructure paradigm, first developed to address stormwater problems, is an important and innovative way to assist cities to make better decisions about infrastructure operations, maintenance, and investments in a wide variety of public services. Many future public sector infrastructure costs are driven by how cities currently organize, develop, and price existing infrastructure—often chasing ever increasing demand rather than using effective “green” methods to moderate demand, leverage current levels of infrastructure, involve stakeholders in meaningful ways, and equitably price and deliver services. The green infrastructure paradigm uses a range of integrated economic, environmental, organizational, participatory, and institutional tools to address the service delivery and investment problems that challenge metropolitan areas.

The GI paradigm originally focused on new green or “environmental” responses to the destructive impacts of stormwater runoff when public policies had previously depended on grey solutions alone—that is, massive and unsustainable investments in new sewer systems, pipes, and pumping stations. The Environmental Protection Agency quickly expanded the parameters of green infrastructure, however, beyond vegetation and soil treatments to encompass and coordinate interrelated planning and policy instruments including pricing services to accurately represent the costs of service, assessing and ensuring the equity of service delivery and pricing, developing collaborative arrangements among multiple units of government to make service more efficient, utilizing the most cost effective private and non-profit providers for service delivery, educating the public and stakeholders about service costs and problems, structuring financial incentives and programs to encourage users to help deliver services and conserve resources, reorganizing municipal departments to better address systemic problems, and adopting land use policies to prevent unsustainable development requiring infrastructure investments.

The paper first describes the history and power of a green infrastructure lens, illustrating how green infrastructure approaches to stormwater have dramatically changed the ability of cities to better manage infrastructure needs and investments. The paper then shows how a graduate planning studio at the University of Texas at Austin used the green infrastructure paradigm to evaluate public infrastructure services that planners often ignore--police, fire, library, waste water, and solid waste disposal. The students then used the paradigm to evaluate how these services were delivered in a client Texas city, preparing materials to assist that city to rethink both how it provided current services and how to better plan for future infrastructure investments.

The paper concludes by assessing how the green infrastructure paradigm can be scaled to be useful for a variety of local governments and for multiple public services that depend on infrastructure.

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Key Words: Green infrastructure, infrastructure investment, service delivery, pricing public services.

EVALUATING ENERGY EFFICIENCY OF TRANSIT-ORIENTED DEVELOPMENT: A CASE OF MOCKINGBIRD STATION, DALLAS TX

Abstract ID: 127

Individual Paper Submission

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Planning for communities around or adjacent to transit stations have focused on encouraging compact developments with high densities that can also enhance the transit ridership of the community. These developments are prescribed to be mixed-use and provide more opportunities to walk and bike in and around the community. New developments are planned to make communities more pedestrian-friendly, economically viable, socially vibrant and environmentally sustainable. One such approach is the transit-oriented development (TOD) or pedestrian-pocket proposed by Peter Calthorpe. Transit-Oriented Communities have been commonly assessed in terms of its built-environment (Maghelal 2011a), its pedestrian-friendliness and its impact on transit ridership (Maghelal, 2011b). Despite the growing trend in the literature to study and improve the energy efficiency of the built environment, little has been done to analyze the impact of TOD practices and characteristics on building energy performance. Such assessment is essential to determine whether TOD communities are truly energy efficient and sustainable, or not.

One recent study investigated and reported that TODs tend to contribute more towards the urban heat island effect than non-TODs (Md. Kamruzzaman et al, 2018). This study uses the Mockingbird Station, considered as one of the successful TODs in the North Texas Region, as a case study to assess its building energy efficiency. Urban Building Energy Modeling (UBEM) is used to simulate the building energy consumption of the area under study and test the energy efficiency of three urban configurations: (1) Base case: as-is scenario, (2) Compactness: juxtapositioning the existing buildings to represent a compact development and (3) Densification: increasing the density of developments by proposing new and denser developments in the vacant plots. Various sources of data are used to develop and validate the models including geometric inputs for the Mockingbird’s existing urban area and buildings, prototype building energy modeling information from the US Department of Energy (US DOE), and building energy use information gathered from validation purposed from the U.S. Energy Information Administration’s databases for commercial and residential buildings.

The three urban configurations identified above are then simulated using the developed and validated UBEM. The main output is the building energy intensity of each scenario, which is evaluated in two ways: (1) Total energy

consumption for units of residential and non-residential development and (2) Energy intensity per square feet for residential and non-residential development. In general, the results reveal that both the compactness and densification increased the energy intensity of the built environment when compared to the base scenario. However, these findings depend on the specific use of the development (residential or non-residential) and the chosen metrics of measurement (per unit or per square feet).

This study has important implication for planning as it sheds light on the interaction between TOD characteristics and potential unintended consequences on the energy performance of the urban area. Limitation of tools, data, and analyses are also discussed, setting the stage of future research ideas and expansions of the current work.

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Key Words: Energy Efficiency, Transit-Oriented Development, Urban Building Energy Modeling, Dallas

ANALYZING THE TRIP-CHAINING PROPENSITY FOR COMMUTER AND NON-COMMUTER TRIPS FOR LOCALS AND EXPATS IN ABU DHABI, UAE

Abstract ID: 128

Individual Paper Submission

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Travel by private auto has grown in the last decade in all of United Arab Emirates. In Abu Dhabi, the average extra travel time per day is about 14 minutes, which is primarily driven by commuter traffic during peak hours (TomTom Traffic Index, 2018). Also, the congestion level has increased to 20% (an increase of 6%) in 2016 compared to a year which indicates an overall increase in the vehicle miles traveled (VMT) and vehicle hours traveled (VHT) within the city. Increase in congestion level indicates lower commute speed, travel delay and leads to other environment-related problems.

The Surface Transportation Master Plan for Abu Dhabi recommends a reduced dependency on the use of private cars by 2030 (STMP, 2009). Henceforth, reducing the number of trips and consequently, the total driving time can be assessed by analyzing the current driving behavior of its residents. Trip chaining is defined as combining several away-from-home activities as parts of a tour into one trip (Antipova and Wang, 2010). Trip-chaining is commonly associated with reduced travel time and vehicle miles traveled, thus the importance in understanding the impact different factors have on the travel behavior. Several studies have analyzed the trip-chaining propensity based on employment and housing type (Manoj and Verma 2015). These studies report that the work status, demographic, socioeconomic and land-use characteristics impact the trip-chaining behavior (Hu and Wang, 2016). However, not many have investigated the propensity of trip-chaining of local and expat drivers. Abu Dhabi is an emirate where locals are outnumbered by expats by a ratio of 4:1. It is important to understand the difference in their driving behavior to propose policies that can target specific groups to improve the driving conditions in Abu Dhabi.

The Department of Transportation of Abu Dhabi conducted an extensive travel diary survey in 2015 which included information about their individual characteristics, travel behavior and Traffic Analysis Zones (TAZs) of their households. The trips conducted during the days of the surveys were collected and coded by the DoT. This study uses the survey data to group the respondents based on the purpose of their trips (commuter and non-commuter) and if the trips were chained or unchained. The propensity to make chained-trips were compared for

Emirati (local) and non-Emirati (expat) respondents of the survey. Henceforth, the trips were identified as Commute Chained (CC), Commute Unchained (CU), Non-Commute Chained (NCC) and Non-Commute Unchained (NCU).

Multivariate logistics analysis revealed that the propensity to take unchained commuter trips and chained non-commuter trips increases with being a local. Income reported to be significant and increased the propensity to take unchained trip for both the purposes (commute and non-commute), while results indicate that land use plays an important role in respondent's decision on trip chaining for both commuter and non-commuter trips. Increase in land-use mix reduces the tendency to make chained trip which is a representative of the urban fabric of Abu Dhabi.

This study analyzed the driving behavior in a multicultural setting and has implications for enhancing both the land-use development and travel behavior in Abu Dhabi and the United Arab Emirates (UAE). Other recommendations and limitations are discussed in the paper.

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Key Words: Trip-Chaining, Abu Dhabi, Emirati drivers, Expat drivers, Travel behavior

PUBLIC TRANSIT USE AMONG THE ELDERLY IN THE MEDIUM-SIZED CITIES OF CHINA: EFFECTS OF PERSONAL, ATTITUDINAL, HOUSEHOLD, SOCIAL ENVIRONMENT AND BUILT ENVIRONMENT FACTORS

Abstract ID: 130

Individual Paper Submission

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Public transit brings significant benefits to the aging society by providing essential mobility to the elderly. Encouraging public transit use among the elderly is a crucial component of the efforts to improve their mobility and their quality of life. In the year 2015, the population of the elderly (aged 60 or over) in China reached 222 million, accounting for 16.1% of the national population of China and is expected to grow to 25% by 2030 (Ge et al., 2017). With the pressure of the aging trend, it becomes a challenge to provide a public transit service that is safe, reliable, accessible and affordable to the elderly (Banister & Bowling, 2004). To date, many studies in public health and urban planning fields have mutually contributed to revealing how environmental features are related to the elderly' public transit use in Western contexts (Hess, 2012; Kim, 2011) while few have investigated this issue in China or other developing countries. For this reason, most research findings are not necessarily translatable to Chinese contexts (Van Cauwenberg et al., 2011). This study fills this gap by exploring the effects of personal, attitudinal, household, social environment, and built environment factors on the public transit trips of the elderly in China. It is the first research studying the mobility of the elderly in China which focuses on medium-sized cities. Data collected from 274 urban and rural neighborhoods in Zhongshan, a medium-sized city in Southeastern China, is applied. Located in one of the largest coastal urban agglomerations in China, Zhongshan has about 20 medium-sized cities around it with similar urbanization level and urban transport characteristics. Traditionally, transit provision has long been identified as a challenging task due to the limitation of financial and human

resources. Negative binomial regression models suggest that, all else being equal, living in a neighborhood with a high level of public transit service, abundant green space along walking routes connecting home and bus-stops, or a relatively balanced structure of age or income is strongly connected to more public transit trips of the elderly. The results also indicate that a strong personal preference to public transit is significantly related to transit use among the elderly in China. This research extends the existing literatures where the majority of travel behavior studies are focused solely on the built environment and are predominantly conducted in Western contexts. It also provides insights into achieving an effective design of policies to encourage public transit use among the elderly in developing countries.

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Key Words: transit use, public health, elderly, developing countries, social and built environment

WHO IS READY TO BICYCLE?: USING BEHAVIOR CHANGE THEORY TO CATEGORIZE AND MAP BICYCLISTS

Abstract ID: 167

Individual Paper Submission

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Bicyclist categorizations have been developed to sort individuals into distinct groups based on shared traits, which can help researchers and practitioners understand complex patterns of bicycling behavior. Previous categorizations have focused on bicycle facility comfort (Dill and McNeil, 2016), seasonal patterns of use (Bergstrom and Magnusson, 2003), and behaviors and attitudes (Damant-Sirois and El-Geneidy, 2015), but not on readiness for bicycling. Our first aim is to present of a categorization of bicyclists based on the stages of change feature of the Transtheoretical Model (TTM), which sorts individuals into one of five stages: Pre-Contemplation, Contemplation, Preparation, Action, and Maintenance (Prochaska and DiClemente, 1983). To demonstrate the added value of the TTM categorization, we then examine how it can contribute unique insights for practice through novel behavioral information and findings from mapping and spatial analysis.

This study uses baseline survey data from a natural experiment study with the overarching aim of evaluating impacts of construction of a city-wide bicycle network on active travel and safety (Winters et al., 2018). The study area includes three mid-sized Canadian cities: Victoria and Kelowna in British Columbia; and Halifax, Nova Scotia. We categorize the sample of 2,398 individuals into the five TTM stages of change according to three questions: intent to bicycle more, use of a bicycle in the past 12 months, and whether they usually use a bicycle to get around. For comparison purposes, we also categorized respondents according to the Geller typology, using

survey questions and categorization methods developed by Dill and McNeil (2016). Their categorization scheme relies on several questions: ability to ride a bicycle, interest in bicycling more, and comfort on a variety of street types (from a separated path or trail to a major street without a bike lane). The categorization yields four types: No Way No How, Interested but Concerned, Enthused and Confident, and Strong and Fearless. The Geller typology categorizes individuals primarily as a function of their comfort on different bicycle infrastructure types and secondarily on intention to bicycle, whereas the TTM focuses on both bicycle intention and behavior. Finally, we mapped survey respondents' residential locations in the three study cities. We used kernel density estimation to visualize spatial variation in the distribution of Action stage individuals, since these individuals may represent the "low-hanging fruit" for a goal of encouraging more bicycling.

One-third of respondents had not considered bicycling (Pre-contemplation), while one-fifth had begun considering or preparing to bicycle (Contemplation and Preparation), and two-fifths bicycled occasionally (Action). Only 5% bicycled regularly (Maintenance). Men, younger individuals, and residents of Kelowna and Victoria (compared to Halifax) were more likely to be in advanced readiness stages (Action and Maintenance).

To evaluate the additional information provided by the TTM compared to the Geller typology, we compared how individuals would be categorized in the two paradigms. The largest difference is among the Geller typology's Interested by Concerned group, which cross-cuts all five TTM stages. Nearly half of the Interested by Concerned individuals are not currently cycling; with similar sized groups not yet considering bicycling (Pre-contemplation), beginning to think about bicycling (Contemplation), and preparing to bicycle (Preparation).

Using spatial statistical techniques, we identify hotspots where a large number of individuals with the potential to increase their bicycling frequency live in close proximity, suggesting street network corridors where infrastructure improvements might be met with the greatest increase in bicycling use.

This study demonstrates how categorizing people as a function of readiness for change allows characterization of populations that are likely to be beneficially impacted by policies to support bicycling. By focusing on readiness to bicycle, this approach could be used by practitioners to prioritize bicycling interventions.

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Key Words: bicycling, typology, Transtheoretical Model, behavior change, readiness for change

FINANCING MODERN STREETCARS: ASSESSING THE PLANNING IMPACTS OF VALUE CAPTURE IMPLEMENTATION IN KANSAS CITY, MO

Abstract ID: 181

Individual Paper Submission

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The devolution of transport financing and planning (Wachs 2003) encourages the development and deployment of institutional innovations, both organizational and argumentative, that reflect local conditions (Curtis and Low 2012). This paper examines strategies used by local actors in Kansas City, Missouri to overcome

intergovernmental and institutional barriers to transport investment. It argues that decentralized financing – in the form of value capture strategies – profoundly shaped the selection of governance structures, justifications and expected impacts of urban transit investment and the transport planning process, more generally. As part of an ongoing project that examines the local politics of transport investment in an era of planning devolution, this paper uses a mixed method approach that includes interviews, participant observation, and quantitative analysis. It shows that while financing shapes the geography of urban transportation in U.S. cities (Taylor 2004), in the case of Kansas City, it has also shaped transport planning in unexpected ways, i.e. in favor of broader governance in a smaller geographic area, independent operated from existing transit, whose goal is to change land use and development patterns that enhance intra- and inter- regional competitiveness.

This paper profiles three institutional strategies employed by actors in Kansas City to facilitate the implementation of a modern streetcar; it argues that the strategic employment of value capture financing dictated the adoption of a non-profit governance strategy and supported economic development justifications for transport investment. More specifically, value capture financing allowed the city to restrict eligible voters to a small group of transit friendly residents in near downtown neighborhoods, overcoming decades of resistance from residents and elected officials who viewed transit investment as a waste of public funds. Initial resistance to the financing strategy spurred city leaders to create a quasi- governmental, non-profit entity called the KC Streetcar Authority. Governed by a board of 9 private and 4 public representatives, the Authority responded to business and property-owner opposition by providing private sector representatives with direct control over the transport investment. Value capture financing also allowed the city to develop and adopt an argumentative strategy that framed the streetcar investment as a tool of economic development, a politically salient issue for the slow-growth city, aimed at changing land use and firm location decisions rather than resident and commuter mobility patterns.

Kansas City illustrates how localities are leveraging the increased discretion provided by the ‘devolution revolution’ (Wachs 2003) to shape transport investment and planning to fit contextual conditions. It also raises some key questions. Economically dense but residentially sparse, the value capture district (and the streetcar project it funds) was approved by 350 residents who committed a city of almost a half-million people to a \$120 million-dollar investment. What does the use of value capture financing to gerrymander voting and taxing districts say about the fairness and representativeness of the public-decision making process? Does the single-purpose Authority model - which exists independently of regional transit providers - hinder the ability to plan and manage urban transit and development in a comprehensive, and regional manner? If transport investment is primarily justified on the basis of its economic development benefits, how does this influence investment decisions and planning processes? While institutional innovations – like value capture supported modern streetcar projects - may support increased public investment and plan implementation, they may also shape transit provision and investment decisions in ways that create new barriers to sustainable and equitable development (King and Fischer 2016, Banister 2005).

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Key Words: Transport Financing, Transportation Planning , Value Capture, Spatial Planning , Modern Streetcars

TRANSIT DESERTS USA—WHAT WE FOUND IN 52 MAJOR US CITIES

Abstract ID: 189

Individual Paper Submission

Related to the food desert concept (2012), Transit desert (2013, 2017) describes urban geographic areas with high transit demand but low transit service. Locating transit deserts within cities involves identifying the transit dependent populations as a measure of transit demand, calculating the transit supply, and then subtracting the supply from the demand to measure the gap. In detail, transit dependent populations are those who require transit service more than others. They might be too young, or too old, economically or physically unable to drive, or choose not to drive. The transit supply is measured by aggregating a number of criteria that contribute to better transit access within a designated geographic area. Transit deserts are defined as areas where the transit demand is significantly greater than the supply. Using GIS spatial analysis, transit demand, supply and gap (transit deserts) within certain geographic boundaries can be precisely measured and used to guide future transit planning process. Compared to traditional transit planning methods, this new transit planning tool is easy to understand and implement.

In order to better understand the overall transit demand and supply in US cities, this paper applied the transit desert method to 52 major US cities (ranked by population), from large metropolises like New York City and Los Angeles to smaller cities such as Wichita. The author systematically analyzed the transit supply and transit demand at the block group level to find the transit gap in each neighborhood. Then classified these neighborhoods as either a transit desert, properly served area, or transit oasis (in contrast to transit deserts).

The study found that nearly all cities had a transit deserts and transit oases. It also showed that on average 11% city block groups and 6.5% total city population were living in the transit deserts. Among these 52 cities, Denver and San Francisco ranked at the top and bottom of the list with 1.5% and 13.5% city population lived in transit desert neighborhoods. It is important to note that in transit desert neighborhoods, on average, about 43% of residents were completely transit dependent. But surprisingly, even in block groups that have enough transit service to meet demand, 38 percent of the population was transit dependent. This indicating there is broad need for alternatives to individual car ownership. On average, there were 14.7% residents in these 52 cities lived within transit oasis neighborhoods where transit supply exceeds demand. Further analysis showed that the occurrence of transit desert was not correlated with the city size, but was positively correlated with neighborhood population density. The author also created a free website to present the transit deserts locations to the general public through www.Transitdeserts.org.

This study demonstrated an alternative way to measure transit demand and supply within US cities. Using the method, the author found transit deserts in all 52 cities. In order to solve transit deserts problem, federal, state, city agencies, and private companies must work together to ensure an equitable distribution of transportation so that all citizens can fully participate in civil society. Identifying transit gaps is a first step toward solving this issue.

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Key Words: Transit Desert, Transit Oasis, Transit Dependent Population

TRAVEL BEHAVIOR AND LIFE-CYCLE EVENTS: EXAMINING CHANGES IN CAR USE AFTER RESIDENTIAL RELOCATION IN BEIJING

Abstract ID: 191

Individual Paper Submission

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Increasing dependence on cars has resulted in many negative effects in both developed and developing countries. Scholars, planners and local governments worldwide have proposed various ways to mitigate these negative impacts. However, the trend of population decentralization in many mega-cities has added uncertainty on the effects of these policies. When moving to a new place, residents would re-assess the transport resources around them to decide whether or not to change their travel behavior, and the outward relocation wave would increase commuting distance and lead to auto-dependency. Therefore, it is important to understand the mechanism of changes in car use following the residential relocation.

The determinants of car use and car ownership have been heatedly discussed in transportation planning research, including land form and built environment, individual preferences, and socio-economic factors. A small but burgeoning stream of research employed the mobility biography perspective and contended that changes in driving behavior are often alongside with life-cycle events, such as getting employed, getting married, and having children. However, few of them have investigated the changes in driving behavior after residential relocation. Indeed, residential location often goes hand in hand with life-cycle events. Additionally, there is a lack of fully discussion on the mediate effects of commuting distance and the substitution or complementary effects of car and other travel modes.

This paper is to address the gaps by investigating the re-deliberation of travel behavior after residential relocation, taking Beijing as a case. We suppose that car use and ownership significantly change before and after residential location, and life-cycle events plays significant role in this process. Data of the paper came from a survey in Beijing conducted in 2017. Household income, household size, the number of kids and marital status were used as proxy of life events and life stage. Structural Equation Model (SEM) and survival function were applied to analyze our hypotheses. It jointly explored the effects of built environment, individual preferences, life-cycle events on car ownership and car use, and investigated the mediating effect of commuting distance on travel mode change.

The SEM results confirm the significant changes in car use after residential relocation, and highlight the life stage as a determinant of driving behavior. Household with higher income were inclined to buy new cars after relocation; getting married and having kids made a resident drove more than other people. Attitudes also had conspicuous effects on car use. Positive attitudes towards car were found to be significant in stimulating new car purchase, and may also render more driving. After controlling these factors, built environment factors such as distance to metro station and job accessibility had modest effects on car use. Additionally, it was found by the survival function that commuting distance had fluctuated effects on travel mode choice: increasing commuting distance would stimulate the use of metro and private cars, while decreasing commuting distance encouraged walking and cycling.

The results of the study are expected to enrich the evidence of literature about car ownership and car use determinants by integrating two streams of research in travel behavior: the influence of life-cycle events and car use after residential relocation. It would also provide useful implications for future research and policies aiming to discourage car dependence in growing metropolises.

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Key Words: Travel behavior, Car use, Travel mode, Life-cycle events, Commuting distance

COMPARATIVE CASE STUDIES: TRIP AND PARKING GENERATION AT ORENCO STATION TOD, PORTLAND REGION AND STATION PARK TAD, SALT LAKE CITY REGION

Abstract ID: 196

Individual Paper Submission

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Guidelines for trip and parking generation in the United States come mainly from the Institute of Transportation Engineers (ITE). ITE's trip and parking generation manuals focus on suburban locations with limited transit and pedestrian access. This study aims to determine how many fewer vehicle trips are generated at transit-oriented developments (TODs), and how much less parking is required at TODs, than ITE guidelines would suggest.

This comparative case study follows a trip and parking generation study by the authors at five exemplary TODs across the U.S: Redmond TOD in Seattle; Rhode Island Row in Washington D.C.; Fruitvale Village in San Francisco-Oakland; Englewood TOD in Denver; and Wilshire/Vermont in Los Angeles. The subject of this sixth case study is Orenco Station, on the west side of the Portland metropolitan area in the suburban city of Hillsboro, OR. Orenco Station is one of the most acclaimed TODs in the U.S. The subject of the seventh case study is Station Park, a mixed-use development abutting a commuter rail station on the north side of the Salt Lake City region in the suburban city of Farmington, UT. Station Park is a transit-adjacent development (TAD), rather than a TOD. It turns its back on the commuter rail station, and separates the station from other uses with large parking lots.

The results indicate that these seven cases are more or less exemplary of the D variables, at least in comparison with US norms. By D variables we mean development density, land use diversity, street design, destination accessibility, and distance to transit for a particular TOD. These cases are characterized by land-use diversity and pedestrian-friendly designs. They minimize distance to transit, literally abutting transit stations. They have varying measures of destination accessibility to the rest of the region via transit.

Orenco Station creates significantly less demand for parking and driving than do conventional suburban developments. Peak parking demand is less than one half the parking supply guideline in the ITE guideline. Also, vehicle trip generation rates are about half what is suggested in the ITE guideline. The non-automobile mode share is 69 percent of all trips. Station Park does not have as deep discounts of vehicle trip and parking generation as Orenco Station and the other TODs studied, but still provides transportation benefits. Vehicle trip generation rates are about two thirds what is predicted in the ITE guidelines, due to the mixed-use nature of Station Park. Parking generation rates are also lower than the ITE guidelines. Visitors park once, and then walk to an average of two destinations on each visit to Station Park.

We believe that for planned TODs around other stations, in the same or other regions, our statistics may be used in tandem with regional travel model forecasts for a particular TOD or its respective traffic analysis zone. Regional travel models can capture the effects of transit service at a particular site, but typically do not capture the full effects of the D variables on travel demand. On the other hand, our mode shares, trip generation rates, and parking generation rates are actual (not modeled) values that reflect all the D variables of particular TODs, but are particular to these developments and their contexts. Whether they apply to TODs with different D variables and different contexts will always be debatable. That is why we say that both modeled regional travel model forecasts and actual trip and parking generation rates for TODs should be considered in the planning of other TODs.

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Key Words: transit-oriented development, transit-adjacent development, trip generation, parking generation, comparative case studies

NEW TOWN DEVELOPMENT AND COMMUTING DISPARITY IN BEIJING, CHINA: WHO WINS AND WHO LOSES?

Abstract ID: 197

Individual Paper Submission

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New town development is an important strategy for the local government to mitigate the problems such as traffic congestion, environment pollution and housing issues across the world. These new towns provide both housing and job opportunities for all income groups, however, these opportunities may distribute unequally among different income groups. Many previous studies paid attention to the transportation obstacles of the poor people induced by spatial structure transformation. However, present literature rarely investigated the transportation obstacles of the poor people living in the new towns, where the local governments play an important role in creating self-containment clusters. Additionally, most of the studies are conducted in the developed economy, while the studies exploring the commuting disparities in the growing metropolis of the developing world remain rare. In view of these research gaps, this study aims to shed light on the transportation disparities of residents living in new towns in Beijing, China from the lens of commuting travel behavior.

This paper uses data from a travel survey conducted in Beijing in 2017. 972 people living in new towns and sleeping towns are selected in this study. Sleeping towns are large-scale suburban residential clusters with relatively few job opportunities nearby. Comparison between people living in new towns and sleeping towns would help to derive more persuasive conclusions on whether new towns are beneficial in reducing commuting disparities. Commuting disparity in this paper is measured by commuting distance, mode choice and commuting time of low, middle and high income groups. One-way ANOVA tests are conducted to explore the commuting variations of different income groups living in new towns and sleeping towns. Then, two OLS models and one logistic model are conducted to explore the determinants of commuting distance, travel mode and time differences for every income group. Factors considered in this paper include: 1) spatial factors (the location of the new town); 2) built environment factors, including job accessibility and distance to metro stations; 3) individual and household factors, including age, gender, marital status, education, household size, house tenure and car ownership.

The study shows that the commuting distance, mode and time vary significantly across low, middle and high-income new town residents. The commuting distance of low-income earners is shortest, however, higher proportion of car ownership among middle- and high-income residents save their commuting time, and overshadow the benefit of shorter commuting distance of low-income residents. Middle-income residents with college degrees experience longer commuting distance and time. Married low-income new town commuters tend to commute shorter.

This study contributes to the existing discussions regarding spatial and modal mismatch by providing novice evidence from new towns in developing context. The study implies that future new town planning in growing metropolis should take into account the potential impact of infrastructure investment on transportation disparities

between different income groups. It implies that the housing, industry and transportation development of new towns should be integrated more firmly and match better with the needs of various income groups.

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Key Words: new town, commuting, equity

SPATIAL WORK FLEXIBILITY AND DEMAND TO TRAVEL: FINDINGS FROM A STUDY OF WORK LOCATION DECISION-MAKING IN THE NEW YORK CITY METROPOLITAN AREA

Abstract ID: 216

Individual Paper Submission

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This paper presents findings from a study of work location decision-making in the New York City metropolitan area, and argues that spatial work flexibility is an underutilized tool of travel demand management in multimodal urban settings. Beginning in the 1970s, the capability to conduct work from remote locations using information technology—known as telecommuting—was envisaged as a way to tackle peak-period traffic congestion. Yet its adoption is limited by factors including manager preferences for having employees in the office, and feelings of professional isolation among telecommuters. An analysis of travel demand management (TDM) plans in 1990 found that in practice, TDM utilized temporal work shifts, such as starting work earlier or later in order to reduce the number of workers traveling during peak periods, over spatial work shifts enabled by telecommuting (Ferguson 1990).

Two recent innovations have driven new practices of technology-mediated work location. Firstly, the expansion of wireless broadband allows workers to be connected from a wider array of locations and through a wider array of devices. Secondly, new forms of “social” media may better support the establishing of trust in online communications, and reduce problems of remote worker isolation. Additionally researchers such as Schwanen et al. (2008) have argued for more appreciation of the complexity and contexts of ways in which activities, such as work, are mediated by information technology. Activities may be “fragmented” through information technology across different spaces and times (Couclelis 2004). Also, there is a growing interest in the distinction between types of telecommuting based on time of day, duration, and interaction with work done at the workplace, including partial-day and “overtime” remote work practices (Habbad et al. 2009; Deng et al. 2015).

This paper’s research questions ask how flexibility and constraint of work location impact travel decision-making and outcomes in a multimodal context. Its methodology consists of both qualitative semi-structured interviews and a quantitative survey among workers in the New York City metropolitan region. A set of interviews was conducted with workers who reported conducting work remotely at least once for their job within the month prior to the interview. Open-ended questions asked of interviewees concerned their experiences with working from non-office locations, such as home or café, and also the policies and attitudes of their employers and coworkers towards telecommuting. An internet-based survey was also conducted, asking a series of close-ended questions about work location habits, reasons for work location decisions, and the frequency of alternate work location. In

addition to being asked to report their own experiences, respondents were also asked about a hypothetical incentives program in order to more directly inform policymaking.

Findings, based on both qualitative analysis of interview data and quantitative analysis of survey data, show that workers strategically use spatial work flexibility. This includes supporting non-work aspects of their lives, but also using flexibility to avoid traveling during peak times, traveling by certain modes, or traveling altogether on a given day. Additionally, when presented with a hypothetical incentives program, office workers indicated a willingness to work from home for part of the day in order to avoid peak-hour morning commuting. Yet, a primary tradeoff of spatial flexibility is the sense of eroding boundaries between work and home life. Finally, the availability of spatial flexibility depends strongly on the existence of a formal telecommuting/remote work policy in the workplace, and perceptions of workplace and management culture. The paper argues the knowledge produced by this study provides a basis for making spatial work flexibility a more useful tool for travel demand management and peak-hour avoidance programs.

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Key Words: Transportation planning, Travel demand management, Peak-hour avoidance, Telecommuting, Travel behavior

A COMPARISON OF PERSONAL COMMUTE SATISFACTION AT TWO DIFFERENT TIME PERIODS

Abstract ID: 249

Individual Paper Submission

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Commuting to and from primary activities such as work and school impacts the quality of people's lives. Commuting takes time, exposes people to traffic crash and security risks, and often involves some monetary cost, physical activity, and social interaction. By making commuting more enjoyable, workplaces, schools, and communities as a whole can become more attractive and competitive.

Recent studies have examined traveler satisfaction. In general, commuting to work may be less enjoyable than other types of travel (Morris and Guerra 2014). Active modes (walking and bicycling) are associated with higher travel satisfaction (Morris and Guerra 2014; Handy and Thigpen 2018; Singleton 2018), though results for automobile and transit satisfaction are mixed (Handy and Thigpen 2018; Morris and Guerra 2014). In general, people who have shorter commutes are more satisfied (Handy and Thigpen 2018), though people who place high value environmental issues and physical activity may be more satisfied when they have longer-than-average walk commutes (Manauha and El Geneidy 2013). Having many transportation options available may increase satisfaction with standard of living (Makarewicz and Németh 2018). With a few exceptions, research on travel satisfaction has been based on data from a single time period, which limits our understanding of whether or not people are more or less satisfied with their current commute relative to previous commutes.

Our study begins to fill this gap by exploring changes in commute satisfaction. Specifically, our study investigates two central research questions: 1) What percentage of people who are currently commuting to an urban university campus are more satisfied with their current commute than with their previous commute to a different work or school location? 2) What factors are associated with increased commute satisfaction between these two points in time?

We explored these questions using data from the Fall 2017 University of Wisconsin-Milwaukee (UWM) Campus Travel Survey. Among more than 4,000 student, staff, and faculty participants, 2,839 people reported their commute satisfaction level (10 = highest satisfaction; 1 = lowest satisfaction) for both their current commute to UWM and their previous commute. Compared to their previous commute, 856 respondents (30%) were more satisfied and 1,319 (46%) were less satisfied with their current commute. In general, faculty commute satisfaction increased but student and staff commute satisfaction decreased. People whose commutes shortened became more satisfied; people who previously commuted in a city with fewer than 100,000 people became less satisfied.

Results by mode show that most people who changed from driving to walking or bicycling increased their satisfaction. People who used the same mode to commute before and after arriving at UWM generally experienced lower satisfaction with their UWM commute. This was true for driving alone, carpooling, and bicycling. However, bus commuters increased their satisfaction. Binomial logit models will be developed to identify travel, socioeconomic, and life experience factors that have the most significant associations with increases in commute satisfaction. Open-ended responses underscore several common themes associated with decreasing satisfaction (e.g., automobile parking cost and scarcity, traffic congestion, commute distance) and increasing satisfaction (e.g., transit service quality, enjoyment of active transportation). These results also imply tension between the satisfaction of people who commute by automobile and people who commute by walking, bicycling, and bus.

Our results suggest that urban campuses seeking to increase sustainable commuting can frame mode shift strategies as a means to support more enjoyable commute options. Actions to limit supply or increase the cost of automobile parking, create slower-speed environments with safer pedestrian and bicycle crossings, or provide more street space for dedicated bicycle facilities can help shift commuters from modes that are less satisfying to modes that are more satisfying.

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Key Words: Commuting, Travel satisfaction, Longitudinal analysis, Urban university campus

ELECTRIC VEHICLES, POWER OUTAGES AND WILLINGNESS TO PAY

Abstract ID: 257

Individual Paper Submission

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Power outages challenge society's growing demands for energy and affect people's lives. In 2016, power outages ranging from a few minutes to several days affected over 8,400,000 people in the United States (U.S. Department of Energy, 2016). The problems caused by outages propagate especially rapidly and significantly in smart cities because they demand larger amounts of energy to monitor and control the virtual and physical networks of city infrastructures (Albasrawi et al., 2014). The acknowledgement of this vulnerability has caused growing interest in improving the reliability and resiliency of smart cities.

Vehicle electrification, one of the smart city concept, offers benefits such as reduced greenhouse gas emissions and more efficient energy use. Vehicle-to-grid and vehicle-to-home concepts use electric energy devices (e.g., batteries and fuel cells) in electric vehicles (EVs) for electricity-load leveling or storage. Thus, EVs are potential energy resources to use during sudden power outages. Although it is a critical topic, research and concepts addressing the impact of EV energy sources on smart city resilience are scattered. The objective of this study is to quantify the impacts of EVs on the resiliency of residential sectors as a potential supplementary energy source during power outages.

In this study, we explored existing methodologies for quantifying the cost of power outages. Previous studies estimated the cost of power outages using various methods, including surveys and interviews (e.g., willingness to pay, willingness to accept), production-function (e.g., welfare cost, including lost production and time), market behavior, and case studies after actual outages (Nooij et al., 2007; Shivakumar et al., 2014). We choose the willingness to pay method, the most common approach in the literature. We estimate households' willingness to pay to avoid electricity outages using a choice experiment approach. Each choice set describes a hypothetical situation related to a specific and sudden outage in the electricity supply based on season, duration, time of day and cost to avoid the outage.

We designed an online survey and collected data on the main campus of The Ohio State University (OSU) in Spring 2018. Our study population includes undergraduate and graduate students, faculty and staff members at OSU. Our survey includes questions on current electricity service and usage, individuals' concerns about EVs, housing characteristics (e.g., type of housing, number of bedrooms, etc.), households' willingness to pay for electricity supply during power outages, and each respondent's sociodemographic information (e.g., gender, age, education level, number of household members, income, etc.).

We use discrete choice models for evaluating individuals' willingness to pay for electricity supply during power outages. We identify the effects of power outage attributes, such as duration, season and time of day, on willingness to pay, controlling for household socio-economic characteristics. This study presents the potential of EV batteries as a source of electricity during power outages, of which socioeconomic benefits can be estimated in connection with people's willingness to pay and preference of power outage attributes. Thus, this study will deepen our understanding on EV's contribution to the resiliency of smart cities and provide guidelines to help decision makers design smart cities more effectively.

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Key Words: Power Outages, Willingness to Pay, Electric Vehicles

THE RELATIONSHIP BETWEEN TRANSIT STATIONS AND CRIME: A SPATIAL PATTERN ANALYSIS OF MAJOR US TRANSIT SYSTEMS

Abstract ID: 263

Individual Paper Submission

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The potential for criminal activity has frequently been cited as the primary political rationale against siting public transit stations in many neighborhoods. These arguments follow two lines of reasoning. Some argue that rapid transit provides easy access for criminals to a neighborhood and speedy egress from crime scenes. Alternatively, others argue that an increase in activity in a concentrated area creates new target areas for criminal mischief. While frequently cited, neither of these phenomena have been thoroughly tested either with extensive crime data or across multiple transit systems. As a result, much of the evidence for transit stations as central criminal activity magnets or facilitators is the result of broad generalizations from relatively small sample regression inferences.

Past work, often focused on measuring other phenomena, hypothesizes about potential underlying effects such as crime but does not fully test such theories (Bowes & Ihlanfeldt, 2001). Other studies work towards a more focused approach to uncovering a relationship between transit and crime (Billings, Leland, & Swindell, 2011; Liggett, Loukaitou-Sideris, & Iseki, 2003; Loukaitou-Sideris, Liggett, & Iseki, 2002; Loukaitou-Sideris, Liggett, Iseki, & Thurlow, 2001; Sedelmaier, 2014), but these represent single system analysis with a plethora of applied methods. To date, there is no comprehensive, methodologically robust analysis of the spatial correlation between transit and reported crime.

These major shortcomings of the transit-crime nexus are addressed in this paper by analyzing spatial patterns of more than 25 million recorded crimes across the top US rapid transit systems. Implementing a spatial point pattern process analysis with Monte Carlo simulation, the potential correlation between property crimes, violent crimes, and transit station locations is tested to determine the likelihood (within a 95% confidence interval) that the location of each type of crime is randomly distributed across each city in the study. Results from this analysis show that there is no statistically significant spatial correlation between crime and public transit stations.

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Key Words: public transportation, crime, spatial analysis

HOW AFFORDABLE ARE ACCESSIBLE LOCATIONS? EXAMINING HOUSING AND TRANSPORTATION AFFORDABILITY NEAR RAIL STATIONS IN THE U.S.

Abstract ID: 270

Individual Paper Submission

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Improving accessibility to jobs and services for low-income groups is a key goal of justice-oriented transit advocates and planners. At the same time, residents and community leaders often oppose the extension of transit—mainly rail—services into low-income neighborhoods based on fear of increasing housing costs and

neighborhood change. The concern is that instead of reducing inequities, new transportation projects might further the marginalization of low-income groups by increasing the overall cost of living in their neighborhood, contributing to the fragmentation of social ties and leading to the displacement of current residents.

Recent studies that examined housing and transportation affordability near transit services have found that these vary across neighborhoods with different built-environment characteristics. These studies, however, fail to account for the regional context in which neighborhoods and transit are situated or the level of accessibility benefits associated with rail service at each station. Consequently, it is difficult to infer from these studies the extent to which observed changes in housing and transportation affordability are a function of improvements in transit rather than wider neighborhood and regional characteristics.

To better understand these issues, I examine how the regional context and local accessibility benefits affect housing and transportation affordability near rail stations in 33 U.S. metropolitan areas with intra-metropolitan rail service. Measures of housing affordability at the block group level are constructed using ACS and HUD-adjusted median family income (HAMFI) data. These are constructed for four income levels—median regional income, low-income (80% of HAMFI), very low-income (50% of HAMFI), and extremely low-income (30% of HAMFI)—to examine how housing and transportation affordability varies among different income levels. Measures of transportation affordability at the block group level are constructed using CNT H+T Index data and HAMFI data. Neighborhood (block group) characteristics are identified using EPA's Smart Location Mapping Tool's National Walkability Index, while accessibility data at the block group level is obtained from EPA's Smart Location Mapping Tool's Access to Jobs and Workers via Transit Tool. Cross-sectional multilevel regression models are employed to examine how housing and transportation affordability vary across neighborhoods with different built-environment and transit-service characteristics in metropolitan areas with different urban form characteristics. This analysis allows identifying some of the circumstances that enable improving accessibility for low-income groups to employment and core services without inflicting on them additional costs that outweigh the benefits from transportation improvements.

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Key Words: location affordability, transit accessibility, walkability, urban form

ACCESSIBILITY, DERIVED DEMAND, AND TRANSPORT AND LAND-USE POLICY

Abstract ID: 298

Individual Paper Submission

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Accessibility has been offered as a goal in transport policy for a number of considerations: reducing vehicle-kilometers traveled, enhancing social equity, improving urban form or merely being a “politically attractive concept.” These views treat the value of accessibility as instrumental: it is desired to the extent that it furthers other goals. But this purely instrumental view of accessibility is inconsistent with the derived nature of transport

demand: if the purpose of transportation is not movement but access, accessibility must be viewed as an inherent, rather than instrumental benefit.

Grounding the mobility-to-accessibility paradigm shift in derived demand in this fashion matters for policy. Accessibility evaluation frequently exists alongside mobility evaluation, and both are treated as dimensions of the transportation's benefits. By contrast, when the accessibility shift is based in the derived nature of transportation demand, the accessibility-and-mobility pairing becomes untenable: a mobility improvement that expanded accessibility would hardly need a separately evaluated goal, while a mobility improvement that reduced accessibility (because of induced land-use change) would amount to a transportation-system degradation.

But the derived nature of transportation demand has come under increasing scrutiny, with a number of authors arguing for a broadly held positive utility for transportation independent of transport's destination-serving function. The view challenging the derived nature of transportation demand has been marshaled in favor of roadway expansion and against job-housing balancing, and, by contrast, against policies oriented towards traffic acceleration.

None of these implications logically flow from the challenge to the derived nature of transportation demand, and the evidence brought to support this challenge fails because it conflates benefits found at origins and destinations and along routes with an inherent benefit to movement. Fundamental policy reform lies not in overturning the derived-demand cornerstone of transport planning, but in building upon it to establish that increases in proximity or mobility are valued as transportation gains only to the extent that they improve accessibility or its distribution across society.

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Key Words: accessibility, derived demand, transportation, land use

THE VALUE OF ACCESSIBILITY IN RESIDENTIAL LOCATION CHOICE

Abstract ID: 305

Individual Paper Submission

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Accessibility has long been recognized as an important determinant of households' residential location choice. Many publications have empirically verified a positive influence of accessibility on residential choice (e.g. Lee et al., 2010). Following Alonso (1964), existing literature on residential location choice has mostly viewed the benefits of accessibility as primarily in travel-cost savings (TCS)—particularly savings in commuting costs. However, it ignores other accessibility benefits including utility gains from trip production and destination change, and other invisible benefits such as option value, non-user value, and knowledge spillovers (Geurs and van Wee, 2004). Neglecting these non-TCS benefits would lead to an underappreciation of the importance of accessibility in academic debates and policy discussions. For example, citing the declining importance of

commuting costs in households' residential decisions, some scholars have argued that the transport-land use connection is weakening (Giuliano, 1995). Similarly, when households are found not to reduce their travel expenses after moving to more accessible locations, the usual interpretation is that transportation/accessibility is an insignificant factor driving the decision to move (Smart and Klein, 2017). If these phenomena are attributable to non-TCS accessibility benefits, however, accessibility is actually a more important determinant of location choice than these authors suggested.

My study examines how households value non-TCS aspects of accessibility benefits in residential location choice. I built a residential location choice model that features two key variables—job accessibility (using a gravity measure) and commuting cost, while controlling for other commonly used variables such as housing attributes, neighborhood characteristics, locational attributes, and household characteristics. Since commuting cost is controlled for, the coefficient on the job accessibility measure captures the value that an average household assigns to the non-TCS proportion of job-accessibility benefits, although it may also contain some effects from the TCS of nonwork trips due to omitted variable bias. I addressed this concern by interacting job accessibility with a sample dummy variable, one sample containing households that are expected to value non-TCS accessibility benefits more than the other. A significant interaction term would indicate that some population segments indeed value non-TCS accessibility benefits more than others. My model is estimated in three US metropolitan regions—the Puget Sound region, the Southeast Michigan region, and the Atlanta region, using their most recent household travel surveys.

The results confirm the importance of non-TCS benefits of job accessibility in households' housing choice, although the impact of commuting cost appears to be stronger. The valuation of non-TCS accessibility benefits varies significantly across households: young families, workers in high turnover rate industries, and workers with a college degree value these benefits more than others. Their preferences are probably driven by different aspects of non-TCS accessibility benefits. For example, young households may value the utility gains from making more trips, workers in unstable positions appreciate the future employment opportunities (i.e. option value) in case of losing/switching a job, and well-educated individuals desire the potential learning opportunities (i.e. knowledge spillover). My study hence contributes to the literature by specifying the non-TCS benefits of accessibility that are unrecognized in previous studies. These findings suggest that using TCS as a primary indicator to judge the importance of accessibility is fallacious and thus challenge the notion that accessibility is becoming increasingly unimportant as individuals commute from further away locations. Moreover, my study finds that walking accessibility (measured by the number of jobs in 30-minute walk distance) constitutes a positive utility for most households whereas locations with high accessibility by transit are only preferable among transit-dependent populations. These findings support initiatives to allow more walkable neighborhoods and also policies and programs to promote the construction of affordable housing in transit-rich sites.

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Key Words: Residential location choice, Accessibility, Travel cost savings

HOW CAN SIDEWALK DATA ENHANCE WALK MODE CHOICE MODEL?—WALK MODE CHOICE MODEL CALIBRATIONS FOR THE SALT LAKE REGION

Abstract ID: 308

Individual Paper Submission

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Empirical studies reveal that people who have access to sidewalks are more likely to walk (Ewing, Forinash, & Schroeer, 2005; Rodriguez & Joo, 2004; Greenwald & Boarnet, 2001). However, due to the lack of refined data on walk travel and build environment, estimating an accurate share of walk trips has long been a challenge in the travel forecasting process. The conventional four-step travel demand models employed in regional transportation planning aggregate urban characteristics at the Traffic Analysis Zone (TAZ) level and cannot represent detailed environmental attributes that affect pedestrian walk mode choice. Moreover, since walking distances are relatively short compared to automobile trips, it is difficult to capture walk trips occurring within zones. Walk mode shares tend to be greater in dense, mixed-use, and transit-oriented developments, so it is essential to enhance the walk mode choice model with detailed pedestrian environment characteristics at finer spatial levels.

This study aims to explore how sidewalk data can enhance the walk mode choice model. First, we conduct a thorough literature review on walk mode choice to understand explanatory variables that have been proved to have a significant impact on walk mode choice. While there are numerous studies on modeling the walk trip mode, they tend to rely on density (e.g., household density, job density, and population density) and diversity (e.g., land use mix) parameters, and only a few studies incorporate sidewalk attributes (Ewing & Cervero, 2010). Second, we collect regional-scale sidewalk data. Geocoded sidewalk data may be available from local jurisdictions, so we reached out to over 50 municipalities in the Salt Lake region. For small municipalities where sidewalk data are not available, we generated the data with ArcGIS by examining high-resolution aerial imagery and Google Street Views. Lastly, we compared different logistic regression models that use consistent built environment variables as control variables but are differentiated by sidewalk data type—no sidewalk information, sidewalk length, sidewalk coverage, and sidewalk connectivity. We used 2012 Utah state-wide household travel survey, and the outcome variable is a binary walk mode choice in the survey. The sidewalk and other environmental variables were processed at traffic analysis zone level. By evaluating and comparing the explanatory power of different models, we sought to develop a reliable and feasible walk mode choice model that can be incorporated into existing four-step travel demand models.

Sidewalk data are scarce and difficult to obtain at a regional level. However, if we can ensure that a particular sidewalk parameter significantly enhances the existing travel demand model, the benefit-cost of obtaining sidewalk data will be increased considerably and, in return, metropolitan planning organizations (MPOs) and municipal planners will find it worth the effort to improve travel forecasting processes. Furthermore, by exploring to what degree a particular sidewalk characteristic leads to pedestrians' choices of walking, this study can contribute to the better understanding of the role of sidewalks in creating more pedestrian-friendly environments.

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Key Words: Travel Demand Modeling, Walk Mode Choice, Sidewalks

THREAT OR OPPORTUNITY: EQUITY IMPACTS OF AUTONOMOUS VEHICLES

Abstract ID: 325

Individual Paper Submission

The longtime accessibility and mobility inequalities across U.S. cities have been driven by a wide array of factors, with a crucial role played by public policies supporting the excessive growth of mass motorization. For many decades, enormous public funds were allocated to automobile infrastructure, benefiting the wealthy residents and reinforcing the dominance of a single-occupied vehicle as the primary urban transportation mode. At the same time, alternative means of transportation, such as mass transit, were neglected by policymakers who ignored the accessibility needs of the less affluent and underrepresented groups (Jones, 2008).

The anticipated implementation of connected and autonomous vehicles (CAV) into urban transportation systems brings numerous opportunities for reinventing urban mobility and addressing many of the recurring accessibility issues faced by the disadvantaged residents of U.S. cities. For example, shared automated shuttles could solve the “last mile problem”, which affects many transit networks, and therefore substantially improve job accessibility for remotely located zero-vehicle households. However, recent research indicates that much of the planning framework in U.S. cities so far ignored the forthcoming transition to CAV along with its opportunities for the society (Guerra, 2016). On the other hand, at least some stakeholders of the CAV developmental framework focus on enhancing personal cars and reinforcing their dominant market role. Their scenarios for the CAV-based future of mobility reminisce the early stages of motorization, when the majority of scholars and policymakers expressed an uncritical praise of the automobile, perceiving it as a golden solution for urban transportation (Zhao and Freemark, 2018).

This paper has two major objectives: first, to identify the consistencies and incoherencies between the proposed CAV implementation schemes and the key foundations of equitable urban transportation systems. Second, to offer insights for academics, planners, and policymakers on how they could advance the CAV agenda towards diminishing mobility inequalities, and prevent the CAV transition from reiterating the negative outcomes of past transportation innovations.

To address these goals, we outline the key transportation equity issues faced by Americans and we summarize the scarce, yet emerging literature on the social aspects of vehicle automation. We examine the current planning policies adopted across U.S. largest cities and metropolitan regions in order to determine their cohesion with the transportation equity principles, and to figure out if any of those policies has already acknowledged the potential role of CAV in addressing the mobility needs of disadvantaged groups. We also focus on the CAV advocacy efforts stimulated by the private sector, including automobile manufacturers and consultants, seeking for any possible consideration of transportation equity issues. The discussed policy analysis is complemented with a set of interviews. The paper concludes with a set of recommendations for planning scholars and practitioners on the possible strategies for incorporating equity aspects into the broader CAV agenda, and increasing the recognition of CAVs as a solution to many of the accessibility and mobility problems.

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Key Words: autonomous vehicles, equity, transit, innovation, policy

LEFT BEHIND IN AN AUTO-DOMINATED LANDSCAPE: THE INCREASING ROLE OF CARS IN ECONOMIC MOBILITY, 1968-2015

Abstract ID: 329

Individual Paper Submission

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Does access to reliable transportation—particularly, access to an automobile—play a more important role in economic upward mobility today than in the past? Low-income families without access to automobiles may be increasingly “left behind” in the contemporary economic geography of the United States. Jobs and people—including many low-income families—have moved to the suburbs, leading to an increased reliance on cars to get to and from work. As a result, job seekers in many US neighborhoods will find it difficult to find and keep a job without access to a reliable car.

We test whether the relationship between car ownership, public transportation, and employment outcomes has become stronger over time using data from the Panel Study of Income Dynamics (PSID) from 1968 through 2015. The PSID has been following the same families and their descendants since 1968, providing a unique opportunity to test the changing role of transportation. We use a panel approach and a Heckman selection model to estimate changes in employment and wages as a function of access to automobiles and transit service quality in one’s home neighborhood. Our initial results suggest having a car in one panel wave is a strong predictor of future employment and higher earnings one year later, and that this relationship has become considerably stronger over the past five decades. For those with cars, transit plays little role in future employment and earnings. However, for those without cars, living in a neighborhood with high-quality transit access to jobs can improve employment and labor earnings, and this relationship has also strengthened over time.

This paper adds to the literature on the connection between transportation and economic mobility. Economists and transportation scholars have documented that access to a private automobile improves the economic well-being of poor families (Cervero, Sandoval, and Landis 2002; Baum 2009; Blumenberg and Pierce 2014). Some have similarly found that access to high-quality public transportation can benefit job-seekers, though the evidence for this is less consistent. While this research has spanned several decades, questions about the changing relationship between transportation and economic outcomes have not previously been studied.

These questions have important implications for policy. Transportation policy aimed at improving the welfare of low-income families has largely focused on increasing families’ access to public transportation, as well as subsidies for transit fares. Both federal and state policies have pursued policies that largely focus on improving access to jobs via public transportation. At the same time, some states restrict car ownership among welfare recipients, reasoning that automobiles are high-value financial assets rendering welfare recipients too wealthy to obtain benefits. In an era of increasing suburbanization of poverty and employment, these policies may no longer match the reality of the needs of poor families, if they ever did.

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Key Words: Economic mobility, Automobility, Public transportation

RETHINKING INFRASTRUCTURE INTERDEPENDENCIES TO PLAN FOR SOCIETAL RESILIENCE

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Society is increasingly reliant upon infrastructure services in and around urban areas. Yet the interconnectedness of these services is increasing as well as the usage of any single system, and as a result when one system fails multiple failures can occur. These interconnections appear as both dependencies and interdependencies among different types of infrastructure. Interdependencies occur where two systems depend upon one another to function or are spatially near one another (Rinaldi, Peerenboom and Kelly 2001). Adverse consequences particularly escalate when environmental factors come into play associated for example with extreme events and climate change (Staid et al. 2014; Zimmerman et al. 2017). Many adaptations exist to manage the impacts of interdependencies. One approach is to reduce land use conflicts particularly brought about by increasing concentration of both infrastructure facilities and usage in urban areas (Zimmerman 2017) as well as reducing proximity of conflicting uses. Another related approach is enhanced communications among potentially conflicting services and the populations near them and users to familiarize them with interdependencies and their potentially cascading effects.

This paper first introduces the nature of selected infrastructure interdependencies and their implications for social resilience in urban contexts drawing upon network theory concepts to define these relationships. Second, conceptual frameworks are presented building upon the work of Zimmerman et al. (2017) that in the current paper now explicitly account for geographic scales to capture urban area dependencies and interdependencies among infrastructure systems and their users. The frameworks focus on electric power and transportation relationships first under normal or undisturbed conditions and then disrupted conditions initiated by power outages from accidents, weather and climate change that reverberate not only initially for rail transit but also secondarily through road systems. The emphasis is upon urban area infrastructure distribution systems however, production for power is factored in as well. The unique aspects of this research are the attention to the geographic and functional scope or scale embodied in the frameworks. When small scales are used, interdependencies are rarely seen and the effects primarily occur in the form of dependencies. Vale (2014) in addressing the complex nature of resilience noted in particular that scale is a factor in how systems behave. Another unique element is the incorporation of density or concentration of infrastructures in exacerbating interdependencies (Zimmerman 2017). Third, ways of reducing adverse consequences of interdependencies are superimposed over the initial frameworks to improve both physical and social resilience. These adaptation mechanisms include alternative resources, system configurations, user behavior, and underlying physical condition. The frameworks and the outcomes they portray are based on actual case-based datasets. The datasets focus on connections among rail transit and energy (electric power and fuel) systems and are expanded to include road transportation. Initiating conditions are in the form of electric power outages from capacity factors, operational conditions, and environmental conditions. The cascading effects created by these linkages and conditions often occur during numerous types of storms (hurricanes and nor'easters) and are anticipated from climate change.

Results show that the appearance of the interdependency related effects escalates dramatically when the scope of the interdependent infrastructures is expanded to encompass both transit and road systems and how they interact. This underscores the uniqueness of the approach. Implications for planning are drawn in terms of the design and management of infrastructure relative to user populations and residences and economic activities in proximity to infrastructure from a regional perspective.

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Key Words: infrastructure planning, interdependent systems, extreme events, climate change, networks

WHO'S IN THE DRIVER'S SEAT? GENDER AND THE DIVISION OF CAR USE IN AUTO-DEFICIT HOUSEHOLDS

Abstract ID: 392

Individual Paper Submission

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Intra-household competition for automobile access is a relatively widespread phenomenon. Data from the American Community Survey show that households in which a single car is shared by two or more adults comprise 15 percent of U.S. households, making them twice as common as zero-vehicle households. Yet there is surprisingly little research on auto-deficit households and, in particular, how they share this important household resource.

In this study, we hypothesize that gender plays an important role in determining use of the household vehicle, potentially operating through four mechanisms. The economic power hypothesis posits that the spouse most responsible for the household's financial well-being will have use of the automobile. The practical necessity hypothesis suggests that vehicle priority will go to the household member whose travel needs are least likely to be met by alternative modes. Gendered norms—behaviors society attributes to a particular sex—and gender preferences—sex-specific inclinations—also may play a role in determining access to the household vehicle.

Using data from the 2012 California Household Travel Survey, we combine descriptive statistics and multivariate models to isolate the determinants of vehicle use in car-deficit households. The sample includes households where we expect a relatively high degree of competition for vehicle use: heterosexual couples with two licensed adults but only one operational vehicle. The statistical models predict the number of minutes that a spouse monopolizes the household vehicle (e.g. travel time + activity time). We control for a range of independent factors including household structure, individual characteristics, and residential density. Most importantly, the models also contain relative measures that compare an individual to his or her partner. These measures—which include a spouse's relative level of education, amount of time he or she spends on household-related activities, and amount of time he or she spends on employment-related activities—allow us to evaluate the validity of the various car-allocation hypotheses.

We find that practical necessity—in particular, the relative amount of time that an individual spends on household-serving or work-related activities—is the primary determinant of automobile use for both men and women. Contrary to the assumptions of gender norms and gender preference hypotheses, women have substantially more exclusive access to the household vehicle than their male partners. Rather than a measure of equality, however, this finding reflects the persistence of the gender division of household labor and the role of the car in its maintenance. Finally, with regard to the role of economic power in vehicle allocation decisions, our findings are mixed and inconclusive.

The study underscores the broader need for policies to equalize gender roles both within and between the home and the workplace. It also suggests an important role for transportation policies and program in serving the needs of household members who do not have primary use of the household vehicle. These might include services that make vehicles available for temporary use as well as efforts to ensure that alternative modes adequately serve their travel needs.

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Key Words: auto deficit, car ownership, travel behavior, gender

WHY IS TRANSIT USE FALLING?

Abstract ID: 397

Individual Paper Submission

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Public support for transit investment, along with transit investment itself, is strong in the United States. But patronage is faltering, and the recent decline in transit use has stirred considerable concern in the media and among public and transportation professionals. Following steady growth in ridership in the mid-2000s, per capita transit began slipping with the onset of the Great Recession in 2008. But while the economy gradually recovered, per capita transit use for the most part has not.

What explains these worrisome trends and what do they mean for transit's future? In this paper we assess California's, and particularly Southern California's, transit patronage downturn, though we consider national trends as well.

Concern about falling ridership began when transit use began falling absolutely in 2012, but our primary focus is on the per capita decline that began five years or so before that. Since 2011 gas prices have fallen sharply, Lyft and Uber have dramatically expanded their service; undocumented immigrants were granted drivers' licenses; and the economy rebounded from the Great Recession. While all these factors may have contributed to falling transit ridership, they all occurred after per capita transit ridership began falling.

We focus on the years from 2000 to 2015 to ensure that we see changes that occurred before transit use started falling. Public transportation is used by a small subset of the population, making riders (and former riders) hard to study. The determinants of transit use are varied, ranging from gas prices to auto ownership to the quality of transit service, and no single data set contains all of them. Some, like Lyft and Uber patronage, are not tracked in publicly-available data at all. Perhaps our biggest methodological obstacle is that we want to explain changes in transit use over time, but detailed and reliable person-level data about travel are not available longitudinally. The US Census, in its American Community Survey (ACS), tracks commute behavior every year, but commutes are a minority of transit trips. The California Household Travel Survey (CHTS) provides in-depth data on travel of all types by Californians, but this survey is a snapshot, and only available for 2012. The best data we have is a one-year cross-section, but the question we need to answer is longitudinal.

We find, ultimately, that in the last 15 years more households have gotten access to more private vehicles. Vehicle ownership has grown particularly sharply among subgroups most likely to use transit, such as the low-income and the foreign born from Latin America. This surge in vehicle ownership may well have been reinforced by falling gas prices and the rise of Lyft and Uber, but it began before TNCs existed and when gas prices were still high. Increased vehicle ownership by itself can probably explain much of Southern California's transit decline. Much of the region's built environment largely designed to accommodate the presence of vehicles

and to punish their absence. These circumstances give people strong incentives to acquire cars, and—once they have cars—to drive more and ride transit less.

These findings generally accord with previous research on transit use. Giuliano (2005) has shown that compared to Americans at large, the poor use transit more but like it less. The typical low-income rider wants to graduate to automobiles, while the typical driver might view transit positively but has less interest in using it. These facts, coupled with the falling ridership of past years, pose daunting challenges to the ambitious goals many regions have for public transit: provide mobility for those without, offer a quality alternative to solo driving, support more urban places, reduce pollution and greenhouse gas emissions, and more.

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Key Words: Public transit, Ridership, Travel behavior

THE ROLE OF STREET TREES FOR PEDESTRIAN SAFETY

Abstract ID: 428

Individual Paper Submission

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Walkability research often focuses on benefits and disservices of the built environment and land use patterns, advocating how pedestrian amenities such as calmed traffic, connected sidewalks, and safe crosswalks improve walkability and livable places. Such macro-level considerations may discount a pedestrian’s interaction with surrounding streetscape elements (Manaugh and El-Geneidy 2011). Despite the ubiquitous presence of trees in contemporary urban landscapes, many walkability scholars do not give attention to street trees, or otherwise allude to their existence as a prominent feature of the streetscape (Loukaitou-Sideris 2006). This conceptual gap may miss the potential role of street trees as a design element that can improve pedestrian safety. International attention to urban tree planting along with the equity implications of walkability suggest further research is needed to understand the objective and perceived characteristics of the physical walking environment.

This exploratory research studies the link between street tree abundance and pedestrians’ perceptions of safety. Pedestrian surveys (n=181) were distributed across nine study area sites in three mid-sized Massachusetts cities. Study area sites varied by street tree abundance, including mature street tree cover, streets with young tree plantings, and low street tree cover, holding a number of streetscape variables constant (i.e. land use, road volume, and sidewalk width). The survey instrument used 5-point Likert scales and open-ended responses related to personal safety and support for additional tree plantings, socio-demographic information as well as a visual photo preference section, where a series of photos of each street tree cover type was compared with the street the participant was walking on. A simple structural equation modeling framework was used for initial statistics.

The study results showed that perceptions of safety appeared to be influenced by a variety of factors, including the presence and amount of trees, overall streetscape design, and adjacent land uses. This suggests that the cumulative effect of design features may contribute to perceptions of safety more than their isolated parts. Many findings confirmed that perceived pedestrian risks are exaggerated by certain socio-demographic profiles, such as age,

gender, and socioeconomic status (Stoker et. al 2015). In spite of high levels of walking, feelings of safety were only ranked mid-level, suggesting that more research is needed in similar neighborhoods to continue improving safety and walkability. This exploratory study needs replication across more neighborhoods and in larger sized cities to increase the generalizability of the results.

While it may not be feasible to retrofit every street in every city to suit pedestrian needs, street trees can serve as one strategy to incorporate streetscape re-design principles (like Complete Streets or Safe Routes to School) into smaller-scale projects and budgets, while still meeting goals of improved pedestrian mobility and community livability. Community planners can work with allied research groups to study how street trees are enhancing walkability goals in their community.

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Key Words: urban trees, urban environmental planning, pedestrian safety, walkability, perception

EDITORIAL PATTERNS IN BICYCLIST AND PEDESTRIAN CRASH REPORTING

Abstract ID: 452

Individual Paper Submission

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Mass media coverage helps determine which topics merit attention (agenda-setting theory) (McCombs & Shaw, 1972) and how topics get interpreted (framing theory) (Iyengar, 1994). Media studies scholars have demonstrated that news coverage affects public perceptions and, in turn, policymaking in diverse fields including climate change and government budgeting.

This study applies established tools from media studies to examine how local news outlets report car crashes involving pedestrians and bicyclists. Understanding reporting patterns is important, as mass media coverage contributes to the framing of car crashes, and thus to the set of apparent solutions.

We focus on three editorial patterns: 1) episodic framing versus thematic framing, 2) object-based language versus people-based language, and 3) passive voice versus active voice.

Episodic framing describes a specific case, while thematic framing contextualizes an incident within a broader cultural system. Experimental evidence demonstrates that framing influences how readers assign responsibility (Iyengar, 1994); readers who encounter episodic frames are “less likely to hold public officials accountable” because they tend to attribute responsibility to the individuals involved in the story.

Articles may also use “object-based” rather than “human-based” language. That is, when reports describe a vehicle as doing something (“a car jumped the curb”) instead of the driver (“a driver drove over the curb”), they implicitly remove the driver from any involvement in the crash.

Finally, while some articles report crashes using active voice (“a vehicle hit a woman”), many articles use passive voice (“a woman was hit by a vehicle”). The use of passive voice places greater emphasis on the victim of the crash, thereby further obscuring responsibility.

We systematically analyze local news articles from February and March 2018 using content analysis. In total we analyze 200 articles: 100 involving pedestrians and 100 involving bicyclists. We classify news stories by their predominant frame (episodic or thematic) and the frequency of object-based language and passive voice.

We find that the framing of these articles is overwhelmingly episodic, typically treating each crash as an isolated incident. Further, while articles usually use person-based language to describe the actions of the pedestrian or bicyclist, object-based language predominates for the other party in the crashes. Additionally, journalists use both active and passive voice to describe collisions, often in a way that shifts blame on to the victim. We suggest that modest changes to editorial practices could help re-frame pedestrian deaths and enable the use of a broader suite of policy tools.

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Key Words: crash, mass media, framing, pedestrian, bicyclist

EXAMINE THE RIDESOURCING MARKET IN THE U.S. USING NHTS 2017

Abstract ID: 466

Individual Paper Submission

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From horse power to horsepower, the evolution of urban transport focused on technology advancement in vehicle mechanics. Nevertheless, the rise of ridesourcing (such as Uber and Lyft) has little to do with vehicle per se, but about the information and communication technologies (ICTs) that make the “sourcing” in ridesourcing possible. With the readiness in hardware (e.g. smartphone), software, and peer-to-peer (P2P) marketplace, transportation network companies (TNCs) like Uber and Lyft now serve over 200 metropolitan areas in all fifty states and the District of Columbia, not to mention their ambitious global expansion. Yet, despite being praised for offering convenience and mobility, TNCs are constantly under public pressure for the unconventional business conducts (Moran and Lasley, 2017).

With the lack of user and trip data from TNCs, research on ridesourcing in the U.S. primarily relies on survey and trip data collected by individual researchers (Rayle et al., 2016; Crewlow and Mishra, 2017). These studies are the go-to research for transportation planners and agencies to obtain preliminary understanding of travel behaviors associated with ridesourcing. However, sample representativeness is a common issue with these studies: They tend to draw a younger, more educated and tech-savvy population who are more likely to use ridesourcing than the general population. In addition, a survey study at the national level remains absent.

In this paper, the authors take advantage of the recently released 2017 National Household Travel Survey (NHTS 2017) data and examine the impact of sociodemographic and household characteristics on the usage of ridesourcing. The authors first fully describe the NHTS 2017 individual dataset and compare the socioeconomic and household characteristics between the ridesourcing user and non-user subsamples. Then, A discrete choice analytical framework (Ben-Akiva and Lerman, 1985) is applied to estimate the significance and magnitude of key factors in the decisions of ridesourcing (to use or not to use & the frequency of usage). This standard approach has been effectively implemented in previous travel behavior research using the NHTS data (Shin, 2017). Taking advantage of the large sample size and rich information on factors that can potentially influence the adoption of ridesourcing, the authors also explore the differences in predictability between the traditional discrete choice analysis and machine learning algorithms, such as decision trees. While the former is derived from the classical microeconomic theory of utility maximization on ridesourcing decisions, the later makes full use of data in search for accurate classification of user class and non-user class.

The preliminary results suggest that ridesourcing is still an emerging mobility with less than 10% adoption nationwide. Nevertheless, it has gained a substantial market share among subpopulation, such as millennials. From the discrete choice analyses, the authors expect to establish significant associations between socioeconomic characteristics (age, race, education, household income), household characteristics (life-cycle, household vehicles), land use characteristics (rural/urban, metropolitan area category), and the adoption of ridesourcing. By comparing the predictions from discrete choice models and the predictions from machine learning algorithms, the authors will demonstrate how innovative analytical methods can achieve ideal predictability outcomes on decision-making processes.

This paper will fill the research gaps in survey study on ridesourcing by analyzing the nationally representative sample (NHTS 2017). The outcomes will confirm speculations we have had in years about travel behaviors associated with this emerging type of mobility.

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Key Words: Ridesourcing, Uber and Lyft, NHTS 2017, Discrete Choice, Machine Learning

REURBANIZATION BY MILLENNIALS? INTRA-URBAN NET MIGRATION PATTERNS OF YOUNG ADULTS IN TOP TWENTY URBANIZED AREAS, 1980-2010

Abstract ID: 471

Individual Paper Submission

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After more than half a century of massive suburbanization, the central cities of the largest metropolitan areas in the U.S. have seen this trend reverse; in recent years, cities have grown faster than their suburbs (Acolin, Voith, & Wachter, 2016). Young and educated adults are reportedly at the center of these changes in mobility and urbanization trends (Couture & Handbury, 2016; McDonald, 2015; Millsap, 2016). While it is still controversial whether a primary cause of Millennials' unique location and mobility choices are lifestyle changes (McDonald,

2015) or economic circumstances (Blumenberg, Ralph, Smart, & Taylor, 2016; Manville, King, & Smart 2017); it is indisputable that the ways Millennials choose to live, work, and travel will greatly (re-)shape American cities in coming decades.

We presented a research paper at the 2017 ACSP that highlighted Millennials' distinctive location choice with a unique data set of estimated census tract level net migration in top twenty urbanized areas (UAs) in the 2000s. However, a study of one period cannot distinguish a generation effect from that of life cycle stages. This proposed study will extend the previous paper to a three-decade period from 1980 to 2010 so that we can compare the location choice of today's young adults with that of previous generations when they were young. We will estimate and investigate the census tract level net migration patterns of young (and old) adult populations using a cohort-component method in top twenty UAs. We can count movers net of stayers by analyzing the net migration of the same birth cohorts, instead of analyzing gross change in the same age cohorts over time. In the second part, we plan to conduct a series of regression analyses to test several competing hypotheses regarding young adults' location preferences. We will test various location factors including: physical characteristics of the built environment (i.e., density, street connectivity, and land use mix), access to public transit, and consumption amenities (retail and service employment will be used as a proxy) as well as other socio-economic attributes of the neighborhood.

This study will make unique and significant contributions to the literature, enhancing our understanding of the new generation's location behavior. First, it will present the location choice of young adults much more accurately than previous studies by analyzing net migration instead of a gross change of the same age groups over time. Second, unlike previous studies (Millsap, 2016; Myers, 2016), by conducting census tract level analysis beyond the urban/suburban dichotomy, we will be better able to identify specific neighborhood characteristics that attract young adults. Third, by studying a thirty-year period, we can compare Millennials' location choice with that of previous generations, including Generation X and younger Baby Boomers. Finally, this analysis of the twenty largest UAs in various locations will reveal the spatial heterogeneity in location decisions of young adults.

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Key Words: Millennials, urbanization, young adults, net migration, location choice

THE IMPACT OF URBAN RAIL TRANSIT LINES ON CAR OWNERSHIP AND TRAVEL MODE CHOICE — EVIDENCES FROM THE OPENING OF THE CIRCLE LINE IN SINGAPORE

Abstract ID: 477

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Along with the economic development and population growth, there is a dramatic increase in the demand for travel in cities worldwide in the past decades, which leads to a series of challenges such as traffic congestion, energy consumption, and environmental pollution. Investment in urban rail transit lines has been widely

considered an effective means to accommodate the fast growth of urban mobility needs while mitigating the negative effects of driving.

Numerous researchers have investigated the impact of better access to urban rail lines on travel behavior. Most of them confirm that proximity to rail transit network plays a vital role in limiting the pace of motorization and encouraging the switch from cars to public transit. However, many existing studies are cross-sectional in nature, which makes it difficult to construct causality. As argued by many researchers, longitudinal analysis examining travel behavior change in response to alternative interventions is crucial to better understand the causal effect of transport policies.

In this study, we use the opening of the circle line (the fourth urban rail transit line in Singapore) in 2009 - 2011 as a natural experiment to investigate how individuals respond to better accessibility to urban rail services.

The main data sources are the 2008 and 2012 Household Interview Transport Surveys (HITS) in Singapore, which include information on travel patterns and socio-economic characteristics of a 1% random sample of all households in Singapore on a typical weekday. With these, we adopt a difference-in-differences estimator to investigate how individuals change their car ownership decisions and travel mode choices in response to the opening of the circle line. We define the treatment group as individuals living within 500 meters to circle line stations, while the control group involves individuals living further away from the stations. GIS tools are used to identify the geographic location of households and classify observations to support the DID analysis.

We find that the opening of the circle line has an impact on travel behavior in terms of car ownership and travel mode choice. We find that households who live within 500 meters to circle line stations tend to have significantly lower car ownership rate and are more likely to switch from cars to urban rail transit than households located further away from the stations after the opening of the circle line. Furthermore, the treatment effect of this new urban rail transit line decreases significantly with distance to the stations and varies across socio-economic groups.

Our study provides new evidences that support the effectiveness of urban rail transit investment in reducing the levels of car dependency. It also provides more reliable estimates of the treatment effect of urban rail transit lines than conventional cross-sectional analysis. Additionally, it contributes to more informed policy design to achieve a sustainable transport system. For instance, when designing the locations of new rail lines and stations, policy makers should underline the household heterogeneity to achieve better resource allocation and maximize the positive impacts of transport and infrastructure planning.

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Key Words: Urban rail transit, Car ownership, Travel mode choice, Difference-in-differences estimator

HOW CAR DONATION PROGRAMS CHANGE THE LIVES OF POOR FAMILIES

Abstract ID: 480

Individual Paper Submission

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What happens when you give poor families a car? For several decades, transportation scholars have suggested that helping poor families obtain a car can lead to better economic outcomes. Yet these programs have rarely been studied. My research addresses this gap by studying how poor families' lives change when they receive a car from Vehicles for Change (VFC), the largest vehicle donation program in the country.

Since 1998, VFC has helped nearly 6,000 poor families in Virginia and Maryland obtain a car either through donation or a low-income loan. VFC works with social service providers to identify qualified families throughout Maryland and Virginia in cities, suburbs, and rural communities. While the specific requirements vary by partner agency, they typically require that the family is in poverty, have no car, and someone is working 20 or more hours per week. If they qualify, families are eligible for a used car that has been donated to VFC and repaired by VFC employees (many of whom are part of a training program to help ex-offenders gain skills and work experience).

This paper presents the findings from a survey and interviews with families that received cars from VFC. First, I analyze existing surveys that VFC has collected from families that received donated cars to examine the economic and transportation changes among families that received a donated vehicle. VFC administered surveys to families prior to their receiving a car and then again at three, six and nine months afterward. These surveys include information about travel behavior, employment status, earnings, and demographics. The data contained in this survey are typical of existing research on vehicle donation programs – focused on the economic effects.

Second, I present the findings from a series of interviews with recipients of these cars to study how access to a car enables participating in a richer social and civic life, expanded access to education and cultural opportunities, and improved healthcare options. In the interviews, I pay particular attention to the non-economic benefits that cars provide for these families, such as participating in a richer social and civic life, expanded education and cultural opportunities, improved healthcare access and so forth.

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Key Words: automobility, poverty, economic mobility

PLANNING AN INTEGRATED ACTIVE TRANSPORTATION AND GREEN INFRASTRUCTURE SYSTEM FOR MENTAL WELL-BEING IN DISADVANTAGED COMMUNITIES

Abstract ID: 486

Individual Paper Submission

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The purpose of this study is to explore how active transportation and green infrastructures can be better planned to improve residents' mental wellbeing through a combination of crowdsourcing technology and traditional survey questionnaires and interviews. The study focuses on residents in disadvantaged communities in Fresno, California, which has one of the highest concentrated poverty rates and the lowest accessibility of urban parks among American cities.

Previous studies show that many environmental factors can influence people's mental wellbeing. Neighborhood environment can directly impact people's mental health by exposing them to environmental stressors, causing psychological stress and mental problems and greater likelihood of depression (Evans, 2003; Preiffer and Cloutier, 2016). Neighborhood environment, particularly active travel and green infrastructure, can indirectly influence residents' mental wellbeing by changing their travel behavior and physical activity (Delbosc, 2012). In addition, living in poverty or in a neighborhood of low socioeconomic status and weak community efficacy is associated with high incidents of depression (Matheson et al., 2006).

In this study we attempt to combine crowd-sourcing technologies with traditional research methodologies such as survey questionnaires and research interviews to explore the connections between urban infrastructure, active travel and outdoor physical activity, and mental wellbeing. The crowdsourcing technology allows us to collect data at finer spatial scales in a real-time fashion. Online database is being developed to store the real-time data that we collect through a smart phone app. We also engage and interview local elected officials and staff as well as residents to understand their perspectives on how the active travel and green infrastructure can be improved for mental wellbeing. In addition, we use survey questionnaires to collect data about individual residents in Fresno such as their mental wellbeing, the availability and quality of active transportation and green infrastructures nearby their homes, the built and social environment of their neighborhoods, and their socio-demographic characteristics. The data will be analyzed in a structural equation model to explore how the infrastructure and built environment influence mental wellbeing in both direct and indirect ways.

The findings of this study will advance our understanding of the relationship between urban infrastructure, people's travel and park use behavior, and public health (particularly mental health). This study will be able to propose urban policy solutions to health and infrastructure inequalities that plague many American cities, particularly those disadvantaged communities in small- and medium-sized cities. This study is sponsored by a research grant awarded by the NSF Smart & Connected Communities Program.

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Key Words: mental well-being, active travel, green infrastructure, crowd-sourcing, disadvantaged communities

CAN RIDE-HAILING SERVICES SHIFT TRAVEL BEHAVIOR IN SOUTHERN MILLENNIALS? A COMPARATIVE EXPLORATORY STUDY OF MILLENNIALS IN NORTH CAROLINA, FLORIDA, AND ALABAMA

Abstract ID: 517

Individual Paper Submission

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Technology has been shown to impact the way people travel. With the advent of companies such as Uber and Lyft in metropolitan areas, people have more choices. But how does technology impact different generations? Millennials have grown up surrounded by technology and are seen as technically savvy. They have also been portrayed as more open to using alternative forms of transportation, including public transit (Brookings, 2018). Or are they? Research on millennials has looked at them on national scales (Garikapati et al, 2016; Ralph, 2016). Only a few studies looked at millennials at the state-level (Circella et al, 2016). The assumption of some is that millennials are amenable to carsharing over auto ownership, but this research has also been contradicted.

Taking into consideration possible regional differences, our study focuses on the millennials in the Southeastern United States. For the purposes of this study, we look at the Alabama, Florida, and North Carolina; these states

have significantly large rural and suburban populations. North Carolina, for example, has only 8 cities with populations of 100,000 or more. This may make it difficult for on-demand services to penetrate markets in these states; therefore, their influence may be limited in scope. These states are also some of the more diverse ethnically and racially in the United States, with significant Latino and African American populations. This is critical as over 40% of millennials are people of color, according to the US Census and millennials make up a large portion of ethnic and racial groups. For example, African American millennials comprise 25 % of the total African American population. Therefore, gaining an understanding of millennial travel has major policy implications for minority groups overall.

This study funded by the Southeastern Transportation Research Innovation Development and Education (STRIDE) Center attempts to address the lack of geographic diversity in the planning literature by focusing on the three Southeastern states—North Carolina, Alabama, and Florida. We focus this study on the following questions: (1) To what extent are millennials in the Southeast familiar with ride hailing apps? (2) What types of trips have they used these services for? (3) What levels of car ownership are present? (4) What role does student loan debt have in residential choice? We conducted an initial online survey of millennials (aged 22-37, n=500). We used Qualtrics software to design our survey and contracted Qualtrics to find participants and administer the survey. While the study is ongoing, preliminary results from the survey suggest that many millennials, whether older millennials with families or recent graduates are car dependent, even in areas with public transit.

The final results from this study could help to inform transportation policies seeking to reduce car dependence. Other types of transportation demand management (TDM) policies should be considered in addition to improving public transit use. Because of low densities in even the urban areas of these states, it may make more sense to promote TDM measures such as carpooling or ridesharing versus public transit. Ridehailing services linked with public transit may work to reduce car dependence. Technology may be a way to capture millennials through using smartphone apps but services have to be available.

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Key Words: millennials, ride-hailing services, southeastern United States, travel behavior

CONSUMER INTEREST IN USING AND DEFINING A PUBLIC ROLE FOR MANAGING AUTOMATED VEHICLES: GUIDANCE FROM GREATER TORONTO AND HAMILTON AREA FOCUS GROUPS

Abstract ID: 528

Individual Paper Submission

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Automated vehicles (AVs) are poised to change urban travel – leading to broad potential implications and significant uncertainty for urban planning. Using qualitative focus groups conducted in the Greater Toronto and Hamilton Area (GTHA) in Canada, this study describes focus group participants' views towards AVs and on the role of public policy. Conclusions provide insight for planners into both interpreting consumers' attitudes and crafting policy responses.

While significant research separating the visioning of potential implications of AVs (see Bansal, Kockelman, and Singh 201) from the plausible implications of AVs (see Townsend, 2014) is already underway, much remains uncertain. Key sources of uncertainty include 1) the political economy of AVs, 2) the likelihood of adoption and use by consumers, and 3) the role of public policy (Anderson, et al., 2014; Fagnant & Kockelman, 2015). This study focuses on the last two sources of uncertainty.

To improve planners' understandings of how autonomous vehicles may be adopted and implications for policy, this study presents the findings from five public focus groups conducted between May 2017 and January 2018 in the GTHA. Focus groups were conducted in a two-hour, semi-structured format in which a moderator established a basic level of AV "literacy" and directed discussions around three key themes. Key themes included 1) general knowledge of and interest in AVs, 2) preferences for different ownership models, and 3) views on the role of public policy. After one hour, focus group participants were shown a five-minute video (<https://www.youtube.com/watch?v=cdgQpa1pUUE>) of a blind man using a Google Car in an effort to identify changes in public opinion related to AVs after gaining additional exposure to the technology.

Five public focus groups (ranging from three to nine participants) were recruited based on distinctive characteristics. During the focus group discussions, it was observed that there was significant overlap in group membership. The five focus groups include: 1) the public at large, 2) individuals over 55 years of age, 3) individuals with accessibility needs (fully or partially blind and/or needing of a scooter), 4) active transportation users, and 5) suburban residents from Vaughan, Ontario. All focus groups were conducted in downtown Toronto except one. While focus group participants stem from several communities in the GTHA, these results should be carefully interpreted as reflecting the views of specific individuals from urban Toronto and several surrounding communities.

Findings indicated malleability in participants' views and significant eagerness to learn more about AV technology and its broader applications and implications. Some focus group participants conveyed a strong sense of commitment towards immediately adopting AVs. While participants conveyed specific interest in learning about the technology, most expressed only general and unspecific interest in potentially adopting the technology at maturation. Several participants in the accessibility group highlighted important challenges related to specific use applications of AVs delivering on promises to broaden mobility for those with disabilities.

Findings from the focus groups suggest that the views of most focus group participants are still emerging and malleable. In fact, while there were many different views on the desirability and value propositions of AVs, there was a broad consensus that more information would be needed and that the public sector should play a strong role in establishing the regulatory context for AVs. Results suggest that on-going public education should be encouraged in an effort to identify the desirability and opportunities to leverage this technology for public good. Findings emphasize planners' responsibilities to engage in consultations internally, within organizations and across departments, as well as externally, with stakeholders and members of the public.

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Key Words: automated vehicles, focus group, public opinion, Toronto, Canada

AUTONOMOUS VEHICLES AND LAND USE CHANGE: WHICH CONSUMERS ARE ON THE “EDGE” IN THE GREATER TORONTO AND HAMILTON AREA

Abstract ID: 531

Individual Paper Submission

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Fully autonomous vehicles (AVs) may be poised to transform urban mobility. Privately-owned AVs could reduce the burden of individual travel, making travel over longer distances easier. Likewise, fleets of on-demand, robo-taxis, coupled with the economies of scale and frequency of service offered by dense cities, could provide an attractive, additional travel option for urban dwellers. These possible travel behavior changes could have broader impacts in large urban agglomerations in the longer term, leading to wholesale changes in where residents choose to live and work. These changes may lead to more urban sprawl, as it becomes less inconvenient to commute long distances. Alternately, these changes could reinforce urban primacy, as dense neighborhoods provide ideal markets for robo-taxis, attracting further development to existing urban centers. Understanding the evidence regarding for whom and under what conditions either of these broad land use impacts is plausible is critical for planners interested in leveraging transportation-land use interactions towards the public interest.

Using a 2016 survey of 3,201 residents of the Greater Toronto and Hamilton Area (GTHA), this study explores public responses related to the land use implications of AVs. The survey includes contextual questions on individual, household and neighborhood characteristics, along with current travel behavior. Through analysis of questions relating to land use impacts of AV adoption, this study focuses on both the geography and consumer characteristics of individuals with the most potential to make new location decisions once AVs become available. Questions on land use impacts of AVs are related to the possibility for dispersal (likelihood to travel further to work if commuting by AV) or concentration (attraction to neighborhoods with high-quality robo-taxi services).

First, responses are spatially analyzed based on place of residence and place of work to explore which areas are more prone to forces of dispersal or concentration. Global spatial autocorrelation measures are estimated to explore whether distinct patterns in neighborhood impact are evident. Local measures of autocorrelation follow to identify specific hotspots of potential local impact.

Second, inferential models are estimated to explore what types of consumers are most interested in making new residential or work location choices in response to AVs. Models are likewise estimated when controlling for both travel behavior and current land use patterns (by residence and by work), thereby providing indications on the travel behaviors and neighborhoods most likely to be impacted by AV-induced land use changes.

Results suggest that not all parts of the GTHA are likely to be impacted equally. Descriptive mapping suggests that more urban residents (particularly in Toronto and its northwestern suburbs) have the greatest interest in location changes (regardless of type) in response to AVs, while downtown workers are most interested in high-quality robo-taxi neighborhoods. Inferential models suggest that those consumers most interested in making location changes include highly-educated males who are tech-savvy and generate many trips. Currently high-density neighborhoods, pedestrians, and transit users are most interested in neighborhoods with high-quality robo-taxi AV services. Overall, results suggest that those most interested in high-quality robo-taxi services already reside in the most urban neighborhoods, while the potential for dispersion is less geographically concentrated. In short, findings suggest that AVs may reinforce current spatial patterns – implying a need for policymakers to consider the relative desirability of current land use patterns and the possible reinforcement thereof.

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Key Words: autonomous vehicles, consumer survey, land use, Toronto, Canada

THE IMPACT OF MOBILITY AS A SERVICE ON ACCESSIBILITY AND TRANSIT SERVICE EQUITY

Abstract ID: 541

Individual Paper Submission

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Improving accessibility to employment and other urban amenities across all modes has been the core objective of transportation planning and research. Within the US context, there is a considerable gap in the accessibility by cars and by public transportation (Boarnet, Giuliano, Hou, & Shin, 2017). Improving transit accessibility has been a challenge due to multiple reasons, such as short of funding and financing and mismatch between transit supply and demand. The emergence of Mobility as a Service (MaaS) is a new opportunity for elevating transit accessibility as MaaS is publicly available, provides point-to-point mobility, and can serve the first/last mile of transit. Some existing studies show that MaaS has an important role in serving transport-disadvantaged population (Smart et al., 2015; Wang & Ross, 2017). Given the unique characteristics of MaaS and its potential to become a core component of sustainable transportation, understanding its accessibility and equity impact is important.

This research investigates the potential impact of MaaS on accessibility to employment and transit service equity. We use the Puget Sound region as a case study and develop scenarios to estimate the change in transit accessibility to employment at the block group level. The recent advance of measuring transit accessibility using publicly available data sources (Karner, 2018) makes the scenario modeling in this research feasible and easy to be transferred to other regions. We assume that MaaS can impact transit accessibility in two ways: 1) it can serve the first/last mile of transit (multimodal travel); and 2) it can directly serve origin to destination (single modal trips). Twelve scenarios are developed assuming different level of service of MaaS that are parameterized by wait time and travel distance. Under each of the twelve scenarios, time-sensitive and fine-level accessibility to employment is estimated and compared with the base scenario that assumes people can walk up to 0.5 mile to access transit. Equity analysis is developed to compare the difference across low-, mid-, and high- income workers/jobs. Policy and practice implications are derived about how to integrate MaaS with mass transit and leverage MaaS to improve accessibility and transit service equity.

The current results suggest that MaaS can substantially elevate accessibility to employment in the Puget Sound region. The accessibility improvement to employment across different wage categories follow an equitable pattern. One interesting finding is that for the block groups in the lowest quartile of existing accessibility level, the accessibility improvement is most substantial. For example, for the areas in the lowest quartile of existing accessibility, the accessibility to employment increases by 1410% if MaaS can be used for up to two miles from transit. Such substantial accessibility improvement to the low-accessibility areas is largely because that using MaaS can instantly make jobs in nearby block groups accessible and enlarge the catchment area of transit stops that might not be accessible in the base scenario. The research reveals the substantial accessibility and equity benefits of using MaaS for short-distance trips for areas with poor transit service, which can help agencies to prepare for the future in harnessing the technological innovation in the form of evolving autonomous vehicles and their potential contribution to enhancing accessibility for transit riders.

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Key Words: mobility-as-a-service, transit access, accessibility, transit service equity, multimodal transportation

DISTRACTED BY “DISTRACTED PEDESTRIANS”?

Abstract ID: 544

Individual Paper Submission

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Nearly six thousand Americans die each year while walking on city streets. To make matters worse, pedestrian deaths increased 30% between 2009 and 2015 (NHTSA).

Some blame distracted pedestrians for this troubling trend. For example, The Governors Highway Safety Association report on pedestrian safety dedicates an entire chapter to distraction, the bulk of which focuses on distracted walking not driving. Similarly, the American Academy of Orthopaedic Surgeons commissioned a survey to measure the extent of distracted walking. Private firms are also in on the game. For instance, Ford Motor Company attributes the rising death toll to “a global influx of ‘petextrians’ – pedestrians who simultaneously walk and text” and Safety.com reports that “Distracted Walking a Major Pedestrian Safety Concern”.

Issue framing around pedestrian safety merits attention because our approach to addressing a problem follows from our collective perceptions and framing about the causes of the problem. Specifically, policymakers who view distracted walking as a serious problem are more likely to focus their education and enforcement on pedestrians. For example, the National Safety Council has a “heads up, phones down” campaign and local officials in some areas have outlawed distracted walking (see for example Honolulu, HI, Montclair, CA, and Fort Lee, New Jersey). These efforts received widespread media attention in major newspapers (e.g. the New York Times), weekly magazines (e.g. Time and Newsweek), and national television (e.g. Good Morning America). As a result, civic leaders in other areas—including New York City—are considering similar action.

By contrast, policymakers who view distracted walking as less important are more likely to focus on other potential causes of risk, such as distracted driving, poor infrastructure design, and high speeds. Due to their framing of the issue, these policymakers draw on a larger policy toolkit to reduce the death toll. They may improve street designs, lower speed limits, and install speed cameras instead of focusing on the actions of pedestrians.

In addition to shifting the nature of our policy response, the focus on distracted pedestrians is problematic for other reasons. First, focusing on distracted pedestrians is inconsistent with the themes of the Complete Streets and 80/80 Cities movement, both of which suggest that cities should be safe for all users, including very young children, the elderly, and blind people. Second, the evidence base for distracted walking is fairly weak. Pedestrian distraction was a factor in just 0.5% of crashes in which a pedestrian was killed or seriously injured in New York City. Moreover, the Governor’s Highway Safety Association report mentioned above misrepresented statistics from journal articles on distracted walking.

This paper examines the perceived cause of rising pedestrian fatalities according to transportation planners, engineers, public safety officers, and policymakers. This study employs two methods: a series of expert interviews (n=15) and a survey of transportation planners, transportation engineers, public safety officers, and policymakers (n=250). In general terms, the interviewees and survey respondents answered three questions:

- In your view, what caused pedestrian deaths to increase 30% between 2009 and 2015?
- In your view, what tools can policymakers use to reduce pedestrian deaths?
- Who are you? (Age, profession, etc.)

The interviews and surveys allow us to see how various participants in the pedestrian safety discussion frame the issue and identify policy responses. Specifically, we answer the following research questions: 1) How prevalent is a concern about distracted pedestrians? 2) Do people who are concerned about distracted pedestrians focus on different policy tools than those who are not? 3) Who is most likely to worry about distracted pedestrians? Understanding the process of framing problems and identifying solutions will help us develop more holistic approaches for reducing pedestrian deaths.

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Key Words: pedestrian safety, issue framing, distracted pedestrians

RESIDENTIAL PERCEPTIONS OF A PROPOSED HIGH-SPEED RAIL PROJECT IN FLORIDA

Abstract ID: 546

Individual Paper Submission

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This research presents survey results conducted in partnership between Florida Atlantic University and the Martin County Property Appraiser's Office. The survey respondents were randomly selected based on geographically-specific stratified random sampling corresponding to the possible impacts of the proposed Brightline (formerly known as All Aboard Florida) high-speed rail project. These geographically-specific locations include residents living within 400 feet of the eastern Florida East Coast (FEC) Railway track, residents within 400 to 1,000 feet of the track, and residents living on the waterfront on the west side of the rail bridge that would be lowered 32 additional times a day. Unlike many non-scientific surveys conducted regarding the proposed Brightline project, this survey focused on the residents most likely to be impacted by the proposed project using valid sampling techniques via a stratified random sample mail survey. Additionally, the underlying purpose of the survey was to gauge resident perceptions better than required EPA public participation requirements for environmental impact statements.

The survey consisted of 22 questions, with 11 questions related to the rail project and 11 questions addressing demographic and socioeconomic aspects. Between June 29, 2015 and July 24, 2015, respondents returned 1,013 mail surveys for a response rate of 54 percent. Of these 1,013 surveys, 296 were from households within 400 feet of the east FEC railroad, 315 were from households from 400 feet to 1,000 feet of the east FEC railroad, and the remaining 402 were from waterfront households west of the rail bridge. Respondents were most likely to be residing in their current home for more than five years, be a male, between the age of 50 to 69 years old, live in a home with no more than two people, was either retired or still working full-time, made between \$50,000 to \$99,999, and held a Bachelor's degree or higher. The survey sample respondents were representative of the survey population based on difference-of-means tests. Regardless of respondent background or location, the survey results are consistently negative in relation to a variety of aspects regarding the proposed Brightline project. Of all respondents, 86 percent strongly oppose the proposed Brightline project, with only two percent of people strongly supporting it and another two percent somewhat support it. Ninety-one percent of residents believe that the proposed project will either slightly decrease or greatly decrease their property's value. In terms of the concern regarding the rail bridge needing to be lowered an additional 32 times, respondents who did not own a boat or go boating regularly showed a high level of concern. Despite this level of concern across multiple facets of the proposed project, a majority of respondents stated that they would not be moving from their current homes due to the project. Taken together, these results show a clear lack of support by those households most likely to be impacted, with only slightly greater support demonstrated with the construction of quiet zones or a future stop located somewhere in Martin County.

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Key Words: Transportation, Rail, Public participation, Survey

WOULD AUTONOMOUS VEHICLE REDUCE CONGESTION? AN AGENT-BASED SIMULATION ANALYSIS OF MODE AND ROUTE CHOICE DURING AUTONOMOUS VEHICLE ADOPTION

Abstract ID: 560

Individual Paper Submission

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As a recent technical advancement in urban transportation, autonomous vehicles have been commonly perceived by manufacturers and advocates to be more efficient in road traffic compared to conventional automobiles by creating a safer transportation system, being able to intercommunicate with infrastructures and vehicles and thus take alternative routes and reduce road congestion, providing shared mobility and reducing parking-related cruising (Litman, 2017). Meanwhile, Fagnant and Kockelman (2015) argues that the emergence of autonomous vehicles can potentially increase vehicle-miles traveled (VMT), displace transit, and thus increase automobile mode share, as the technology is expected to significantly improve the comfort of traveling in a car. Existing literature has included discussions focusing on these potential pattern shifts on either mode choice or route choice through the adoption of autonomous vehicles. However, few have estimated both mode choice and route choice simultaneously, leaving the tradeoffs between potential increase in automobile mode share and decrease in

traveling time under explored. Besides, most studies on this topic do not make reference to economic theories. The objective of this study is to bridge the aforementioned gap utilizing agent-based modeling and game theory. To simplify, the agent-based simulation model implemented in this paper sets up a two-stage N-person Chicken Game for a typical commute between home and the work place. The first stage is non-spatial stage where commuters make decisions at home on mode choice without any information regarding other commuter's decision. The second stage incorporates a road network with two alternative routes between home and the work place with one route longer than the other. Each commuter will make route choice decisions either with or without any information of other commuters' decisions. At both stage, decisions to commute alone by car or not, as well as to commute with one route or not, have long been integrated by the non-cooperation assumption (Hollander and Prashker, 2006). The choice for commuting alone by car as a trip mode coupled with the choice for commuting on one specific route is more attractive as fewer individuals choose to go by car or to travel on this route because of a lower probability of time delays caused by congestion and/or parking problems. This structure of interdependence underlying an accessibility interpretation resembles an N-person Chicken Game (Van Vugt et al, 1996). The agent-based modeling will simulate disaggregated payoffs received by drivers under different scenarios of mode choice, route choice and autonomous vehicle adoption level, and answer a few questions, such as whether autonomous vehicle users will receive higher payoff than conventional vehicle users in terms of mode choice and route choice, and whether the system-wide cost on congestion delays will diminish (i.e., the hypothesis that autonomous vehicle can reduce congestion). The result suggests that positive or negative results of the above hypotheses will occur depending on different assumptions and parameters appointed. Users on different travel modes and trip routes could either benefit or not at various stages of adoption of autonomous vehicle and connected transportation infrastructures. The study provides evidence for planners that transportation infrastructures, policies and regulations should be adjusted constantly with the pace of the adoption of autonomous vehicle technology. These infrastructural and institutional factors are so significant that governments should provide incentives and disincentives to reward alternative mode choice and route choice, and to punish conventional users. Also, governments should provide institutional and financial incentives to encourage vehicle-to-vehicle and vehicle-to-infrastructure communications and data-sharing to lead to the ideal outcome.

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Key Words: Autonomous Vehicle, Congestion, Game Theory, Agent-Based Modeling, Institutions

EFFECTS OF BUILT ENVIRONMENT ON PUBLIC ADOPTION OF AUTONOMOUS VEHICLES AND SHARED AUTONOMOUS VEHICLES. A CASE STUDY OF DALLAS- FORT WORTH METROPOLITAN AREA

Abstract ID: 602

Individual Paper Submission

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Autonomous driving is the most significant contemporary technological leap in the personal mobility of our era. The influences of this technology will be especially significant in American cities since the transportation systems of these cities are mainly auto-oriented.

A growing body of investigations in various disciplines have been conducting studies related to autonomous vehicles (AVs) to facilitate the process of deployment with regard to this technology. Some of them focus on users' perception towards AVs which is the factor that determines market penetration of this technology (Bansal & Kockelman, 2017). Their findings show a noticeable influence of different socio-demographic elements on public acceptance of AVs as well as other factors like travel patterns and familiarity with technology (Becker & Axhausen, 2017).

While the effects of built environment on travel demand have been the subject of more than 200 empirical studies (R. Ewing & Hamidi, 2015), there is little empirical evidence on the effects of urban form on public acceptance of AVs as a new mode of transportation. In particular, there is a gap in the literature on whether built environmental factors affect rider choices to use private or shared AVs.

This research seeks to assess the hypothesis about the impacts of the built environment on public opinion toward autonomous driving technology in Dallas-Fort Worth (DFW) metropolitan area through conducting a comprehensive survey data collection. The study selects a sample of 300 adults from the study area in a way that socio-demographic characteristics such as age, gender, income, and race of our sample are proportionate in ratio to these characteristics in the DFW. In order to reach the richest data possible, we use Qualtrics to distribute the survey based on the planned sample and data collection. Qualtrics is an online survey creation, collection, and analysis software tool that is broadly applied by researchers of various fields. Using GIS, the authors geocode the location of each respondent and make buffers around each location to measure urban form features around them. We use the D- variables methodology (measuring density, diversity, design, distance to transit, destination accessibility and demographics) that is broadly proven to affect travel behavior (Reid Ewing & Cervero, 2010). Finally, this study conducts a statistical analysis to measure the effects of built environmental factors (independent variables) on the rate of adopting AVs (dependent variables).

We expect to find that besides socio-demographic factors, the D-variables have noticeable impacts on AVs acceptance especially distance to transit and destination accessibility. Moreover, the residents of suburban regions are more interested to use private AVs while residents of central areas are likely to choose shared AV options. Safety and economic saving are likely the most attractive incentives to use AVs while legal issues and technological failure are the important concerns for users. Finally, the demographic features of age, gender, income, and education play an essential role in public adoption.

The findings of this study are useful for transportation planners that intend to develop private AVs and shared AVs fleets in DFW metropolitan area. Results also are generalizable to other cities with available built environmental data to predict acceptance of AVs. Meanwhile, policymakers can apply these findings to forecast AVs deployment through measuring an urban form of a region.

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Key Words: Autonomous Vehicles, Public Adoption, Urban Form, Willingness to Pay, D-Variables

NEIGHBORHOOD BUILT ENVIRONMENT AND ACCESSIBILITY TO JOBS

Abstract ID: 616

Individual Paper Submission

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Accessibility is regarded as one of the most important goals in the transportation policy. Especially, ensuring accessibility to education and employment opportunities across socioeconomic groups, equality of opportunity, is raised as an important policy goal. Previous literature on the impact of job accessibility on employment outcome of low-skilled workers found automobile ownership as the most significant factor (Ong and Blumenberg, 1998; Grengs, 2010). The impact of transit-based job accessibility was often insignificant, and results were mixed across studies. Critics have argued that the vague conceptualization of accessibility and the crude measurement of job accessibility as major limitations of previous empirical studies (Ihlanfeldt, 1994; Grengs, 2010; Bunel, 2014; Hu & Giuliano, 2017).

Despite the importance of the concept of accessibility in transportation policy and the popular use accessibility measures to assess the role of transit systems, the measure of accessibility applied in studies are as diverse as the term itself. Most commonly used measure of accessibility is the distance decay function which discounts the number of opportunity by the generalized cost of travel. However, as the generalized cost of travel often includes the objective measure of transit systems such as travel time and distance as the primary feature, it fails to capture the perceived accessibility of transit systems. Gibson (2017) identified four types of accessibility depending on the characteristics of accessibility: symbolic access, physical access, social access, and psychological access. Among the identified types of accessibility, the psychological access best represents the perceived accessibility of transit systems. Gibson (2017) argued that psychological access is what people perceive the environment or the transit systems as accessible, influenced by the neighborhood attributes such as safety, cleanness of environment and activities around transit stations.

This study aims to identify the integrated accessibility measure by combining the physical and psychological accessibility. Then, the developed measure of accessibility is applied in the City of Baltimore to examine if integrated accessibility measure can better explain the impact of transit systems on employment opportunities of low-skilled workers. It is argued here that the spatial configuration and built environment influence the perception of transit accessibility. Through incorporating the environmental attributes of the neighborhood, the perceived accessibility can be addressed. The attributes of the neighborhood environment included in the study are the density, land use mixture, and street connectivity (3Ds of Cervero and Kockleman, 1997) in addition to the generalized cost of travel. The findings of this study are expected to contribute to better understanding of the impact of transit-based accessibility on employment opportunities.

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Key Words: Accessibility, Perceived accessibility, Built environment, Public transportation , Employment opportunity

EXPLORING THE SPATIAL VARYING RELATIONSHIP BETWEEN TRANSPORTATION NETWORK COMPANY DEMAND AND URBAN BUILT ENVIRONMENT

Abstract ID: 620

Individual Paper Submission

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Transportation network company (TNC), or dynamic ridesourcing service (DRS), such as Uber and Lyft, is an emerging travel mode in recent years. It has nowadays been touted to improve travel mobility, increase access to sustainable modes, and reduce automobile use as well as pollution. However, critics have noted concerns about its potential negative impacts on public transit and taxi use, as well as other urban issues such as safety, congestion, etc. (Jin, Kong, Wu, & Sui, 2018; Rayle, Dai, Chan, Cervero, & Shaheen, 2016). For example, a survey from the San Francisco Municipal Transportation Agency (SFMTA) in 2014 suggested that 25% of the respondents used ridesourcing service at least per month and only 19% respondents used the taxi service (SFMTA, 2014). On the other hand, it is believed that due to great travel convenience, DRS might have significant impacts on urban travel behaviors (Jin et al., 2018). While past studies have explored the impacts of urban built environment factors on travel behavior (e.g., Ewing & Cervero, 2010), it is still unclear that how those factors affect DRS demand and how the relationship vary across space. In this research, we aim to fill this research gap with collected DRS data in Austin, TX region by using geographically weighted regression approach (GWR).

In specific, we model DRS average daily demand at traffic analysis zone level (TAZ) using a GWR model which is an improvement of global regression models— that is, it accounts for spatial nonstationary and allows for spatial varying coefficient estimation (Fotheringham, Brunson, & Charlton, 2003). Urban built environment factors based on design, diversity, and density will be included in this study. These variables include population/employment density, land use, street design, and other built environment variables. In addition, we will control for socio-demographic variables such as income level. In this research, we expect several following research outcomes, including but not limited to, (1) significant modeling performance of GWR (2) significant relationship of urban built environment variables on urban DRS demand (3) spatial heterogeneity of the relationship.

This research contributes to the existing literature in several aspects. First, to our best knowledge, it is among one of the first studies that explore the relationship between urban form and DRS demand. Second, it aims to understand the spatial varying relationship at local level. Third, the research suggests the significance of addressing spatial heterogeneity in understanding DRS demand. Therefore, research outcomes are useful for policy makers and planners to understand urban DRS demand accurately and to develop future planning policies. In addition, outcomes could inform transportation modelers to incorporate this new mode in future travel demand modeling.

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Key Words: dynamic ridesharing, built environment

THE MISSING LINK BETWEEN PLACE AND PRODUCTIVITY? THE IMPACT OF TRANSIT-ORIENTED DEVELOPMENT ON THE KNOWLEDGE AND CREATIVITY ECONOMY

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Transit-Oriented Developments (TOD) often share many of the place-based characteristics presumed to support creative and knowledge firm productivity such as accessibility, walkability and mix of uses. TODs could potentially attract workers, households, firms and provide greater accessibility to supplier, consumer and labor markets while creating dense and mixed use built environments. As a result, TODs may also catalyze agglomeration dynamics leading to enhanced learning, innovation and productivity across industry clusters. Furthermore, TODs could create high quality places that are especially attractive to creative and knowledge based firms and their workers. Diverse, mixed-use developments enabling the co-presence of innovative anchors, incubators, hubs, and start-ups as well as walkability and third places are considered vital for informal networking, knowledge exchange, and innovation spillovers (Katz and Wagner, 2014).

However, despite the popularity of policies and practices focused on creative and innovation placemaking, there remains less than conclusive evidence tying the above place-based characteristics of TODs with the attraction of creative and knowledge based industries, much less how the built environment impacts firm productivity.

Using national datasets on creative and knowledge firms and transit station characteristics, this article addresses this gap by exploring the relationship between TOD built environments and creative and knowledge industry firm productivity. Using cluster analysis, we create a typology of transit station areas differentiating TODs from other transit station development types. We then use Propensity Score Matching to create paired matches of creative and knowledge firms located within a 1.25 mile network distance of different station types. This allows us to estimate the average treatment effect of the TOD station area type on firm productivity.

Our findings suggest that dense, diverse TODs positively impact creative and knowledge firm productivity. TOD firms, on average, sell 5,266 more units than their counterparts in TAD station types and the difference is statistically significant. Likewise, in the matched samples, TOD firms sell 1,573 more units than Hybrid firms. Lastly, the difference between Hybrid and TAD firms are also significant at 0.05 probability level.

We also found that Hybrid stations, as the largest category among the three station types, are home to more than 85% of the U.S. knowledge and creative firms while TODs are home to about 13% of firms in our sample. In contrast, firms in TOD station types happen to be mostly headquarters, have the biggest sales volume, employment size, strongest job accessibility via both automobile and transit while occupying big office areas. These results suggest that TODs could actually serve as vital anchors, fueling the broader creative and knowledge economy.

The combined impacts of improved accessibility and built environmental attributes will likely not only benefit firms but also have broader regional impacts. As TOD stations areas serve as local employment hubs and industry clusters, firms and workers will not only benefit from place-based amenities and advantages but also because of accessibility to other industry clusters and regional markets. Networked TOD areas could provide the infrastructure to building more resilient, innovative regional economies. By integrating planning efforts, planners and policymakers may be better equipped to create places that not only benefit industry clusters, but provide the framework for a more robust regional innovation ecosystem.

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Key Words: Transit Oriented Development, Knowledge Economy, Creative Economy, Sales Productivity

DO RIDEHAILING SERVICES REDUCE CAR OWNERSHIP? CONTROLLING FOR SELF-SELECTION AND BIDIRECTIONAL RELATIONSHIPS AMONG USERS AND NON-USERS IN THE 2017 NATIONAL HOUSEHOLD TRAVEL SURVEY

Abstract ID: 630

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For decades, advanced information and communication technologies (ICTs) have created new ways of organizing daily activities and moving from place to place. Further, modern ICT solutions have enabled innovative transportation services, among which ridehailing services, such as Uber and Lyft in the U.S. market, have drawn attention because of their impact on various aspects of our lives, including travel behavior choices, demand for transportation infrastructure, and public health. Studies suggest that these services can affect the use of other transportation modes, affect traffic congestion, enable living with fewer household vehicles, and reduce alcohol-related fatalities (Alemi, Circella, & Sperling, 2018; Hall, Palsson, & Price, 2017; Sadowsky & Nelson, 2017; Clewlow & Mishra, 2017; Li, Hong, & Zhang, 2017; Hampshire et al., 2017; Graf, 2017). Most previous studies have been based on the analysis of data collected with convenience samples, which may fail to model the complex relationships behind human behavior and may lead to biased estimates of the effects of these mobility services. In this study we analyze the adoption of ridehailing services and investigate its relationships with vehicle ownership, a medium-term choice that has substantial influence on travel behavior.

With the effect of the use of ridehailing on vehicle ownership, we face two main challenges. First, people are not randomly assigned to such services, but instead choose to use them for various reasons. The comparison of the groups of users and non-users presents several difficulties, due to the importance of controlling for several covariates that might affect travel choices including sociodemographics, lifestyles, and the characteristics of the built environment. Second, the use of ridehailing services and vehicle ownership influence one another in ways that are not easy to determine and disentangle. Frequent users of ridehailing may find that they are better off reducing/eliminating existing vehicles (in this case, a change in vehicle ownership would be an effect of the adoption of ridehailing). On the other end of the spectrum, households with limited access to personal vehicles may use the services in order not to increase the number of household vehicles (in this case, vehicle ownership is a cause of the adoption of ridehailing). Thus, we need an analytical method that takes bidirectional relationships into account.

In this study we analyze data from the 2017 National Household Travel Survey (2017 NHTS). The variable of interest in the 2017 NHTS is TAXI, which captures the "Frequency of Taxi Service or Rideshare Use for Travel" on an ordinal scale: daily, a few times a week, a few times a month, a few times a year, and never. With this variable, our explanatory analysis focuses on the number of vehicles owned by frequent users, occasional users, and non-users in the 2017 NHTS. As the members of one group differ on several characteristics from those of another, a naïve comparison of descriptive statistics across groups would not reveal the effects of the relationships between vehicle ownership and ridehailing adoption. Thus, we employ propensity-score matching (PSM) to form equivalent user and non-user groups. To model bidirectional relationships between the use of ridehailing and vehicle ownership, we estimate a non-recursive structural equation model in which a latent construct underlying the number of household vehicles and another latent construct underlying the use of ridehailing services influence one another (Mishra et al., 2017). In doing so, we use the matched user and non-user groups and apply their estimated propensities as weights. This study has several merits over previous studies: it uses recently collected microdata in a representative national sample; applies advanced analytical methods that takes self-selection and

bidirectional relationships into account; and explores the interactions of land-use attributes at local and regional scales.

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Key Words: Ride-hailing services, Vehicle ownership, 2017 National Household Travel Survey, Propensity score matching, Structural equation model

EXPLORING TRANSIT-RELATED GENTRIFICATION IN LOS ANGELES, CA

Abstract ID: 634

Individual Paper Submission

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Most existing work on gentrification has focused on the relationship between rail transit and real estate prices; i.e., on the mechanism driving gentrification (See Bartholomew & Ewing 2011 for a review). Much less work has focused on the demographic impacts of the introduction of rail transit or on the ridership implications of gentrification in neighborhoods near rail transit (Kahn 2007; Lin 2002; Pollack et al. 2011). This paper uses Los Angeles to examine these questions and in particular seeks to answer three specific questions. First, how has gentrification near new rail stations differed from neighborhood to neighborhood, and from rail line to rail line, within the Los Angeles Metro rail system? Second, is gentrification near new rail transit different from gentrification in the Los Angeles region overall? Finally, is gentrification associated with lower nearby Metro ridership?

Following existing literature, we examine poverty, minority population, foreign-born population, age structure, household turnover, education levels, rent levels, home values, vehicle ownership, and housing age in the neighborhoods surrounding each Metro rail station from 1970 to 2010. We have selected these variables because they are all theoretically associated with either rail-related gentrification and displacement and/or transit ridership. We examine change in each of these variables in each neighborhood to determine the extent to which the neighborhood gentrified from 1970 to 2010. We compare gentrification and Metro ridership (where appropriate) along three dimensions. We first compare gentrification and nearby Metro ridership within the neighborhoods surrounding each individual line. This provides an estimate of how gentrification associated with each line and accompanying impacts on Metro ridership varied from neighborhood to neighborhood along the same line. We then compare gentrification and ridership at the line level, which illuminates the extent to which some lines are associated with more gentrification than others and how this relates to ridership. Finally, we compare

gentrification in neighborhoods near Metro to gentrification in neighborhoods not near Metro. The results provide insight into the relationship between transit and gentrification in Los Angeles.

This paper aims to increase our understanding of if and how introducing new rail transit makes the price of nearby housing rise. By doing so, it may help illuminate the extent to which those groups most in need of transit (such as zero-car households) are being displaced from neighborhoods with the highest quality transit access over time. It also seeks to add to our knowledge of how neighborhood change influences neighborhood-level travel behavior. At a time of worsening income inequality and sustained declines in transit ridership in many areas, understanding how new rail investment will impact the lives and travel behavior of vulnerable populations is more important than ever.

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Key Words: Gentrification, Rail

UNCOVERING HIDDEN RISKS: TRANSPORTATION SAFETY CONCERNS IN AN IMMIGRANT GATEWAY NEIGHBORHOOD

Abstract ID: 660

Individual Paper Submission

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Gateway neighborhoods often have various social services as well as already established social networks that can support newly settled refugees and immigrants. The use of public transportation, walking, or biking as means of transport are often borne out of necessity for newly-settled immigrants but reliance on private automobile tend to increase over time. Studies have shown that recent immigrants are more likely than others to use public transportation regardless of their year of arrival to the United States (Tal and Handy 2010); while living and working in areas with higher ethnic concentrations tends to increase the likelihood of using public transit and carpooling for Latino immigrants (Liu and Painter 2012). As such, early transportation-related experiences in these neighborhoods may play an important role in establishing future travel patterns and can have significant implications on future transportation policy (Blumenberg 2013).

This study investigates transportation safety concerns of people living or working in Gulfton neighborhood in Houston, TX which is home to newly- settled refugees and immigrants. The neighborhood provides some of the highest bus ridership, yet has one of the highest concentrations of fatal crashes in Houston. Official crash data tend to be underreported (Loukaitou-Sideris, et.al. 2014), and potentially more so in gateway neighborhoods as many immigrants increasingly avoid contact with authorities. Using data collected from a survey of people living and working in the neighborhood, this study explores questions about how people get around to work and non-work places, perceptions about walking, biking, and public transit facilities and services, and identification of dangerous places including near-miss or crash incidents. Identified intersections and roads were geocoded and compared with crash data between 2010-2017.

We find although most neighborhood streets have sidewalks connecting to important destinations such as bus stops, built-environment factors such as lack of safe crossings and other physical barriers continue to be the primary barriers to using them. Fear of crime or unpleasant contact with others and of being hit by a car remain the two highest reasons for not walking more. After experiencing or witnessing near-miss or crashes, people reported avoiding certain areas and routes, minimizing walking and biking trips, or even stop walking or biking altogether. Hence, both safety and perception of safety matter and perhaps more so for people living and working in gateway neighborhoods. Better addressing their current transportation needs to include culturally-sensitive improvements in built-environment near transit areas could amplify already high transit ridership and achieve long-term sustainable transportation goals.

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Key Words: transportation , safety, equity, immigrant, neighborhood

DISPLACEMENT PRESSURE: WHO WINS AND WHO LOSES IN THE ERA OF AUTOMATED ELECTRIC VEHICLES

Abstract ID: 661

Individual Paper Submission

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Changes in transportation technology have historically accompanied with shifts in urban land use patterns. The changes in land use are primarily driven by changes in the location affordability (i.e., the sum of property values and transportation costs) (1). When automobiles are introduced, households who could afford private automobiles benefited from this new travel mode, as vehicle ownership translated to a greater selection of housing stock within the household's budget, which eventually results in suburban flight. On the other hand, households who cannot afford automobiles and have to rely on transit are left behind. This is also known as urban decay or urban blight. With Automated Electric Vehicles (AEVs) almost around the corner, it is, therefore, critical to understand how will location affordability, including transportation access and housing costs, change as a result of the technology shift to autonomous electric vehicles (AEVs), so that planners can proactively mitigate the negative externalities of these technologies.

This paper will build upon existing agent-based Shared AEVs (SAEVs) simulation model (2), Private AEVs (PAEVs) routing model (3), residential location choices (4), and real-estate development model to determine how the location affordability will change under different AEV deployment scenarios (i.e., with different market shares of SAEVs and PAEVs). To be more specific, the SAEV and PAEV models are first used to assess location-based transportation costs and identify parking spaces that can be repurposed in the region. The model outputs will then be subsequently used in the residential location choice model and real-estate development model to determine where new development projects are more likely to take place and where people prefer to locate in the region. Residential location choice model and real-estate development model will output spatial distributions of population and property prices in the region, which will then be fed back into the SAEV and PAEV model to

determine travel demand. The models are implemented using synthetic population and activity data from the Atlanta activity-based travel model.

The preliminary model outputs from the 100% SAEV scenario show that approximately 90% of the parking spaces are no longer needed and can be repurposed for residential land use. Additionally, most households will experience an average of 64% reduction in transportation costs (assuming SAEV costs \$0.13/mile and 50% reduction in in-vehicle travel time costs due to multitasking). However, the property values will increase (by 4-11% annually), especially in urban core and good school districts in suburban areas. As a result, lower-income households are more likely to be pushed outside of these zones to areas where the average waiting time of SAEVs are longer, and the increases in property values are slower. But in general, locations are likely to be more affordable for the majority of households. It is also observed that communities are becoming more homogeneous (in terms of income and race), due to a significant reduction in transportation costs (i.e., more freedom to locate in the region). The final paper will include results with different combinations of SAEVs and PAEVs scenarios to examine the impact of different business models of AEVs on location affordability.

The results from this study can provide insights regarding potential equity issues stemming from AEVs. The preliminary results from the 100% SAEV scenario suggest that despite locations may become more affordable in general, low-income neighborhoods have higher displacement pressures and are more vulnerable to the coming of technologies. Planners should start to devise affordable housing policies, inclusive zoning ordinance, and transportation service provision policies, to utilize AEVs to provide more equitable, affordable, and sustainable mobile services in the future.

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Key Words: Automated Electric Vehicles, Displacement Pressures, Location Affordability, Shared Mobility, Private Vehicle Ownership

CAR-DEFICIT HOUSEHOLDS: DETERMINANTS AND IMPLICATIONS FOR HOUSEHOLD TRAVEL

Abstract ID: 665

Individual Paper Submission

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Approximately 15 percent of American households face a “car deficit,” meaning they have fewer vehicles than drivers in the household. To be sure, some of these car-deficit households choose to live with fewer cars than drivers, and are able to maintain high levels of mobility and access to destinations despite their limited vehicle availability. For other households, however, low levels of vehicle ownership may represent a constraint. Specifically, these households may be unable to afford multiple vehicles, and their overall mobility may be restricted.

Although there is a substantial body of research on the causes and effects of limited vehicle access, very few of these studies focus specifically on car-deficit households. Instead, the vast majority of research has

concentrated on carless households, a relatively small proportion of the population compared to car-deficit households. In this study, we address this gap in the literature by examining both the determinants and outcomes of car deficits. Specifically, we answer two questions. First, are car deficits, like carlessness, largely the result of financial constraint, or do they stem from other factors such as neighborhood characteristics, household structure, and household resources? Second, how do the mobility outcomes of car-deficit households compare to both the restricted mobility of carless households, and to the largely uninhibited movement of households that are “fully equipped” with at least one car per driver?

We find that car-deficit households are distinct from both carless and fully-equipped households in terms of their household characteristics and travel patterns. Car-deficit households tend to be larger than other household types, suggesting the need to coordinate travel either in the form of carpooling, or through negotiating the use of available automobiles. In fact, our analysis suggests that by carefully allocating access to household vehicles, car-deficit households—particularly those with low incomes—generally make efficient use of their automobiles. These households drive each vehicle substantially more than vehicles in fully-equipped homes, and as a result can maintain a relatively high level of mobility—one that is far more similar to fully-equipped households than to their carless counterparts.

Overall, our results suggest that while there are advantages to living in a fully-equipped household, these benefits are more limited than we had anticipated. Fully-equipped households make more trips and travel more miles than those with car-deficits, however, effective sharing of the household vehicle enables car-deficit households to maintain reasonably high levels of mobility. As such, policy initiatives aimed at easing potential difficulties associated with intra-household car sharing may provide support to those living in car-deficit households, while also possibly encouraging some fully-equipped households to reduce their automobile ownership.

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Key Words: car deficit, travel behavior, car ownership

UNDERSTANDING THE BUILT ENVIRONMENT-TRAVEL BEHAVIOR RELATIONSHIP IN REAL-TIME FROM LIFELOGGING IMAGES: A STUDY OF OLDER ADULTS IN THREE NEIGHBORHOODS IN SINGAPORE

Abstract ID: 671

Individual Paper Submission

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Central theme and hypotheses:

The visual lifelogging is a passive photography technique that applies a wearable camera to automatically record individual daily activities from a “first-person” perspective (Kelly et al, 2011). The passively captured images are time-stamped and offer direct measures of travel behavior, such as travel modes, trip duration and destinations (Kelly et al., 2011), as well as detailed information on various aspects of built environment features exposed to the participants while moving, which are not easily replicated by other objective methods (Oliver et

al., 2013). This study aims to examine older adults' daily travel patterns and their associations with the neighborhood-level built environment features through lifelogging image analysis, using three selected neighborhoods in Singapore as an example. The central hypothesis is that various dimensions of built environment features are associated with older adults' travel by different modes (e.g. walking, public bus, train, private vehicle/taxi) and for different types of destinations to different degrees. We also expect that the relationship between individual travel pattern and built environment features vary across older adults of different age subgroups (e.g. 55-64, 65-74, 75 and over), gender and ethnicity.

Methods:

We recruit a convenience sample of 30 older adults in three selected neighborhoods in Singapore. Participants are required to wear a life-logging camera, the Narrative Clip, for all of their out of home activities over 7 days. They also complete a short questionnaire on their demographic profiles and a simple travel diary each day for the same period.

The passively captured images would be coded and classified to extract information on travel modes and built environment. Six types of built environment features are predefined: public transit nodes (e.g. bus stops, subway stations), other transportation facilities (e.g. footpath, pedestrian crossing), street furniture (e.g. benches, lights), vegetation (trees and grass), buildings/service facilities (e.g. community center, retail facilities), and public/open spaces. Machine-learning algorithms would be developed that can correctly classify "training examples" of images that have been manually tagged with relevant information and would then be used to code images for the rest of the images (Doherty et al., 2011).

Trips are then identified by sorting and classifying the information extracted from the images. The identified trips by each participant per day are then compared and combined with the self-reported travel diary, so that complete information on trips, including start/end time, travel mode, origins/destinations and the built environment context are included in the final travel diary. We would then use this final diary to explore how daily trip frequency and average trip duration by different modes are correlated with different aspects of built environment features through correlation coefficients. We would also derive the correlation coefficients for different socio-demographic subgroups of older adults to compare how the built environment-travel correlation differs between them. Finally, we would evaluate the spatial extent of individual older adult's activity space by examining the variance of their average trip duration and number of destinations visited across the 7 days interviewed.

Relevance to planning education, practice or scholarship:

This study aims to add to travel behavior analysis by utilizing passive photography to capture the built environment-travel relationship in real time rather than retrospectively, reducing the influence of recall bias and augmenting analysis with rich nuanced information. The results of this study would imply how urban space may be better designed to promote active travel and expand activity space for older adults of different subgroups. The visual life-logging camera can be a valuable new tool that can complement traditional travel surveys to cross-validate the self-reported travel scenarios and add new information of built environment features experienced by individuals during the trips.

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Key Words: Life-logging camera, Built environment, Older adults' travel behavior, Machine-learning algorithm, Singapore

NEIGHBORHOOD IMPACTS ON ACTIVITY/TRIPS PATTERNS AND THEIR INFLUENCE ON SUBJECTIVE WELL-BEING: A STUDY FROM THE TWIN-CITIES METRO AREA

Abstract ID: 673

Individual Paper Submission

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Diener (2009), defines Subjective Well-being (SWB) as, “the fact that the person subjectively believes his or her life is desirable, pleasant, and good”. There is general consensus that SWB has two distinct components, the cognitive and the affective. The cognitive referring to how people evaluate their life as a whole and the affective related to the emotions they experience (Diener, 2009).

Studies suggest numerous benefits (social, economic and health) of SWB which in turn have brought more prominence and interest to the subject due to its importance to personal health, quality of life, and designing effective public policy (Diener, 2009). Given these benefits the recent attention to SWB in urban planning research is not surprising. However, existing studies have numerous limitations. First, few studies focus on lower levels of spatial disaggregation, such as the neighborhood. This poses a significant challenge for planners who typically design and intervene at smaller geographical scales. Secondly, a majority of the studies focus only on cognitive measures of SWB with little to no attention to affective experiences. The studies typically focus on linking cognitive SWB with residents' perceptions of their neighborhoods and objective characteristics of the neighborhoods. While these studies identify what attributes of a neighborhood may impact SWB they overlook the importance of the neighborhood in inducing travel and activity behaviors, both of which have SWB consequences. The neighborhood environment influences leisure time activities, physical activity, travel choices and social contact (Leyden, 2003; Handy et al., 2002) all of which influence SWB. Affective experiences can only be captured through episode level (trip and activity) affective evaluations. Engaging in activities that incite positive affective responses plays into a loop of development that leads to better SWB in the long run (Fredrickson, 2004). A lack of research looking at episode level affective responses across neighborhood typologies results in an incomplete understanding of the neighborhood-SWB relationship as well as potential equity implications. Through this paper we hope to bridge this gap.

Data for 400 respondents was collected from six neighborhoods, two suburban and four urban, in the Twin Cities Metro Area with varying neighborhood environments. Residents of randomly selected blocks within these neighborhoods were recruited to participate. The study was conducted in three stages, an entry survey, 7 days of episode level data collection, and an exit survey. The entry and exit surveys were used to collect information on cognitive SWB, socio-demographic characteristics, neighborhood perceptions, and other variables that have been known to influence SWB. Episode level data for 7 days is collected from each respondent using the daynamica™ smartphone application. The application tracks and automatically breaks down the respondents' day into a series of trips and activities for which they provide additional information (e.g., purpose, affective response, etc.).

Using a combination of spatial analysis and regression modelling this paper aims to help understand how the neighborhood environment influences SWB through its impact on peoples' activity and trip patterns. First, using the U-Index proposed by Kahneman & Krueger (2006) neighborhood affective profiles will be generated. Next, episode level data (e.g., activity locations, trip routes, activity purpose, duration, etc.) will be used to identify neighborhood induced activity/trip patterns. Finally, these will be combined with socio-demographic

characteristics and other personal variables to conduct the analysis for this paper. Initial findings indicate a hierarchy of happiness associated with various activity and trip types, varied levels of engagement in them across neighborhoods, and difference in SWB while engaging in similar activities and trips across neighborhoods, suggesting that the neighborhood environment does impact SWB by influencing certain behaviors. Contributions to existing research in the field and policy implications will be discussed.

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Key Words: Subjective Well-Being, Neighborhood Planning, Happiness, Travel Behavior, Activity Participation

WHO ARE DRIVING ELECTRIC VEHICLES?

Abstract ID: 681

Individual Paper Submission

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Electric vehicles (EVs) have the potential to substantially reduce local air pollution as well as greenhouse gas emissions, assuming they are powered with renewable energy sources. Upon their reintroduction to the mass vehicle market in 2010, President Obama had set a goal of having a million on U.S. roads by 2015. Similarly, in Hawaii, the Hawaii Clean Energy Initiative target was to have 10,000 EVs on the road in 2015 and 40,000 by 2020. Despite strong policy support, actual rates of EV adoption have fallen substantially short of stated goals, where there are about 6,700 EVs registered in Hawaii. This study uses data on EV registrations by zipcode to econometrically analyze a variety of demographic and land-use factors that might affect EV adoption from 2010 to 2016. The EV data was collected from the State of Hawaii Department of Transportation while demographic and commute pattern data are from the American Community Survey and the 2010 U.S. Census. Understanding who are currently driving EVs is important to understanding future adoption trends and barriers.

We preliminarily find that, after controlling for population and gasoline prices, higher income zipcodes are associated with higher levels of EV adoption – where an increase of \$10,000 in median income is associated with an additional 6 EVs within the study time period, 2010-2016. When educational attainment is measured, we find that a 1% increase in the number of people with at least a bachelors degree increases zipcode EV adoption by nearly 80. We find some evidence that gender can matter, similar to other studies that find that men are more likely to adopt EVs. The effect of age seems to be more robust, where we find that for every 1-year increase from the average zipcode's median age, there are 1 to 2 more EVs. Most notably, we find that the effect of commute time is still a large factor that affects EV adoption in Hawaii – which is somewhat surprising given the relatively limited travel distances of an island geography. We find that a 1% increase in the prevalence of commute times greater than forty-five minutes within a zipcode, likely meaning they are farther from the central business district, is associated with 37 fewer EVs relative to those with a commute time under forty-five minutes. This finding holds even when looking at the island of Oahu alone, which has the majority of the state's population as well as the majority of EVs. The island is only about forty-four miles long, far less distance than the range offered by most EVs. This supports the proposition that consumers have strong risk-aversion related to EV range anxiety.

Though Hawaii has a fairly robust infrastructure for EV charging stations, where large public parking lots are required to provide charging opportunities, our findings prompt the need for further study of the effect of trip-chaining on EV purchase decisions and, in particular, the interaction with charging time. If this is important within an island with limited travel distances, our findings would likely be exacerbated within most regions, and even cities, within the U.S. continent.

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Key Words: Electric Vehicles, Econometrics, Consumer Characteristics

WHOSE LANE IS IT ANYWAY? THE EXPERIENCE OF CYCLING IN A MID-SIZED CITY

Abstract ID: 684

Individual Paper Submission

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The need to upgrade infrastructure for cycling has never been greater, yet urban development in North America continues to privilege car usage. Cities are responding by encouraging alternate modes of transportation through bike-friendly design and planning, but the politics of approving such initiatives remain contentious, even though evidence reveals bikeable cities are beneficial for the environment (Pucher, 2005), individual health (Saelens, Sallis, & Frank, 2003), the local economy (Duany, Speck, & Lydon, 2010), and community culture (Aldred & Jungnickel, 2014). Though there are a multitude of benefits associated with city cycling, cities continue to privilege cars by prioritizing car-centric policies and planning. Even where cycling master plans exist and cities strive toward a bicycle-friendly environment, car culture dominates public decision-making (Furness, 2010). Counterintuitively, bike-friendly policies may possibly privilege cars and neglect the needs of cyclists. The normalization of car culture—that is, the social and physical environment where driving is the most prevalent mode of transportation used and planned for—results in cycle-friendly policies that may effectively cater to drivers. For example, removing cyclists from car lanes may help drivers avoid hitting cyclists, but fails to protect or help cyclists move more freely on the roads. The idea that bike-friendly policies may disadvantage cyclists, however, has received little, if any, attention in the literature, which is perhaps not surprising because research on urban cycling rarely adopts a critical lens. Indeed, research rarely exposes how car culture and its dominant discourse pervades through bike-friendly policies. Urban cycling research, moreover, tends to depend on quantitative data collection (Pucher, 2005), which limits analysis to neighborhood environmental characteristics and traffic data relevant to cycling to inform policy (Saelens, Sallis, & Frank, 2003). Qualitative research on the subject is less common, yet provides information about the social environment in which people cycle and how cultural norms influence individual behavior.

With these gaps in mind, the purpose of this study was to explore cyclists' lived experiences within a car-centric mid-sized city. To this end, this study engaged with cyclists in the Region of Waterloo, Ontario, Canada to directly understand how their experiences were influenced by their surroundings. This qualitative, thematic analysis prompted findings organized around three themes: (1) identity as a cyclist, (2) riding in a car-centric city, and (3) lived experience with "bicycle-friendly" infrastructure. This presentation will discuss the findings and call

for the increased attention of (1) the complex identity of cyclists, (2) the mixed experience of cycling and (3) the notion of “built it well and they will come”. Furthermore, this presentation will outline the need for qualitative methodologies in planning to help researchers and planners further understand the contextual and experiential nature of city cycling.

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Key Words: city cycling, metronome-effect, automobility, car culture, qualitative research

EXAMINING NON-WORK ACCESSIBILITY IN COMMERCIAL AREAS: EVIDENCE OF PARKING AND NONMOTORIZED EXPERIENCES USING SENTIMENT ANALYSIS OF YELP REVIEWS

Abstract ID: 688

Individual Paper Submission

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Searching for a parking spot in commercial and mixed-use areas often frustrates drivers, wastes fuel and time, and contributes to traffic congestion [1]. Non-work trip parking, in particular, can overload neighborhood parking supplies and spill into adjacent neighborhoods. Traditionally, parking studies have relied on on-site monitoring of parking utilization or installing count sensors in lots and on-street. These methods can be time-consuming and expensive and do not provide information about drivers' decisionmaking when seeking to park, or the relationship between parking choices and alternatives such as walking, biking, or transit.

To address these questions, this study leverages social media data on parking experiences. Yelp reviews, while primarily focused on the quality of business services, can also extend to the trip to the business. Researchers have found that many users share their transportation experiences, including parking, when they go to or from a particular business; these experiences, a form of “pre-trip” information can inform trip decisions [2-3]. For example, people recommend where parking can be found, its price, and also describe alternatives to parking such as walking or transit. Additionally, these opinions can be further analyzed for sentiment analysis (SA) to identify the emotional content of a parking decision [4]. These experiences and emotions can be geocoded to specific locations, as well as to the type of business associated with the parking behavior. We examine the central commercial and mixed used districts of 11 metropolitan areas in North America and Europe and ask: (1) How are positive or negative parking experiences associated with specific non-work activities and destinations? (2) How does parking experience analysis contribute to a better understanding of multimodal accessibility in commercial and mixed-used districts?

We use an open-source Yelp dataset, which contains approximately 3 million business reviews between 2004 to 2018 together with OpenStreetMap and parking facilities datasets. First, we perform a SA for the reviews containing parking experiences. Using a spatial statistics model such as Getis-Ord General G analysis, we estimate the emotion clusters for the distribution of positive, negative, or neutral emotions of parking experiences by activity. Second, typical objects associated to parking experiences such as traffic conditions, space availability, cost fare, accessibility, and convenience are identified through text analytics using a Natural Language Processing (NLP) method. By integrating the objects with different emotional clusters, we are able to examine how the parking perception objects contribute to parking emotions in different spatial divisions. Finally, we evaluate the

relationship between geolocated parking experiences and local parking and land use patterns.

We identify the relationships between the provision of on- and off-street parking and satisfaction with parking experiences. We also identify how tradeoffs among parking/driving and alternative modes affect sentiments towards these modes in downtown areas. This study explores a new way to evaluate parking experiences in commercial and mixed-use areas using social media data. The findings provide insight to transportation, land use and environmental planning. Specifically, we demonstrate how personal experiences while travelling can be harnessed to identify barriers to and opportunities for effective, sustainable accessibility in urban areas.

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Key Words: Accessibility, Travel Experience, Land Use, Sentiment Analysis, Social Media

WAREHOUSE DECENTRALIZATION AND ASSOCIATED CHANGES IN TRUCK VEHICLE MILES TRAVELED

Abstract ID: 690

Individual Paper Submission

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In this paper, we examine the linkages between warehouse decentralization and associated changes in truck vehicle miles traveled (VMT). Due to lack of actual shipment data, no US studies have answered the research questions: If warehouses decentralize away from central locations to the outskirts, will truck VMT increase? If much of the added warehousing capacity were externally driven for shipment outside of the region, will truck VMT still increase?

Over the last decade in Los Angeles, CA, warehouses have decentralized from central urban areas to the peripheries. The extent of this spatial shift has been substantial for large facilities and greater than that of the general population. Explanatory factors are increasing land values in the urban core, economic development policies, demand for economies of scale, and physical geography (Giuliano and Kang, 2018). Warehouses are extensive freight generators. Does this spatial shift have implications for increasing truck VMT? Because more truck VMT is correlated with more negative externalities at the local and regional level (congestion, air pollution, energy consumption, and environmental justice), it merits further research in several directions of planning scholarship.

If all warehousing activity were oriented locally, decentralization would imply more truck VMT. However, the 2012 freight analysis framework dataset shows that 53% of all imported goods by value through Los Angeles' freight systems leave the region for delivery outside of California. It is possible that much of facility development has been externally driven, particularly in the case of large distribution centers, to accommodate cross-continental shipment. If larger, more distant warehouses are oriented to external trade, we cannot conclude that decentralization leads to more truck VMT. Only two papers based on a parcel survey in Paris and a freight firm survey in Tokyo documented that the truck VMT increased over time due to warehouse decentralization (Dablanc and Rakotonarivo, 2010; Sakai et al., 2017). However, in both cases, external flows were not fully considered. No freight survey is available in the U.S. Hence, a modeling and simulation approach might be the second-best option.

This paper is a Los Angeles case study. We first assume that truck VMT is a function of local goods consumption (A), consumption outside of the region (B), spatial distribution of warehouses (W), warehouse capacity (K), spatial distribution of local consumers (C), and various operational schemes (O). We formulate multiple scenarios for truck VMT simulations and examine over two time periods the effect of variation in (W) and (K) as well as various extents of (B) on the variation in truck VMT. (A), (C), and (O) are controlled. With the VISUM macroscopic traffic simulator, we construct Los Angeles' arterial and highway network models and calculate the optimal truck VMT where travel costs in terms of time and distance are minimized. We assume that logistics businesses are profit-maximizing machines, we use centralized system optimal dynamic traffic assignment (SO-DTA) to find the optimal assignment of trucks that fulfill local and regional shipment (Peeta and Mahmassani, 1995). Background passenger traffic data are provided by Southern California Association of Governments (SCAG), a metropolitan planning organization.

Our preliminary results are as expected. In a closed city scenario (no external trade), controlling for all other factors, warehouse decentralization leads to more truck VMT; warehouse capacity increase leads to less truck VMT. As the extent of external trade increases from 30% to 90% of local consumption, truck VMT increases but to a lesser extent. The effect of increasing external trade is mitigated by the capacity expansion on the outskirts. We will present the full findings at the conference.

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Key Words: Warehouse decentralization, Truck VMT, Macroscopic traffic simulation, VISUM

COMMUTE PATTERNS AND MENTAL HEALTH: EVIDENCE FROM ELEVEN LATIN AMERICAN CITIES

Abstract ID: 701

Individual Paper Submission

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- Central themes and hypothesis

Mental health impacts individual happiness, well-being and life satisfaction. Mental health issues also have important consequences for the economy. In the United States, for instance, serious mental illness cost 1.4% of the total GDP in 2006. Literature in transportation policy and planning has suggested that mobility can be significant contributor to people's mental health. However, most of the existing studies have focused on North America and Western Europe, and have often relied on samples from small geographic areas. Using a comprehensive, multi-city survey conducted in 2016 by the Development Bank of Latin America (CAF), this study fills these gaps by examining the dynamics between commute patterns and the presence of depressive symptoms among Latin American populations.

- Approaches and methodology

Data from 5,452 respondents in eleven Latin American cities (Buenos Aires, La Paz, Sao Paulo, Fortaleza, Bogota, Quito, Lima, Montevideo, Caracas, Panama and Mexico City) were used to estimate random-intercept multilevel models examining associations between commute patterns and mental health. Mental health status was measured using the depressive symptoms based on the Center for Epidemiological Studies Depression 10-point (CESD-10) screen. Commute patterns include overall commute time, traffic delay, and main travel mode use. Self-reported travel and delay time were validated with a subset of respondents from Bogota by comparing them to actual congested and free flow travel times from home to the most frequent destination (e.g., work, school) calculated using the Google Map API. A comprehensive list of socio-demographic and self-reported neighborhood characteristics were included as control variables.

- Findings

Commute time, traffic delay and commute modes were positively associated with depressive symptoms. Controlling for socio-demographic and neighborhood characteristics, on average: (1) every 10 more minutes of commute was associated with 0.6% higher probability of having depressive symptoms; (2) every 10 additional minutes of traffic delay was associated with 1% higher probability of having depressive symptoms; and (3) users of formal transit were 5% less likely to suffer from depression than other travelers.

- Relevance to practice

The health consequences of mobility go beyond physical health. Planning approaches aimed at encouraging transit use, reducing commute time, and decreasing congestion can have multiple health impacts, including mental health improvements.

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Key Words: transportation, commute, mental health, Latin America, multilevel models

TRAVEL MOBILITY AND SOCIAL PARTICIPATION AMONG OLDER PEOPLE IN A TRANSIT METROPOLIS: A SOCIO-SPATIAL-TEMPORAL PERSPECTIVE

Abstract ID: 719

Individual Paper Submission

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The older adults, being one of the marginalized groups in cities, may be susceptible to the social injustice induced by high cost of urban life given their relatively limited engagement in economic activities coupled with deteriorating physical conditions. One research line that promotes positive and active ageing of the older people maintains that physical activity should be encouraged as measured in the level of travel mobility and participation in activities outside the home (Banister & Bowling, 2004; Hjorthol 2013). Some literature confirms that older people without employment/lower income tend to make fewer out-of-home trips and show lesser participation in

social activities (Mercado, R. & Páez, A., 2009). To investigate the effect of economic status on transport mobility, we examine the travel behaviour of the older population in Hong Kong from a socio-spatial-temporal perspective.

This research adopts a socio-spatial-temporal perspective in our analysis. Socially, we hypothesize that an older adult being employed would conduct more commute trips than his/her retired counterparts. Spatially, we hypothesize that older people from urban areas have shorter duration of trips compared to those from the suburbs, where the public transport system is still quite efficient compared to many other world cities. Temporally, we hypothesize that the effect of the influencing factors of an older adult's mobility will differ depending on the departure time of travel.

Using the 2011 Hong Kong Travel Characteristics Survey, we categorize the out-of-home trips into three types: mandatory, maintenance, and discretionary. We group these categories into two main ones: employed vs. others because we hypothesize that the HK Government's retirement policy would directly impact on the older people's economic activity status of being employed. Poisson model and linear regression model were used to estimate the number of trips and travel duration, respectively. Separate models were estimated for different departure times over the course of a day.

We found that employed older adults conduct significantly more mandatory trips and spend more time on this activity, while conducting fewer maintenance and discretionary trips compared to other groups, particularly within the first half of the day. In addition, older people residing in public housing estates and rural areas are found to face potential spatial barriers in fulfilling their mobility needs during certain periods of the day.

From these findings, a series of implications have been derived to inform policy-makers about the potential need to improve the mobility and social participation of the older people. To a certain extent, an existing social cost on public welfare would be overburdened if enhancement of mobility would reengineer economic and social life of older people by promoting a seamless transport system with an emphasis on safety and comfort. In this respect, not only do older cohorts with different economic status benefit directly, but also other groups that are considered to be less productive or most productive in the society would share such benefits that bring about by a mass transportation system in Hong Kong. As aging is becoming a global challenge for many world cities, this research may serve as a reference from an Asian perspective.

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Key Words: Out-of-home activity, transport mobility, older people, social participation, labor policy

AN ASSESSMENT OF HONG KONG'S SPATIAL PLANNING IN NEW TOWNS FROM THE PERSPECTIVES OF JOB ACCESSIBILITY AND TRANSPORT MOBILITY PATTERNS

Abstract ID: 720

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Central theme and objectives

Ideally a city of well-designed and executed spatial planning would feature a spatially balanced distribution of its population and jobs, which is expected to minimize spatial barriers for reaching job opportunities. In reality, this has rarely been achieved. Between the 1970s and 1990s, the Hong Kong government established three generations of new towns to alleviate the pressure exerted on contemporary urban areas to provide housing to a rapidly growing population. The development of the new towns attracted 3.3 million people (47% of the total population) to make their homes there. However, as the new towns have failed to provide balanced housing and job opportunities, the residents there may have to seek cross-district jobs and spend a higher proportion of their income and time on commuting (Hui and Lam, 2005; Lau, 2010). Yet, few have probed into these issues, raising concerns that Hong Kong's spatial planning practice might have engendered greater spatial injustice. This study aims to contribute to the body of the literature on job accessibility and its socio-spatial impact by addressing two key objectives: (1) To investigate how job accessibility affects commute and non-commute travel in 2001 and 2011; (2) To compare the travel patterns between new town residents and urban residents in connection to their job accessibility.

Methodology

Drawing on census and household travel survey data, this study first measure job accessibility for different industries and transport modes (public transport and private vehicle) using a gravity-based model refined by Shen (1998) across Hong Kong. The core assumption of this measurement is that job accessibility is positively related to the amount of job opportunities at a given location and negatively related to the transport cost for reaching this location. Next descriptive analysis was carried out to examine whether lower job accessibility and longer commute are more likely to be found in the new towns than the urban areas of Hong Kong. Finally, a series of regression models were estimated to investigate 1) The effects of job accessibility on commute and non-commute duration in 2001 and 2011, respectively; and 2) The difference in mobility patterns between new town and urban residents attributed to job accessibility.

Expected findings

- Job accessibility across most industries is lower in the new towns compared to the urban area in both 2001 and 2011. However, the gap in job accessibility particularly by public transport between the new towns and urban areas is closing over the decade, which may be attributed to railway expansion.
- Job accessibility negatively affects commute duration, while positively affects duration for non-commute trips in both 2001 and 2011. Yet the effect of job accessibility on commute and non-commute trips becomes weaker across the decade.
- A number of socio-demographic characteristics are significantly linked with commute and non-commute durations.

Relevance to planning scholarship, practice, or education

This study is expected to contribute to the literature on job accessibility and daily mobility by shedding light on their interrelationship in parallel with urban development over time. The study can enhance our understanding of how people from different walks of life have differentiated commuting experience as a result of the new town development and the location decision of industries of employment. Our findings will provide evidence with direct implications for achieving more self-contained communities and promoting more sustainable mobility patterns, which is of critical importance for improving the economic performance and quality of life within Hong Kong. The study will herald implications for other Asian cities that are undergoing drastic urbanization and population growth.

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Key Words: Job-housing balance, job accessibility, new town, travel behaviour, commute

HOW DO YOU RATE RAIL STATIONS?: A CASE STUDY OF LA METRO RAIL STATIONS

Abstract ID: 728

Individual Paper Submission

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Public transit users spend a fair amount of time around/at transit stations during their travel, and this out-of-vehicle time has been recognized as a major burden. Although the characteristics of transit stations, such as amenities at/surrounding stations and safety, likely affect out-of-vehicle time valuation and the decision to use public transit, limited studies have examined how public transit users evaluate stations and what attributes are related to such evaluations. Using reviews of LA metro rail stations from the online service rating website Yelp.com, I conduct a content analysis to examine which attributes were noted as important in determining users' ratings of stations. I also explore how these attributes and ratings vary by neighborhood type. The results show that the availability of parking at stations plays an important role in the positive evaluation of metro stations, while safety is the primary cause of a negative evaluation. I also find that ratings and the most frequently mentioned attributes not only differ by neighborhood type but also changed over time. This study not only provides important implications for transportation policy but also shows how Big Data can be used to inform policy decisions in the transportation planning field.

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Key Words: Transit service quality, Big Data application, Rail station

WHAT REMAINS? DISCRETIONARY INCOME CHANGES FOR LOWER-INCOME RESIDENTS IN TRANSIT ORIENTED DEVELOPMENT SITES

Abstract ID: 741

Individual Paper Submission

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The connection between gentrification and the opening of a new transit station – especially in the form of Transit Oriented Developments (TODs) – is conflicting. Some scholars indicate that gentrification potentially results from TODs (Jones and Ley 2016), while others show a marginal relationship at best (Hong 2017). Even in the absence of a clear connection, researchers have argued for policies to maintain or enhance affordable transit-neighborhood housing (Dawkins and Moeckel 2016).

Positively, even if they are not correlated, that is, that new transit investments do not trigger the relocation of the poor or most vulnerable residents, such residents may benefit from increased transit access. Indeed, this is a common assumption – that enhanced transit amenities will result in increased transit accessibility. Negatively, however, if housing or land prices increase due to enhanced transit amenities without displacement, low-income residents may suffer in different regards whereby they have to drastically change their consumptive behaviors and/or discretionary income. The adjustments to their discretionary income brought on by new transit investments may reduce low-income resident's overall quality of life. Thus, the rising cost of living potentially means that

low-income residents may be able to afford less consumptive items (e.g., food, clothing, education materials, etc.) than prior to transit investments and associated developments.

Our study thus explores what remains – in terms of discretionary income – after new transit investments. We specifically ask: How do lower-income households' discretionary incomes change after transit investments for residents that have not been displaced? By discretionary income, we refer to all income that does not go towards housing or transportation expenses. We use difference-in-difference models to examine such change nationally (U.S.) in regions that opened light rail stations after 2000. Results suggest drastic changes to discretionary income levels for lower-income residents – indicating that lower-income residents are paying a greater percentage of their overall income to housing and transit costs after light rail openings. Results also suggest that even though lower-income residents have greater regional transit access, such access is negligible in terms of their overall discretionary income levels.

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Key Words: Transit-Oriented Development, Discretionary Income, Equity

EXPLORING THE ROLE OF TRAVEL SATISFACTION AND TRAVEL LIKING ATTITUDE ON MODE CHOICE

Abstract ID: 758

Individual Paper Submission

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Consumer behavior research has shown that satisfaction impacts the choice of brands. Similar findings are shown in some transportation studies. For example, high satisfaction with public transit is related to loyal transit ridership (Carrel & Walker, 2017). Satisfaction studies for various modes of transportation other than transit are more limited (Olsson et al., 2012; De Vos et al., 2015; Singleton, 2017); only a few studies have examined the effect of satisfaction on mode choice (Singleton, 2017). This study aims to contribute additional evidence on the effect of travel satisfaction and travel liking attitude on mode choice for the commute and other trip purposes.

We conducted a one-week travel survey using a smartphone app during the Fall 2016 to Spring 2018. The survey was available to anyone who was 18 years or older in the Washington, DC and Roanoke - Blacksburg, VA metropolitan areas. We included two surveys in the mobile app. First, an entry questionnaire recorded respondents' demographic information, past and current travel patterns, transport access, attitude, and perceptions. Second, a trip survey, which was administered by smart phone after each trip, records trip characteristics, activities performed during the trip, and satisfaction for the entire trip. Both surveys were embedded in an Android mobile app named Daynamica, which is capable of GPS tracking and instantaneously recording satisfaction directly after each trip. Respondents were asked to complete the entry questionnaire, track their trips for one week, and answer the short post-trip survey for at least five trips of their choice. After data cleaning, the sample used for analysis consists of about 250 participants with 8,000 fully reported trips.

We measured travel liking (adapted from Mokhtarian and Salomon (2001) with modification) by asking respondents about their attitude on travel and time use during trips. For travel satisfaction, we applied the Travel Mood Scale, a series of semantic differentials developed to measure mood, in addition to a single measure of overall trip satisfaction.

In order to examine the effect of satisfaction and travel liking on mode choice, we first estimated measurement models of these variables; then, we incorporated these model outputs into a logit model for commute mode choice. Our preliminary results show that satisfaction with travel was significantly associated with mode choice decisions. Moreover, including these two variables improved overall model fit. The results also suggest that younger commuters and those who owned a bicycle were more likely to walk and bike. Having a parking permit at work decreased the likelihood of taking transit, bicycling, and walking to work. We aim to expand our analysis to include non-work trips, as well as including other latent variables to account for the heterogeneity among individuals. Additionally, we will calculate value of time to explore how attitude modifies the role of travel time in mode choice.

This study contributes to the existing literature on travel satisfaction, travel liking attitude, and time use perception. Findings from this study add further evidence for the role of satisfaction on choosing sustainable modes of transport (e.g., walking, bicycling, and public transit); similarly, our findings may help develop strategies to increase satisfaction for sustainable modes, and in turn, promote more physical activity. The importance of satisfaction and attitude on mode choice also challenges the traditional roles of travel time and cost in mode choice decisions. We argue that planners should update their evaluation of these two factors for travel time saving strategies, parking, and congestion pricing in order to promote changes in travel behavior.

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Key Words: travel behavior, satisfaction, travel liking, mode choice, smartphone survey

IMPROVING BICYCLE ACCEPTANCE: ON THE IMPACT OF STATION-LESS SHARED-BIKES AND BUILT-ENVIRONMENT

Abstract ID: 761

Individual Paper Submission

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Over the past two decades most Western countries strove at reinstating cycling as a regular practice. While their approach has proven to be successful in many cities, the rise of App-based Station-less Shared-Bikes (ASSB) systems offer a new avenue for speeding-up this trend. However their recency associated to their swift development have not yet allowed the research community to fully evaluate their potential. In an attempt to better understand the public acceptance of cycling in general and ASSB in particular this paper investigates the use and

perception of the bicycle, while highlighting their tight connection to the built-environment.

Although the bicycle acceptance can easily be studied from a sociological viewpoint, an approach from a urban environment perspective is much more complex to arrange. Indeed, such an analysis requires the investigation ground to comply with three major requirements: (i) be within an enclosed vicinity, to ensure a common typology of the urban environment for each group of respondents; (ii) feature a high bicycle mode-share; and (iii) present a high penetration level of ASSB. In that regard campuses in Shanghai (China), a pioneer city for ASSB systems where the bicycle mode-share is among the highest worldwide, represent a perfect investigation ground answering all those three requirements.

In this endeavor we select five campuses across Shanghai and classify them into three different typologies, with respect to their size, population, and built-environment. Based on the answer of over 1,100 respondents to a survey on their cycling behaviors and appreciation, we develop a statistical model that reveals the components playing a major role in the acceptance of cycling.

Among the most significant conclusions we observe, the practice of cycling is appreciated and even encouraged by a substantial, yet reasonable bicycle density on the road. In fact above or below a certain threshold deviant behaviors become more problematic and induce an increase in the perceived danger. Moreover ASSB schemes appear to paradoxically improve the cycling experience while generating new nuisances such as a danger increase, due to the poor skills of new cyclists, and major parking issues resulting from the high number of available ASSB. Finally we notice that a suitable built environment can mitigate the impact of most common mis-behaviors encountered in cycling.

We believe our results could have a great impact on how the cycling infrastructures are thought and realized. Indeed while ASSB are greatly appreciated and valued, their impact on the cycling environment is non-negligible. Therefore transport and urban planning of the cities could benefit from our findings in order to increase the bicycle mode-share and avoid the major set-back arising from the fast pace expansion of ASSB systems.

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Key Words: transport planning, shared-bikes, bicycle acceptance, cycling environment

THE EVALUATION OF LARGE CYCLING INFRASTRUCTURE INVESTMENTS IN THE GLASGOW CLYDE VALLEY PLANNING AREA BEFORE, DURING AND AFTER THE COMMONWEALTH GAMES: THE USE OF CROWDSOURCED DATA (STRAVA)

Abstract ID: 768

Individual Paper Submission

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Several studies have documented the benefits of cycling (Oja et al., 2011). It can improve public health and make cities more active and environmentally friendly. Even though some studies have pointed out negative factors related to cycling (e.g. transport emissions and traffic accidents), several studies have shown that the benefits are greater than the losses (Mueller et al., 2015; Celis-Morales et al., 2017). In many European cities, local governments have promoted cycling to make their cities more sustainable.

Glasgow City Council has committed to cycling by, among other things, increasing the funding available for the construction of new cycling infrastructure. They utilised the 2014 Commonwealth Games held in Glasgow as a catalyst for investment. There were four substantial investments made in new infrastructure between 2013 and 2015. This involved substantial capital expenditure, however the effectiveness of these new investments has not been well examined, mostly due to lack of data.

Strava, a smartphone activity tracking app, has provided new opportunities to researchers and planners. It allows cyclists to log their trips and track them using the global positioning system (GPS). Importantly, it provides longitudinal data with a high spatial and temporal coverage. The raw GPS data collected from users' devices is processed by Strava Metro, who aggregate the data into several data products for use by researchers (e.g. total number of cyclists on each road link and Origin-Destination matrices). In this paper, we utilised Strava data for the years 2013, 2014, and 2015 and employed fixed effects linear regression and Poisson panel regression models to examine whether new cycling infrastructure has increased cycling on these routes.

Before the main analysis, we compared manual counts of cyclists from a cordon count carried out in Glasgow in 2014 and 2014 Strava data to evaluate the usefulness of Strava data for the spatial analysis of cycling patterns in our context. We found very high correlations between the two datasets, implying that the Strava data can be a good proxy to predict actual cycling counts, even if Strava users are a biased sample of cyclists. We also conducted a simple linear regression model to confirm the linear relationship. The R-squared value increases from 0.67 to 0.82 when the level of aggregation increases from hourly to daily.

For the further analysis, we measured monthly total cycling activities for each output area (the smallest census geography in the UK) over 36 months with Strava data. Then, we compared the volume of Strava cycling after the infrastructure was put in place with the volume of Strava cyclists before it was put in place through fixed effects panel regressions. Our final models show that three out of four new projects are successful (8%-14% increase), and all of them are located close to the city centre. This implies that in the short term, developing new cycling infrastructure inside the city area will be more effective than introducing new cycling facilities outside the developed areas. However, we should be careful. The benefits of new infrastructure in outer areas could pay-off in the future when the network becomes more extensive and people realise its usefulness as their normal travel option.

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Key Words: cycling, infrastructure, crowdsourced data

LEVERAGING GOOGLE PLACE OF INTEREST (POI) DATA AND MACHINE LEARNING TO PREDICT BICYCLE AND PEDESTRIAN TRAFFIC VOLUMES FOR THE CONTIGUOUS US

Abstract ID: 774

Individual Paper Submission

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Increasing rates of active travel (cycling and walking) is a growing policy goal for many US cities (Jackson et al., 2013). However, many cities lack objective measurement (e.g., bicycle or pedestrian counts) of active travel rates to evaluate and plan for infrastructure investments. Estimates of the spatial patterns of active travel could potentially help planners to develop successful strategies when little information (e.g., bicycle or pedestrian counts) on current use of facilities is available.

Direct-demand models are a statistical-empirical tool to estimate bicycle and pedestrian traffic volumes. Since bicycle and pedestrian traffic counts, as well as land use data, are collected and archived in different ways across jurisdictions, most direct-demand models are developed for a single city (Hankey & Lindsey, 2016; Tabeshian & Kattan, 2014; Miranda-Moreno & Fernandes, 2011). In previous work, we developed the first national-scale direct-demand models of bicycle and pedestrian traffic using a stepwise linear modeling approach based on counts from 20 US cities (Le et al., in review). Towards the goal of developing predictive models for all jurisdictions in the US, we updated these models in two ways: (1) adding Google Place of Interest (POI) data (a proxy for land use data) as predictor variables and (2) using multiple machine learning methods for model development.

Our previous work (Le et al., in review) gives a full description of the data collection effort. Briefly, we sourced and aggregated morning and afternoon peak-hour pedestrian and bicycle traffic counts for 20 US metropolitan areas ($n=6,342$ count locations). We matched each count location with 32 potential predictor variables that were available in a consistent format at the national level. Land use data is often not available at the national level since local jurisdictions classify and archive land use patterns in different ways. To address this limitation, we web-scraped all Google POI locations for each of the 90 reporting categories (e.g., restaurants, schools, business location, etc.) for each count location as an alternative approach to traditional, parcel-level land use data. Then, we added these variables to the database of publicly available, national-level predictor variables. We developed ~20 machine learning models, both with and without the Google POI data to compare to our previous models.

The goodness-of-fit improved for the best performing machine learning models (i.e., gradient boosting, bagging, and random forest) as compared to stepwise regression when using only the original, publicly available predictor variables. For example, the bicycle model goodness-of-fit increased from 0.52 (stepwise regression) to 0.82 (gradient boosting); similarly, the pedestrian models increased from 0.58 to 0.70 (bagging). Adding Google POI data resulted in improved model fit (model R^2 increased from 0.71 to 0.77) and prediction accuracy (mean absolute error [MAE] decreased from 444 to 295) for pedestrian traffic but not for bicycle traffic (model R^2 was ~0.78 for both models; MAE was ~40). In general, Google POI data substantially improved model performance only for pedestrian traffic.

We successfully developed models based on data that is consistently available at the national level to predict bicycle and pedestrian volumes at any location in the contiguous US. We found that machine learning, and for pedestrians, Google POI data could be leveraged to improve model predictions. Our models could be used to predict spatial patterns of active travel in jurisdictions where there is currently limited information (e.g., few or no traffic counts). Our model estimates could then be used to help plan for infrastructure to support active travel.

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Key Words: non-motorized transport, data analytics, facility-demand model

MOBILITY GAP OVER THE LIFE COURSE: A COHORT ANALYSIS OF OLDER MEN AND WOMEN IN CANADA

Abstract ID: 782

Individual Paper Submission

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Transportation mobility is essential to older adults' quality of life, as it reduces the risk of older adults being homebound and provides access to a variety of socioeconomic opportunities and resources (Banister & Bowling, 2004). A growing body of literature, especially research in gerontology, has identified the ability to continue driving as closely related to older adults' physical and mental health (e.g. Choi & Mezuk, 2013). In addition, older adults' strong preference for car-travel is widely observed, as automobility is perceived as providing flexibility, convenience, security and a sense of independence for older adults (e.g. Davey, 2004).

However, aging populations are highly diverse and there are great variations in their travel needs, preferences, and mobility barriers. Despite an overall increase in automobility among aging populations, existing studies found that women are much less likely to drive in old age than men. Older women also tend to have more mobility barriers, especially given that high percentages of women in advanced old age live alone with limited economic resources (e.g. Rosenbloom, 2001). In Canada, the sex ratio among older Canadians age 85 and over was about 54 men per 100 women in 2016. Despite the projected substantial increase in both the number and percentage of older females, limited discussions have addressed the gender differences in transportation mobility, and particularly automobility, at the national level.

This paper therefore explores the gender difference in mobility behaviors and its variations among different generations, with multiple cycles of population-representative cross-sectional survey data – the General Social Survey (GSS) time-use cycles. This paper adopts descriptive cohort analysis and multivariate regression models to examine the following research questions. (1) How do mobility behaviors vary with gender and cohort groups? (2) Is there a significant gender gap in automobility among older adults? How does the gender difference in automobility vary across cohorts and how does it change over time? (3) What are the relationships between transportation mobility/immobility and the socioeconomic status and health status of aging populations? How these relationships are different in the eldest cohort as people reach advanced old age.

The result shows clear differences in travel behaviors between the young-old (age 65 to 75) and the old-old (age 75 and over). Across cohorts, women show higher participation rates in active travel and travel by transit than men. Even with higher levels of automobility, it is not clear whether new generations of older females will develop higher dependency on private cars, or whether they will still use alternative modes more than their male counterparts. As females are about two thirds of the population of the oldest-old (age 80 and over), their preferences or attitudes towards mobility options need to be better understood in transportation policies that aim at improving mobility of older adults.

With a macro-scale analysis of age, cohort, and gender differences in travel behaviors, this paper highlights the importance of understanding the transportation mobility and/or immobility of people in advanced old age, especially older females, in the research and practice of transportation planning. Moreover, it contributes to the discussion of planning for age-friendly communities by taking a closer look at gender differences.

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Key Words: Travel behavior, Aging, Automobility, Life course, Cohort analysis

BIKE LANES, GENTRIFICATION, AND SOCIAL EQUITY: LONGITUDINAL ASSOCIATIONS BETWEEN BIKE LANE INVESTMENT AND AREA-LEVEL SOCIODEMOGRAPHIC CHANGE IN THREE U.S. CITIES BETWEEN 1990 AND 2015

Abstract ID: 792

Individual Paper Submission

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Background/central theme: Emerging research suggests that low-income and minority communities may have disproportionately low access to cycling infrastructure (Flanagan et al. 2016, Hirsch et al. 2017), leading some observers to argue that investing in bike lanes in disadvantaged communities could promote social equity. However, recent bike lane projects in several large U.S. cities have encountered resistance due to concerns among some community members that bike lanes are associated with, and could potentially even cause, gentrification and displacement (Golub 2016, Lubitow et al. 2016). Limited quantitative research to date has considered how bike lane investment may be associated with gentrification and other types of sociodemographic change.

Research objectives and hypothesis: To address this research gap, we considered whether changes in the bike lane network were associated with area-level sociodemographic change between 1990 and 2015 in three large U.S. cities (Chicago, IL; Minneapolis, MN; and Oakland, CA), using census block groups as the unit of analysis. We hypothesized that greater investments in the bike lane network during this 25-year period, as characterized through increases in bike lane density and connectivity, disproportionately occurred in block groups that either started out as more advantaged (e.g., higher socioeconomic status, lower presence of racial and ethnic minorities) or became more advantaged (e.g., gentrified) over time.

Methodology: We measured bike lane network characteristics, sociodemographic characteristics, and covariates for block groups within the city limits of Chicago, Minneapolis, and Oakland (combined n=2,062 block groups). All variables were measured at four time points: 1990, 2000, 2010, and 2015. Dependent variables included the density and connectivity of on-street, dedicated bike lanes. Primary independent variables included two categorical measures of sociodemographic change: (1) a gentrification indicator created from measures of income, educational attainment, new housing construction, and housing value (Freeman 2005), and (2) a more general indicator of change in composite socioeconomic status. Covariates included several traditional indicators of cycling demand that could influence the location of bike lanes (population density, distance to employment centers, percent of residents between ages 18 and 34, percent of commuters who bike to work). We used linear multi-level mixed effects regression models to estimate associations between changes in each sociodemographic indicator and changes in each dependent bike lane variable, adjusting for covariates. All models were stratified by city. In supplemental analyses, we used lagged models and Granger causality tests to examine the temporal ordering of gentrification and bike lane investment.

Findings and relevance: Although the results varied by city, we found evidence that higher increases in bike lane density between 1990 and 2015 tended to occur disproportionately in block groups that were either already advantaged or increasing in advantage (e.g., gentrifying) over time. In supplemental analyses, we found some support for a temporal relationship in which gentrification preceded or occurred during the same decade as new

bike lane investment (and correspondingly less support for a relationship in which gentrification occurred in the decade following new bike lane investment). The findings of this study add empirical support to claims that bike lane investment is positively associated with gentrification, suggesting that efforts to expand access to bike lanes—particularly in disadvantaged and traditionally underserved neighborhoods—should be pursued with an awareness of this association and its implications for social equity.

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Key Words: cycling, bike lanes, gentrification, equity, disparities

BICYCLING IN WALKABLE ENVIRONMENTS

Abstract ID: 804

Individual Paper Submission

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Dense and diverse urban environments have long been shown to support active travel modes (walking and cycling). Many studies have demonstrated the connection between the urban environment and the tendency for active travel, and the Walkability score has been developed to evaluate different environments. However, many studies combine both bicycling and walking under the frame of active travel, although bicycling and walking are different enough to require different qualities from the environment. Streets and environments that have many pedestrians and human activity usually include crowded sidewalks, congested roads, and cars and pedestrians blocking bikeways and crosswalks. These areas can be uncomfortable for bicyclists, especially if they pass through that area on their way to further destination.

In this study, we assess whether walkable environments influence bicycling at the same rate as they influence walking. The study is based on country-wide surveys conducted by the U.S. Environmental Protection Agency (EPA) and the U.S. Census Bureau at the census block group level. The EPA has developed a national walkability index based on environmental attributes. The Census Bureau has surveyed the main mode of commute, include bicycling and walking. Based on these variables, their components, and sociodemographic control variables, we have examined the walkability index's influence on walking and bicycling, using Zero-Inflated Negative-Binomial regression model.

We have found that walkability influences walking and bicycling rates at about the same degree. However, the walkability index's components influence the active transportation modes differently. Employment mix has a positive influence on walking but a negative influence on bicycling, especially regarding high rates of employment mix. Intersection density have a positive influence on bicycling at low rates, but week effect at high rates, while for walking it has insignificant effect at low rates and positive effect at high rates. Moreover, the marginal effect of the walkability index at low rates is higher on bicycling and is higher on walking at high rates.

The findings suggest that while walkable environments promote the usage of both walking and bicycling, they affect them differently. Overly dense and diverse streets and environments seem to be less comfortable for bicycling as they are for walking. In order to maximize the rates of active transportation, there is a need to take into consideration the needs bicyclists as well as pedestrians. Bike routes, for example, can pass through less intense, parallel streets, or use physical separations from cars and pedestrians.

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Key Words: Bicycling, Walkability, Bikeability, Built Environment

HUMPS, CIRCLES AND CHICANES: POLICY TRANSFER OF 20-MPH ZONES FROM LONDON TO NEW YORK CITY

Abstract ID: 809

Individual Paper Submission

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Relative to its peer countries, the US underperforms on traffic safety. For example, the US' road traffic fatality rate is nearly four times higher than in Sweden or the UK, and nearly twice the rate in Canada (World Health Organization, 2015).

Area-wide traffic calming slows autos by introducing physical speed reducing devices in the roadway. It has proven to be effective at increasing traffic safety, while also improving pedestrian and cyclist comfort and neighborhood quality of life (Elvik, Vaa, Erke, & Sorensen, 2009). New York City's Neighborhood Slow Zones program, the first systematic area-wide traffic calming program in a major US city, was inspired by London's Slow Zones. However, while London's 20-mph zones achieved significant reductions in traffic casualties (Grundy et al., 2009), the zones in New York did not.

In this paper, I use a policy transfer framework (Dolowitz & Marsh, 2000) to determine if street design contributed to the disappointing traffic safety impacts of area-wide traffic calming in New York. I use mixed methods and both quantitative and qualitative data on the traffic calming devices implemented in 20-mph zones in both cities.

While speed humps were the only device used to slow traffic in New York City, London's 20-mph zones used a much broader range of traffic calming devices. Further, the quantity of traffic calming devices was much higher in London. The large difference in the street designs used in 20-mph zones in each city shows that the transfer was far from a copy of the original model and suggests that New York's more skeletal version of area-wide traffic calming contributed to the disappointing results in that city.

The qualitative data revealed barriers to a more complete transfer of street designs for 20-mph zones. These barriers included the cost of, and public opposition to, more robust traffic calming measures, in addition to

the emergence of other traffic safety priorities in New York. Despite the incomplete policy transfer and negligible impact on traffic safety, I argue that the NSZ program is not an implementation failure.

These findings are relevant to researchers and practitioners in the areas of transportation, traffic safety, and environmental sustainability. Area-wide traffic calming had only previously been implemented in a handful of US cities (Ewing, 2008), making New York an “early adopter” (Rogers, 2010) of the policy; as such, lessons from the Neighborhood Slow Zones program are particularly relevant to cities that seek to improve traffic safety and elevate the use of the sustainable modes of walking and cycling. Further, although previous research has revealed heterogeneous findings on traffic calming’s impact on road safety, it has not provided explanations for this heterogeneity. This paper fills a knowledge gap by showing that the type and quantity of traffic calming devices used in traffic calming schemes impacts the safety effects of the policy.

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Key Words: transportation , pedestrians, street design, traffic safety, policy transfer

ARE ALL TRANSFERS EQUALLY BURDENSOME? AN ANALYSIS OF SATISFACTION WITH TRANSFERS AMONG PUBLIC TRANSIT USERS IN MONTREAL, CANADA

Abstract ID: 823

Individual Paper Submission

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A transit rider’s satisfaction level is derived from a series of attributes describing the public transit service that the individual experienced, such as waiting time, in-vehicle travel time and crowding. However, the complexity of trips made by transit riders can vary significantly and complicate our understanding of an individual’s reaction to the service that they experienced. In cities with multiple modes of public transit (i.e. buses, subways, streetcars), designing a seamless integration of these modes is critical to minimize the burden that transferring vehicles potentially imposes on passengers (Iseki & Taylor, 2009). Transfers can be stressful and/or time-consuming, and can negatively impact user loyalty levels (Imaz, Habib, Shalaby, & Idris, 2015) or have an impact on user defection (Bass, Donoso, & Munizaga, 2011). Although recent research has suggested that bus users are less averse to transfers than previous literature found (Badia, Argote-Cabanero, & Daganzo, 2017), these findings must be cautiously considered in other contexts, particularly in North American cities where service frequency of bus routes can vary drastically across the network, which can result in long transfer times. There are two key questions driving this research. First, are people that require transfers on their daily commute less satisfied with their trips compared to their non-transferring counterparts? Second, do users perceive transfers within modes (i.e. transferring buses) to be just as onerous or more burdensome than transfers between modes (i.e. transferring from a bus to a metro)? Using a large travel survey collected in Montreal, Canada, cluster analysis will be employed to segment the sample into groups of individuals with similar trip characteristics (i.e. travel time, trip distance and transit modes used). Using the segments that were derived through cluster analysis, the last phase of this study will be to conduct logistic regression analyses to predict overall satisfaction levels, as a function of the number mode-specific transfers. The model results for each segment will then be examined and compared, to determine the influence of transfers on satisfaction levels among and between segments of users that have similar trip

details. Findings from this study are expected to offer transit planners and policy makers with a nuanced understanding of how transfers influence customer satisfaction levels, which is vital information at a time when many cities and public transit agencies are actively considering significant network structure changes to meet various goals such as increased ridership, operational efficiency or increased accessibility to employment or other opportunities.

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Key Words: Public transport, Customer satisfaction, Public transport network structure

MISPERCEPTIONS OF WALKING TIME AND DISTANCE

Abstract ID: 824

Individual Paper Submission

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When deciding how to make a trip, many people overlook walking as an option. For planners, these mode choices are particularly puzzling for short, seemingly walkable trips (i.e. when destinations are less than a mile away and in neighborhoods with good pedestrian infrastructure). The aim of this study is to identify what prevents people from making seemingly obvious walking trips. Do people overestimate distances? Are areas that are “walkable” in the eyes of planners actually uncomfortable to the public? In other words, do people avoid walking because they are concerned about traffic, crime, street harassment, and/or getting lost in unfamiliar areas? Or perhaps distances are indeed short and streets are indeed walkable, but people avoid walking because of poor weather or the need to carry heavy bags.

We investigate these issues by conducting intercept surveys with 1,297 people at seven locations in New Jersey (three university campuses and four town centers). We presented respondents with a nearby destination (e.g. a train station, park, etc.) and asked them how they would typically get to and return from that destination. This process was repeated for two locations, one within 0.5 miles and another within 1.0 mile. While 54% of our state-wide sample report that they would likely walk, fully one quarter would drive.

To better understand the motivation for walking, we asked respondents to estimate the distance to each destination (in both miles and minutes) and to provide reasons for their mode choice (e.g. fear of traffic, poor weather, etc.). In addition, respondents provided data on typical travel patterns, familiarity with the area, vehicle ownership, and demographic characteristics.

We use these data to answer three research questions:

- How well do people estimate distances?
- Who is most likely to overestimate distances?
- Where are people most likely to overestimate distances?
- How do perceptions of distance interact with other factors to shape mode choice?

Based on previous research, we expect that respondents will tend to overestimate distances. We also hypothesize that people who drive often and people who are unfamiliar with the area will overestimate distances to a greater degree than others. We have two countervailing hypotheses about how estimates vary by location. On the one hand, estimates may be more accurate in walkable areas because respondents can more readily imagine walking there. On the other hand, walkable areas may have more memorable destinations along the route, which can decrease perceived distance.

The results suggest that most respondents have no idea how much time a short walk takes nor how far away the locations are. The correspondence between reported distance and time suggest that some respondents were high-speed runners, while others had the pace of a snail. Moreover, our analysis reveals that perceived distances vary systematically by personal characteristics and by characteristics of the destination.

Implications for planning suggest that providing wayfinding signage with information on distance and time may be a simple policy to encourage more walking for short trips.

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Key Words: Walking, Perceptions, Pedestrian environment

NATIONWIDE TRAVEL TRENDS 1990-2017

Abstract ID: 825

Individual Paper Submission

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The purpose of this paper is to compare travel patterns over time for adults in the United States. The data for this analysis comes from the National Household Travel Surveys, a nationally representative survey of Americans conducted periodically (most recently in 2009). The widely-anticipated 2017 version of the data was released in March 2018. This paper draws on the 2017 data and three previous waves of data to examine how travel patterns changed over time.

In particular, I focus on changes between 2009 and 2017, a period during which the economy recovered from a deep recession and shared mobility services became widely available. In particular, this analysis determines whether trends observed between 1995 and 2009 continued between 2009 and 2017. For instance, driving declined during the early 2000s and the gap in economic resources between those with cars and those without widened. Did those trends continue between 2009 and 2017?

To answer those questions, I characterize travel patterns using a multifaceted traveler typology in four periods: 1990, 2001, 2009, and 2017. The traveler types incorporate multiple facets of travel behavior into a single measure. This approach offers a more comprehensive view of travel patterns than focusing on a single facet of travel (e.g. miles traveled or automobile ownership). The traveler types are based on seven variables, some of which characterize travel over a single day (person miles of travel, number of trips, and share of miles by an

automobile), some of which capture long-term travel patterns (annual miles driven, and frequency of public transit use in the past month), and some of which incorporate transportation resources (automobile ownership per adult in the household and licensing). These seven variables serve as inputs for a latent class analysis, a process that groups respondents in such a way as to maximize similarity within groups and minimize similarity between groups. In short, members of the same type travel similarly. Most importantly, the process for identifying the traveler types is consistent from year-to-year, enabling comparisons across survey periods.

The results of the latent class analysis suggest that there are four traveler types: Drivers, Long-distance Trekkers, Multimodals, and Car-less. With the types in hand, I use descriptive statistics to answer three questions:

- How did travel patterns change over time, particularly between 2009 and 2017?
- Whose travel patterns changed the most?
- Did the gap between those with many resources and those with few resources continue to widen over time?

Finally, I use a series of multinomial logistic regressions with interaction terms to answer a fourth question: Has the relationship between resources and travel changed over time?

By comprehensively characterizing travel patterns in 2017, this paper offers a timely update to our understanding of how Americans travel. More importantly, by comparing the results to previous periods, this work sheds light on whether previously observed trends continued as the economy recovered and shared mobility became more commonplace. Finally, by comparing travel patterns between those with many resources and those with few resources, this work helps identify the causes and consequences of those trends.

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Key Words: Travel behavior, Automobility, Inequality

MOVING IN-BETWEEN SYSTEMS: INFORMAL TRANSIT IN QUITO

Abstract ID: 883

Individual Paper Submission

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Like many Latin American cities, Quito has undergone rapid urban transformation due to transportation interventions in pursuit of improving equity and environmental outcomes. To achieve such ends municipalities plan for transit-oriented development, which has been studied under the rubric of housing provision and rail service(Chatman, 2013), or bus-rapid transit and land-use decisions(Rodriguez & Vergel, 2013). Yet, informal transport continues to be strategy for low-income residents living in peripheral areas to move around as cities are still built up through a relationship between informal and formal systems. There is a long and rich tradition of Latin American peripheral urbanization through unregulated or illegal processes tied to auto-construction. Thus, areas outside of regulated and zoned urban land are unregulated. These areas are better understood as a mode of planning(Roy, 2005). In this study, we do not treat informal transport as a closed category that is opposite of the

formal (McFarlane & Waibel, 2016). Rather, we analyze the multiple layers and logics of negotiated processes that shape the practices of transit drivers.

In this context, this research seeks to investigate the relationship between informal transit and land-use in Quito, Ecuador. It asks how is informal transit land-oriented? It seeks to discover how informal transit lines route decisions are made, if land-use regulations have any influence, what type of spatial patterns surface, and the impacts on individuals with different income levels. Transit scholars argue how informal transit holds an important place for transit in cities of developing countries (Cervero & Golub, 2007). This study hypothesizes that land-use regulation is one way to understand how informal transit operates since land regulations have separated the landscapes of Latin American cities. This research aims to directly add to transit-oriented research by uncovering the nature of the relationship between land-use regulation and informal transit. It also proposes to detail the qualitative characteristics which influence why informal transit providers provide services starting from the social networks in the neighborhoods they serve. These alternative characteristics also demonstrate the importance of social networks and neighborhood collective action are within determining the relationship between informal transit and urban land. By employing a mixed-methods approach with qualitative and quantitative methods including interviews, participant observation, survey, and GPS technology, such a study can reveal the possibilities of informal transit as a continued and viable option for cities. In this study, we define land-use regulation through density restrictions, zoning, commercial, industrial and residential use—but, we will also use other built environment indicators such formal transit infrastructure, and areas designated as risky or unregulated to test other possible explanatory relationships with informal transit corridors. This paper will present results that capture a slice of the informal transit network in Quito. It will first analyze participant observation and semi-structured interviews to delineate the social networks behind the organization of informal transit in Quito, showing how trust and security are elements that are attributed to the area of city these services attend. Subsequently, it will show a sampling of spatial patterns that have surfaced with informal transit operators and depict initial findings on their relationship to urban land in Quito.

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Key Words: urban informality, informal transit, Latin America, Feminist Science and Technology Studies, Transit planning

A STORY OF FAILURE: HOW CONFLICTS WITHIN LOCAL POLITICS DERAILED AN ACTIVE TRANSPORTATION URBAN DESIGN IN A ‘PROGRESSIVE’ US CITY

Abstract ID: 893

Individual Paper Submission

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The United States urban transportation network is overwhelmingly designed to serve personal automobiles, which has lured or pushed people towards private vehicle ownership and diminished options for safe and efficient navigation of our communities outside of a car. To create equitable opportunities for healthy and sustainable

transportation modes, it is necessary to reclaim public space from personal vehicles. What parts of this challenge might be insurmountable?

Boulder, Colorado introduced its first bi-directional protected bike lanes in July 2015, after decades building a bike-friendly, sustainability-minded reputation. The Folsom Street project required a four-to-three car lane conversion and closed a significant gap in the city's bike map, providing a north/south route connecting several east/west paths. Why then, just weeks later, was most of the protected infrastructure gone and space reassigned to cars? Research questions herein leverage literature and theory about how ideals conflict with urban planning aims (Campbell, 1996), and issues of justice (Fainstein, 2014); specifically:

- How did public participation in the planning process create conflict that succeed in reshaping policy outcomes for Folsom Street's protected bike lanes at the cost of sustainability?
- How did backtracking on protected bike lanes reshape the potential for future progressive urban design and planning in Boulder?

These questions, framed within the context of NIMBYism (not in my back yard) and related ethics (Hermansson, 2007), are explored as a case study. We identify ways that the policy-making process is challenged by NIMBY ideals, and how NIMBYism in other contexts translates to transportation (Cervero et al., 2013). Thus, we obtained city-collected project data (car and bicycle counts, before/after travel times), conducted interviews with stakeholders on all sides (city council members, city staff, community advocates, citizen Transportation Board members), and compiled relevant media coverage (e-mails to City Council, news articles, etc.). All interviews and media coverage were transcribed and coded to capture the tone and intent of stakeholders in the public dialogue.

Results show that data objectively pointed to a successful balancing of bicycle and automobile interests in the corridor, however fierce public outcry over re-purposing a car lane led City Staff and Council to prematurely remove the protected bike lanes long before the year-long trial period elapsed. We find that backtracking on Folsom may have drastically diminished the landscape of possibilities for radical and sustainable planning projects in Boulder. We also find the politics of urban land use are an interconnected factor that should be addressed alongside transportation shifts. Such changes, potentially perceived as dramatic, require cities to clearly articulate and defend choices made based on social/environmental values; a synergy between planning and community advocates needs to be fostered and managed.

This work illuminates potential conflicts between democratic planning and stated values. By assessing the causes of project failure, we identify inefficiencies of the democratic planning process in achieving environmental and justice values. Our research sheds light onto conflict management in controversial projects. The Folsom bike lane case demonstrates the valuable role of city management of public participation and how it can advance or impede progressive planning.

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Key Words: protected bike lanes, NIMBYism, planning conflict, active transportation, alternative transportation

WHAT DO WE KNOW ABOUT BIKESHARE SYSTEMS IN THE UNITED STATES? FINDINGS FROM FOUR US REGIONS

Abstract ID: 900

Individual Paper Submission

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Bikeshare system is a new form of alternative transportation mainly used for short distance travel. Due to its potential benefits to the environment, social equity, and public health (Fishman et al., 2014; Fishman, 2016), it is becoming more and more popular in the recent years. Globally, the number of bikeshare systems has increased drastically within the past decade, from 13 in 2004 to 855 in 2014. China has the biggest number of bikeshare systems with 237 in 2015, followed by Spain and Italy (Fishman, 2016). In the United States, the number of bikeshare systems has also been growing, from four in 2010 to 55 in 2016 (NACTO, 2017). This explosive growth of bikeshare systems has resulted in an increase of bicycle ridership, from just two million in 2010 to over 25 million in 2016 in the U.S. (NACTO, 2017). With the rapid growth of bikeshare systems, it is necessary to look into the bikeshare systems and find out how the bikeshare systems are doing. The research questions for this study include: who are the users of bikeshare systems? How the bike trips and stations are temporally and spatially distributed within the cities? What are the impacts that bikeshare systems have on car uses?

To answer these questions, we investigate four of the biggest bikeshare systems in the U.S. in this study – CitiBike in New York, Capital Bikeshare in Washington DC, Divvy in Chicago, and Hubway in Boston. We have acquired every bike station location and individual trip generated by these four systems from the day that the systems launched to 2017. The information for individual trips include user characteristics, starting and ending stations, time of a day that the trip was happened, etc. These information allow us to analyze who the users are, identify the spatial match/mismatch of supply and demand, and compare the changes of car uses (vehicle miles traveled, mode of transportation, vehicle ownership, etc.) before and after the systems were launched.

Based on these analysis, we anticipate to find answers to the research questions. For example, the existing worldwide literature identifies that typical bikeshare user are white, young, male, employed, educated, and affluent (Mátrai & Tóth, 2016). We will find out whether this is the case in the U.S. too. We anticipate to find that certain locations have higher concentration of bicycle trips than others, such as mixed-use neighborhoods, rail stations, etc. We also anticipate to find that bikeshare systems can reduce car uses at certain degree.

The findings of this study have significant implementations in planning practice. For the four regions studied, this study provides insights of their systems' current conditions, such as who the users are, the spatial distributions of their supply and demand, etc. For cities that are dealing with environmental and social issues, this study provides evidence whether bikeshare system may be a solution to solve their problems.

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Key Words: bikeshare system, bicycle infrastructure, car use, sustainability

THE RESHAPING OF LAND DEVELOPMENT DENSITY IN SHENZHEN, CHINA THROUGH RAIL TRANSIT: THE STORIES OF CENTRAL AREAS VS. SUBURBS

Abstract ID: 918

Individual Paper Submission

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The reshaping abilities of urban rail transits on land developments have been confirmed in many western cities. A wealth of studies which focused on rail transit lines in the US and European cities concluded that rail transits have positive impacts on where urban growth occurs and that impact is the strongest in places where the regional economy is strong, lands are available, and land development policies are supportive (Cervero and Landis 1993, Mohammad, Graham et al. 2013). In the US, downtown areas are usually the places where those conditions are met and where rail transits have the largest impacts on land use developments. Suburbs, on the other hand, have a different story. Rail transit systems seem to have limited influences in shaping suburban land-use patterns, and such influences have been declining over the years (Cervero and Landis 1993). A few recent studies from Latin America and developed countries in Asia supported the findings by showing that population and jobs kept moving away from central cities into suburbs, and also away from suburban rail stations (Guerra 2014). Studies from developing or less-developed countries have been limited.

The influences of rail transit on land use in developing countries like China have drawn much scholarly attention in recent years, which is, in part due to the speed and scale of urbanization and the unprecedented development of their rail systems. In China, rail transits have been built rapidly in multiple cities. Many of the newly-built transit lines were extended into less-developed suburban areas of Chinese cities, with the aim of promoting suburban land developments around the station areas (Li, Luan et al. 2013, Zhang and Wang 2013). The expansion of rail transit lines was carried out based on the premise that the rail lines would attract new land developments that would increase local revenues for municipal governments. However, such build-it-and-they-will-come expectations are often questionable.

The main research questions of our study are: whether or not rail transits serve as the magnets that attract new developments or redevelopments to areas surrounding stations; and whether the city-shaping ability of rail transits differs between central areas and suburbs. Our study focused on Shenzhen, one of the fastest urbanizing areas in China. We utilized land parcel data in Shenzhen collected in two different years and applied multiple linear regressions with interaction terms to compare the effect of rail transit stations on land development by regions (i.e., central areas vs. suburbs). We hypothesize that the reshaping ability of rail transits on land development is more prominent in already-developed central areas than that of low-density suburbs.

Our results show that central areas enjoy and appreciate the proximity to rail services; as parcels get closer to stations, the rate of increase in floor area ratio is the fastest in central areas than in inner or outer suburbs. Central areas also increase the overall development intensity for all parcels, possibly due to locational advantages such as higher accessibilities to city centers and better transportation infrastructure. Compared to central areas, the density gradient in outer suburbs is more flattened, indicating metro stations in outer suburbs have a weak effect in intensifying land development around stations. These research findings inform policy responses regarding the interactions between rail transit and land development, and our study also contributes to a broader discussion of sustainable urbanization.

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Key Words: rail transit, land development, China, transportation, urbanization

UNDERSTANDING THE TRANSPORTATION IMPACTS OF AFFORDABLE HOUSING: RESULTS FROM AN ORIGINAL DATA COLLECTION IN CALIFORNIA

Abstract ID: 919

Individual Paper Submission

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The California Environmental Quality Act (CEQA) and other state, federal, and local laws require the identification, analysis, and mitigation of transportation-related impacts of proposed land use projects. The first step in preparing a transportation impact analysis is to estimate the number of vehicle trips that may result from a proposed land use project—a process commonly referred to as “trip generation.” Currently, practitioners typically use trip generation rates published by the Institute of Transportation Engineers (ITE), a national professional organization.

Assessment of the transportation and environmental impacts of new infill development and redevelopment is challenged by the insensitivity of ITE’s trip generation rates to the built environment, socio-economic conditions, and non-automobile modes. ITE’s trip-generation rates are based largely on data obtained at suburban locations that lack good transit, bicycle and pedestrian facilities. Not surprisingly, studies indicate that these rates often significantly over-estimate the number of vehicle trips in urban areas, e.g., (Cervero & Arrington, 2008; Shafizadeh, Lee, Niemeier, Parker, & Handy, 2012).

The lack of multimodal trip generation data and other contextual information has hampered the development of new approaches (Clifton, Currans, & Muhs, 2013), although several recent studies have addressed some of these deficiencies by devising new protocols for comprehensive data collection and developing models to estimate multimodal trip generation, e.g., (Clifton, Currans, & Muhs, 2015; Schneider, Shafizadeh, & Handy, 2015).

Despite these advances, little information is currently available to understand the transportation impacts of some land uses, including affordable multifamily housing where residents are likely to have lower than average rates of car ownership and use. Further, methodologies and data to estimate vehicle miles traveled of these developments—as required by recent legislation in California—are lacking. Because affordable and market-rate multifamily housing is a key policy lever in many future land use plans in California communities and elsewhere, accurate assessment of the transportation impacts of these developments are needed.

This paper summarizes the findings from an original multimodal data collection performed at 25 subsidized affordable housing developments in California during the summer of 2017. The on-site data collection process included cordon counts of person trips, intercept surveys of persons leaving the site and collection of other site-specific information, building upon those innovative methodologies developed and employed in other trip generation studies in California and elsewhere (Clifton et al., 2015; Schneider et al., 2015).

Initial findings indicate observations of vehicle trip counts at affordable housing residential developments tend to be less than nationally derived rates approximating market-rate multifamily impacts for the PM peak period. This paper explores these findings—which are directly applicable for practitioners across the US—as well as findings from more nuanced multimodal travel behavior analysis, such as considering variations in observed behavior across urban contexts at a site-level analysis and examining variations in multimodal behavior observed. Implications for the development review process for affordable housing developments—in terms of both transportation impact analyses and impact fee rate schedules—will be discussed.

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Key Words: Affordable housing, transportation impact analysis, low-income, land use, travel behavior

DO TRANSIT ORIENTED DEVELOPMENTS (TODS) CREATE MORE INVITING SOUNDSCAPES?

Abstract ID: 924

Individual Paper Submission

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Over the last decades, Transit Oriented Developments (TODs) have stimulated heated debates on various aspects of planning including land use, transportation, property values and so on (Curtis et al., 2009; Diao et al., 2016). TODs combine living in higher density settings with opportunities for mixed-use and pedestrian pockets and easy access to transit stations (Curtis et al., 2009). TODs have several key attributes. Proximity to transit encourages people to use transit and not to drive, and to increase walking and biking, all of which lower traffic congestion (Calthorpe 1993). TODs also promise vibrant economies and active life that promote social interactions and environmental sustainability (Curtis et al., 2009). However, TODs are also associated with disamenities including traffic congestion and noise (Diao et al., 2016). Much research has explored noise as one of the TODs key negative externalities with adverse effects on public health, social life, and property values (Diao et al., 2016). However, sound has not been investigated as a serious amenity in TODs. Therefore, this paper explores the implications of soundscapes on TODs in the Dallas-Fort Worth metropolitan area. We probe that TODs offer versatile soundscapes that could improve quality-of-life.

This research relies on two types of data. The quantitative data include both sound pressure level (SPL) and sound sources (SS) measured through the grid sampling method (Kang, 2004; Morillas et al., 2011). The qualitative data, include interviews assessing people's sound preferences and sources. The proposed method has several advantages over other methods including several receptors of soundscapes such as designers, users, experts and policy makers, seeking to address the evolution of sounds in TODs as a neutral conciliator. The study areas include nine TODs with a quarter-mile buffer zone. These stations were identified by suitability analysis of twenty stations in three phases using HUD Opportunity Index, Neighborhood Index, and qualitative assessment of the key station areas index.

Considering the dialogue of findings from the sound measurements and interview questions around the essential characteristics of TODs, we interpreted five of their design and planning dimensions based on the literature review: density, proximity to transit, variety, connections, and neighborhood amenities (Calthorpe 1993).

The study findings provide a richer understanding of the relationship between diverse soundscapes and residents' quality-of-life in TODs. Since the role of soundscapes in the urban environment is still somewhat downplayed in planning, we expect to define a new role for initiating the evolution of "sound" concept in TODs.

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Key Words: sound, noise, TODs, mixed-method, grid method

TRACKING IMPACTS OF LIGHT RAIL INVESTMENT THROUGH A VOLATILE HOUSING MARKET: COMBINING QUALITATIVE AND QUANTITATIVE METHODS TO UNDERSTAND DYNAMIC INFLUENCES OF DEMOGRAPHIC CHANGE AND INVESTMENT INCENTIVES

Abstract ID: 927

Individual Paper Submission

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Our paper synthesizes research by the Urban Growth and Change group tracking the influence of a soon-to-be-launched light rail transit line (LRT) on residential land use in Waterloo Region, Canada. The Region is situated in the province of Ontario, which has implemented ambitious targets to concentrate new construction within previously built-up areas. The LRT was conceived by the Region of Waterloo not only to more efficiently move people between municipal centres, but also to drive land-use intensification.

While the literature supports associations between high-quality transit investments, increased land development, and property value uplift (Al-Mosaind, Dueker, & Strathman, 1993; Higgins & Kanaroglou, 2016; Mohammad, Graham, Melo, & Anderson, 2013), land-use intensification can also be a self-reinforcing process, driven by critical mass/density of urban residents, employment opportunities, and retail development. Thus, it is challenging to identify the independent causal contribution of a new light rail line. Our research initially sought, using a mixed-methods approach, to better understand the various drivers of intensification in the Region, and hopefully identify important causal relationships. In the midst of our project, the Region also experienced an unprecedented “hot” residential real estate market, with a 20.7% average sales price increase from 2016 to 2017. We thus expanded the scope of our research to address the following questions:

1. To what extent has the pending LRT led to increased investment in the Central Transit Corridor?
2. What causal relationships exist among a major investment in transit infrastructure, a growing and internationally prominent employment sector, investment decisions of developers, and residential land markets?
3. What dynamic processes underlie the creation and decline of the “hot” housing market seen in Waterloo Region in 2016-2017? What is the role of extra-regional influences in the evolution of this market?

Our research employs mixed methods, including a qualitative developer survey (Tran, 2016), qualitative semi-structured Realtor focus groups and interviews (Justin Cook thesis, in progress), a spatial econometric pre-LRT hedonic model based on both assessment and transaction values (Babin, 2016), descriptive statistics and a second

spatial hedonic model of rents from a quantitative renter's survey (Pi, 2017), and a quantitative buyer-seller survey, which will result in a second hedonic model and examination of the relationships between revealed preferences, demographics, and stated preference of buyers (Yu Huang thesis, in progress).

Our mixed-methods approach has been essential for our synthetic research. Our quantitative work has demonstrated, for example, pre-LRT sales and rental premia for intensified housing in the central transit corridor, as well as identifying missing markets for larger rental units with some access to private or public open space. Our qualitative work has contributed to survey design and interpretation, cross-validation of quantitative findings, and evidence of motives and perceptions of causality of key expert informants. For example, qualitative developer interviews revealed that while many developers were targeting intensified markets in the CTC, none had larger households as a target market—shedding light on the missing markets identified by the rental survey. Realtors also identified the role of in-migrants to the Region, driven by a perception of the growing stature of the Region as a tech hub and often seeking an “urban lifestyle,” as key drivers of investment in the CTC. In essence, the LRT is as much a signal of status and pending urban development as a transportation option for many investors.

We contribute to planning scholarship by identifying finer-scale dynamics of urban intensification following a major transit investment. We contribute to planning practice by demonstrating a successful research partnership between regional and municipal governments and key industry partners, which has involved co-design, development, and dissemination of research.

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Key Words: Urban intensification, land markets, light-rail transit, property value uplift, mixed methods

MEASURING URBAN FORM AS A LATENT CONSTRUCT IN TRAVEL BEHAVIOR RESEARCH: A CASE STUDY OF TRANSIT USE AND NON-MOTORIZED TRAVEL IN SOUTHERN CALIFORNIA

Abstract ID: 928

Individual Paper Submission

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This paper explores urban form modeling approaches in travel behavior research, with a focus on transit use and non-motorized travel (NMT, including biking and walking) for households in a car-dependent society. While the influence of urban form on travel behavior has been the focus of much transportation planning scholarship, discussions about urban form modelling approaches, including conceptualization, specification, goodness-of-fit, and policy-interpretability are surprisingly sparse. Using fine-grained geospatial data from a Southern California sample of the 2009 National Household Travel Survey (NHTS), this research (1) assesses several methods for measuring urban form features in the near-residence and near-workplace neighborhoods and (2) examines the importance of these urban form features on transit use and NMT after accounting for the influence of these features on household vehicle ownership and residential selection. Findings suggest that estimates of the effect of

urban form on travel behavior vary by how it is conceptualized and specified in the model. Confirmatory Factor Analysis (CFA) results offer evidence that urban form can be viably represented as a single latent factor; it influences travel because the configuration of urban form variables (density, diversity, connectivity) affects the time cost of travel across modes. Residential selection analysis suggests that lower income, younger, and smaller households are more likely to choose a dense, pedestrian friendly, and transit rich neighborhood. These households are less likely to own vehicles. After accounting for the influence of urban form on vehicle ownership and residential selection, workplace transit accessibility has greater influence on transit commuting than transit access to the household's residence. This suggests that modelling approaches to urban form need to be explored in greater depths.

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Key Words: travel behavior, urban form, latent variable modelling, self-selection

THE RELATIONS OF TRAVEL MODE, BUILT ENVIRONMENT, AND ATTITUDES TO TRAVEL SATISFACTION

Abstract ID: 929

Individual Paper Submission

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Recently, research on travel behavior has shifted its focus from well-known and widely researched travel attributes, such as travel time, cost and level of service, to more complex relations of built environment and travel-related attitudes (De Vos et al., 2016). Previous studies show that the impacts of built environment on walking trips highly depend on individuals' walking related attitudes (for instance: Joh, Nguyen & Boarnet, 2012). People's perceptions may mediate the effects of environmental characteristics on the resulting travel behavior (Gao et al., 2017). These all relate to how one's mode choice as well as environmental correlates lead to level of satisfaction with travel mode. Although there have been a number of studies analyzing travel satisfaction (for instance: St-Louis et al., 2014), a comprehensive analysis on the relationships between environmental and attitudinal factors and their effects on travel satisfaction has been lacking. In this paper, we explore the effects of travel mode, built environment, and travel related attitudes on travel satisfaction.

This paper relies on the Campus Travel Pattern Survey data of The Ohio State University (OSU). Data were collected from November through December 2017. We designed an online survey and sent email invitations to randomly selected OSU students, faculty and staff members. We received data from 3,781 individuals. Of these respondents, about 1,500 provided complete data and were included in our analysis sample. Main questions of the survey included commute distance and time (as reported by the survey respondents), travel mode, attitudes towards various transportation options and overall satisfaction with their current commuting mode. We also asked the survey respondents to report the names of two streets that intersect close to their residential locations. This

information enables us to integrate residential location characteristics, such as population density, median street intersection density, access to transit, and bicycle facilities in our analysis.

This study uses an ordered logit model to relate our variables of interest to level of travel satisfaction. Respondents rated their level of travel satisfaction on a 5-point Likert scale (1=very dissatisfied; 5=very satisfied). We consider three groups of independent variables: sociodemographic characteristics, personal attitudes, and neighborhood characteristics. The attitude variables include preference toward travel modes and important factors considered while making mode choices. The neighborhood characteristics cover variables such as population and street intersection densities, access to transit, availability of bicycle infrastructure, and are measured based on various buffers around individuals' residence (0.25 mile, 0.5 mile, and 1 mile). We test the sensitivity of our models to these different buffers. We estimate three models in an incremental manner to examine the impacts of each independent variable group on travel satisfaction; Model 1 includes sociodemographic variables only; Model 2 adds attitudinal variables; and Model 3 includes all (socio-demographics, attitudes, and neighborhood characteristics). This approach allows us to see the marginal contributions of each variable group on travel satisfaction (Cervero, 2002).

Results show that bicycle commuters are likely to have higher levels of satisfaction while multi-modal commuters, those who use more than one mode in one trip, tend to have lower levels of satisfaction. We find that older individuals walking or riding their bicycles are more likely to experience higher levels of satisfaction. Our models reveal that factors affecting individuals' mode choices, such as flexibility in arrival times, the ability to make stops, commute distances and cost of parking, are significantly associated with travel satisfaction. The full model with neighborhood characteristics shows that longer commuting distances and auto-oriented neighborhoods are negatively associated with travel satisfaction. Our results provide a better understanding of complex determinants influencing level of travel satisfaction, and would contribute to the development of policies for better travel experience.

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Key Words: Travel satisfaction, Attitudes, Commuting, Mode of transportation, Neighborhood characteristics

ARE PEOPLE READY FOR FULLY AUTONOMOUS VEHICLES?

Abstract ID: 931

Individual Paper Submission

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Academic researchers, corporations, and futurists have all made predictions about the impact of Fully Autonomous Vehicles (FAVs) on activity, travel, and the future of urban areas. Notable predictions include reducing the demand for parking, increasing vehicle- miles traveled (VMT), and fostering ridesharing. Nevertheless, people's attitudes toward FAVs are likely shaped by complex socio-psychological processes, and are likely to vary across population groups, categorized by attitudes, current behaviors, socio-economic, and geographic factors (e.g. urban/suburban/rural). The objective of this research is to examine how these factors affect the willingness to purchase or use a FAV.

Previous survey-based research on autonomous vehicles has examined people's preferences for driver-assistance technologies, partial or semi-autonomous vehicles, and fully autonomous vehicles. Our work builds on prior research to focus on attitudinal factors, such as the willingness of drivers to surrender control, attitudes towards speed, and the willingness to wait for a shared vehicle. We also examine these issues within the framework of the Technology Acceptance Model (TAM) to estimate how current travel behavior and attitudes will likely map to FAV and SAV use.

We conduct an attitudinal study to investigate people's perceptions, expectations, concerns, and acceptance of FAVs and SAVs through an online survey (either using Facebook or an online panel). Questions in the survey instrument are divided into six categories: (1) current attitudes towards FAVs and SAVs, (2) current modes for work and non-work trips, (3) car ownership, transit use, and ridesharing behavior, (4) active travel (walking and cycling) behavior, (5) technology acceptance and use, and (6) socio-economic and geographic characteristics.

Our analysis will examine the associations between people's attitudes and their current travel behavior indicators, including commuting patterns, recreation and grocery trips, car ownership, driving history and habits, walking and cycling frequency, use of public transit, use of ridesharing services offered by Transportation Network Companies (TNC) such as Uber and Lyft, and use of car-sharing such as Zipcar. Second, we build a Technology Acceptance Model (TAM) to illustrate how current socio-psychological factors may influence FAV and SAV acceptance. We analyze the indicators of Perceived Usefulness (PU) and Perceived Ease-Of-Use (PEOU) and associate them with people's usage patterns of other emerging technologies and applications, such as smartphone apps, online shopping, social network platforms, and Airbnb, etc. The indicators are then assessed controlling for participants' demographic information.

The analysis will allow us to understand what attitudinal factors are associated with the likelihood of adopting and FAV or using an SAV. For example, FAVs and SAVs are considered a good way to enhance mobility for older people who are unable to drive due to their health. However, this group may have a low acceptance level if planning, policies, and infrastructure do not enhance the ease of using driverless technologies. The findings of this study not only illustrate likely patterns of autonomous driving, but also inform policymakers, urban planners, and future FAV and SAV providers as they seek to make these technologies useful for a diverse population.

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Key Words: autonomous vehicles, attitudes, technology acceptance

DO CRIME INCIDENTS AFFECT RIDERSHIP?

Abstract ID: 942

Individual Paper Submission

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Numerous studies have focused on the effects of socio-demographic characteristics of the travelers, transit service factors, and the built environments (BE) on transit (Currie and Delbosc, 2012). Despite the interconnection between crimes and built environment as well as safety concern of public transit have long been recognized (Loukita-Sideris, Liggett, & Iseki, 2002; Irvin-Erickson and La Vigne, 2015), there are limited studies on the effect of crime on transit decision or ridership (Zhang, 2016).

The connection between crime and public transit has been rooted in spatial criminology. Park and Burgess, pioneers of natural areas and concentric zones, inspired scholars with the Chicago School of thought to perform field research on the effects of urban environments on crime and disorder. Following the Chicago School, Environmental Criminology theories emphasize that criminal behavior could be understood by people reaction to the physical environment. Due to the constantly interchanging users and fast pace of motion, transit stations have been considered as one of the public spaces with potential criminal incidents, namely crime generators and crime attractors. Studies also found that sociodemographic characteristics of the neighborhood surrounding a transit station such as density, income levels, age and race, education, and unemployment level of residents and the spatial characteristics of a place have a likely correlation with transit crime (Loukita et.al, 2002; Irvin-Erickson and La Vigne, 2015).

Results of recent studies further indicate that public perception towards crime and concerns over safety may be important reasons why many choose not to use transit (Delbosc and Currie, 2012; Li, 2018). Using survey data of the greater Melbourne area in Australia and the structure equation model, Delbosc and Currie (2012) found that perception of safety has small but statistically significant impact on frequency of transit usage after controlling for sociodemographic factors, and that the fear of using public transit mainly comes from people's unsafe feeling about their living communities, instead of on transit itself. Results from a focus group study of residents in several neighborhoods around the DART rail stations also suggested the impact of safety concern over transit usage (Li, 2018). Zhang (2016), In the most recent study on the relationship among BE, crime, and bus ridership found that higher population density and more mixed land use may significantly stimulate more crimes near the bus stops while the level of crime may have a nonlinear effect on ridership. When crimes rates exceed a threshold level, ridership is negatively affected. While all the aforementioned studies suggest a correlation between crime and transit, the nature of the crime effect on transit requires further investigation with more data from different areas.

This study investigates the spatial relationship among built environment, socio-economic, transit services, crimes, and transit share of commute trips. The scope of the study is limited to the City of Dallas, due to the ongoing growth of the Dallas/Fort Worth metroplex and increasing transit demand in the area. The crime data are collected from open data source (Public Safety Bulk Data). Other data are collected from the TOD database website and U.S. Census Bureau. A structure equation model is used to study the direct and indirect effects of crime on transit share of commute trips, after controlling for other factors. Preliminary results indicate that while income and the level of education have direct effect on ridership and crime, the relationship among the factors on transit share is complex.

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Key Words: Ridership, Crime, Transit service, Built Environment, Socio-economic

TRANSPORT NETWORK FEATURES AND PERCEIVED RISKS OF AUTONOMOUS VEHICLES

Abstract ID: 951

Individual Paper Submission

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Autonomous Vehicle technology (AV) is quickly becoming a reality on US roads. AVs have a wide range of benefits, regarding their safety, efficiency, environmental impacts, and increased mobility (e.g., Litman, 2017). Despite all these appealing features, there is much uncertainty about AV adoption. Researchers discuss concerns about the interactions of AVs with other human-driven vehicles, bicyclists, and pedestrians, and risks associated with these interactions (e.g., Hulse et al., 2018). Planners and policymakers have started considering investments in transport networks and road infrastructure as ways to mitigate the perceived risks associated with AVs (e.g., Fagnant & Kockelman, 2015). Little is known about how transport network features affect public concerns on the interactions between AVs and other road users (e.g., Blau et al., 2018).

This study contributes to the literature by empirically identifying and evaluating the determinants of people's concerns on AVs' capabilities to react to other human-driven vehicles, bicyclists, and pedestrians. The data used in this study mainly come from two sources. We use individual-level data on AV related safety concerns, sociodemographic characteristics, residential locations, and travel patterns from the 2015 Puget Sound Regional Travel Study (PSRTS). Then, we extract transport system features, such as number of traffic signals, stop signs, and street intersections from OpenStreetMap (OSM) data and link those with each person in the travel survey data using a 1-mile buffer (e.g., Duncan et al., 2011).

We estimate a series of ordinal response models to demonstrate the extent to which certain transport network features affect individuals' safety perceptions on AVs, controlling for sociodemographic characteristics, residential choice and travel patterns. Our results reveal that young adults who are between the ages of 18 and 34, females, and non-workers are less likely to have safety concerns about AVs. We find that increasing number of street intersections, street lamps, gas stations, and tram stops are positively associated with individuals' safety perceptions related to AVs. The length of pedestrian-oriented links and the number of bus stops are negatively associated with safety perceptions. Our results also suggest that installing new bicycle facilities (e.g., cycle tracks, separate bike lanes, and mixed-use paths) may not significantly affect individuals' concerns regarding the interaction of AVs with other road users.

We conclude with recommendations for infrastructure decisions, and suggestions for future research. The results of this study provide important implications for effective policy interventions and infrastructure provisions that may affect the market penetration rates of AVs. We determine that OSM is a useful and promising tool for researchers and planners, which provides a global crowdsourced street map. Our methodology can be applied elsewhere to test the effects of street network features on transport outcomes.

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Key Words: Transport network , Autonomous vehicles, Perceived risks , OpenStreetMap (OSM)

BUILT ENVIRONMENT AND ACTIVE COMMUTING OF UNIVERSITY STUDENTS: A META-ANALYSIS

Abstract ID: 954

Individual Paper Submission

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Over 30 million students are currently registered in universities in the United States with rapid growth associated with an increase in population and the growing desire for education. Researchers estimate that 40% - 50% of all college students are physically inactive globally (Sisson & Tudor-Locke, 2008). It may be due to the transition from high school to university, which is often accompanied by unhealthy behavior changes including increased sedentary behaviors and obligations as well as increased autonomy. Physical activities, including active commuting (walking and bicycling), have shown on enhancing performance at work, increasing academic performance, reducing depression, and increasing levels of energy (Shannon et al., 2005). Nonetheless, students tend to be more progressive and open to adopt healthy-environmentally aware actions, such as alternative modes of travel. Active living behaviors developed by students during their university years also have a long-term impact on their physical activity habits as adults (Schlossberg et al., 2006). Therefore, efforts have been made to encourage university students to engage in physical activities including active commuting (Cole et al., 2008).

Universities are a major destination with unique characteristics: distinct communities with a mix of population, major traffic generators, and experiencing turnover much faster than the general population. Although students' travel patterns remain underexamined in practice such as National Household Travel Survey, there is a growing body of literature examining travel patterns of college campuses. Various factors at individual, environmental, and policy levels have been identified as motivators and barriers to the active commuting among the college students. Regarding to the built environment, studies have examined how active travel is linked to certain features such as distance from home to university, housing type (on- or off-campus), network connectivity, land-use, infrastructure condition, aesthetics, etc.

In this research, a meta-analysis of the effect of the built environment on college student travel is conducted by examining peer reviewed articles published between January 1990 and December 2017. We searched through the relevant academic databases including PubMed, TRID, Web of Science, Science Direct, and Google Scholar. Thirty-one articles were identified and included in the final sample. Meta-analysis was used to aggregate the result from existing individual studies in the literature and make a more generalizable conclusion (Ewing & Cervero, 2010). For each individual study, elasticities of travel outcomes with respect to the built environment variables are obtained either from the study or computed based on the statistical method that was used. Then, all elasticities were pooled together to produce weighted averages. We expect to find associations between some built environment variables (e.g. proximity, housing type, site location) and active commuting of college students. Since active transportation has the potential to address sustainability goals and combat decline in student physical activity, it is critical to understand influential factors on active transportation behavior for campus planning in practice.

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Key Words: Active commuting, Built environment, University students

UNDERSTANDING THE ROLE OF OSNS AND CROWDSOURCED DATA FOR TRAFFIC AND INCIDENT MANAGEMENT

Abstract ID: 955

Individual Paper Submission

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Introduction: Recent advances in mobile and ubiquitous computing have led to a massive increase in the amount of data generated through the use of online social networks (OSNs) and personal portable devices. These “crowdsourced” data can potentially find applications in many different domains (1–3); in particular, Departments of Transportation (DOTs) can employ crowdsourced data for traffic and incident management (TIM) within their traffic management centers (TMCs). The appeal of crowdsourcing is clear, state DOTs cannot deploy cameras and sensors across all nodes and links in their jurisdictions. Additionally, they have limited personnel resources and hence cannot constantly monitor all links where sensors and cameras are deployed. Crowdsourced data can overcome those constraints by engaging network users as both sensors and analysts. Although DOTs and their TMCs are increasingly aware of crowdsourcing techniques and are supplementing the data collected through their Intelligent Transportation Systems (ITS) architecture. However, there are inherent advantages and disadvantages associated with the use of crowdsourced TIM faced by TMCs in practice. Therefore, it is essential to analyze current DOT practices related to crowdsourced data, as well as the architecture and challenges associated with these systems.

Aim: The aim of this study is to analyze and better understand the application of crowdsourced data for traffic and incident management (TIM) along with potential challenges for its implementation in practice.

Methodology: The study employed semi-structured interviews to collect information from traffic management personnel from 11 DOTs/TMCs. Interview questions were designed to understand systems of TIM and to identify possible challenges anticipated by TMC personnel in practice. The majority of the interview questions were open-ended, allowing the flexibility to discuss unanticipated topics or probe more deeply during the interview. The analysis of the data provided insights into incident identification, confirmation of reported incidents, recovery and response operations as well as future opportunities and challenges.

Study Results: Interview responses indicate that most of the DOTs/TMCs have a well-built Intelligent Transportation System (ITS) architecture to improve highway travel within the state. The majority of the TMCs interviewed are using OSNs to obtain crowdsourced information. Interview results indicate that filtering high volumes of information and the integration of multiple sources of data are two of the primary concerns for crowdsourced traffic management in practice. The cost of these systems, multiple data sources to reconcile, and limited number of employees and resources pose additional challenges for the TMCs. Interview respondents also raised concerns about the reliability of crowdsourced data. Waze’s connected citizen program has been beneficial for many state DOTs/TMCs, particularly in mining information from areas with poor coverage. Study

Recommendations: There is need for an integrated solution, quality assurance procedures and automation of the TMC workflow for a quicker response to traffic incidents. Computer vision technology, data management and

social media analytics would be particularly beneficial to decrease TMC operator burden. A system with multiple sources of information integrated into one would be particularly beneficial. We are on the cusp of a revolution with respect to big data and crowdsourcing. This is the ideal time for state DOTs to invest in crowdsourcing technologies to reap the benefits in the future.

Study significance: This analysis can be helpful for both theory and practice; in practice, the TMCs in the process of transition towards crowdsourced TIM can make more informed decision, at the same time these challenges can motivate new research. Through this process, the state of the practice and the state of the art are likely to be better aligned.

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Key Words: Crowdsourcing, Incident management, Traffic management

IS IT WORTH THE RIDE? COST COMPARISONS BETWEEN UBER AND PUBLIC TRANSIT

Abstract ID: 957

Individual Paper Submission

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A well-functioning and successful public transit system holds the capacity to contribute towards sustainable development by providing a transportation option that is environmentally friendly, socially inclusive and economically feasible (MTI 2015, APTA 2007). The American Public Transportation Association Factbook 2016 (APTA 2017) reports that transit ridership has reached its highest levels since 1957, and in the last decade alone increased by 20%. However, in spite of obvious benefits and recent increase in ridership, public transit still has a low mode share.

The advent of shared mobility services, including ride hailing UBER and Lyft can impact this further. Ride share services can mimic public transit to quite an extent, even surpass transit service by providing door to door, timely, and private travel experience for a slightly higher cost, complementing or threatening various public transit patronage. The current debate on ride hailing modes' impact on public transit does not provide any concrete evidence on whether the former provides service that is complimentary or supplementary to the later (Clewell and Mishra 2017). This study examines whether Uber, the largest ride hail service, is a threat to current public transit ridership in the city of Boston, Massachusetts.

To assess the above, cost comparisons, both in terms of time and money, are conducted for Uber, bus and subway train service using data from the Massachusetts Bay Transportation Authority, U.S. Census Bureau, LEHD Origin-Destination Employment Statistics (LODES), Uber Movement and Uber estimate data. A GIS based spatial analysis is conducted to calculate and compare the access individuals may have to employment, healthcare and retail food in 15 and 30-minute time intervals (time cost) by each mode. This assessment is conducted at a census tract level and is centered on neighborhoods with high propensities of transit dependent population determined based on varying degrees of racial mix, age distribution and income. In particular, travel times and costs between specific origin and destinations (employment, health care and retail food) using Uber and Public transit modes are calculated and compared for average weekday travel in January and September 2016.

While the study is exploratory, the findings will provide a better understanding of the issue and add to the limited body of literature that evaluates shared mobility modes and their impacts on already established transportation modes. The details of the findings themselves can inform transit agencies of any possible remedial measures they might need to take to address the competition.

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Key Words: Public transit, Ride hailing, Ride sharing, Accessibility, Sustainability

PARKING FINES: REVENUE, DETERRENCE AND EQUITY

Abstract ID: 967

Individual Paper Submission

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Many people commit parking infractions, and most are not caught. Those who are caught, however, are often punished with steep fines, which can rapidly compound if they are not paid quickly. Nominally, these fines are designed to deter parking infractions, but much evidence suggests that cities actually use them to raise revenue. This approach to fines is troubling. It is unlikely to raise revenue, it has the potential of imposing large and regressive burdens on low-income drivers, and absent strong enforcement it is unlikely to deter parking violation.

This paper proceeds in four steps. I first show that parking fines are determined more by revenue needs than by efforts to deter violation, and report that most large cities actually collect more revenue from parking fines than from parking user charges or taxes. I then estimate a capture rate for parking violations, to show that most infractions go unpunished. Third, I examine the distribution and distributional consequences of parking fines—when are fines administered, and for what infractions. Fourth, I discuss possibilities for reform. I rely primarily on data from Los Angeles, but use other data when I can.

Parking violations are a regular but largely invisible part of the transportation landscape; most people don’t think about them until they are caught in one, and transportation scholars have written little about them. But parking violations are important. In their own right, they have powerful implications for both efficiency and equity in transportation policy. They are also a window into broader problems of transportation finance, which emphasizes raising revenue from transportation rather than improving the transportation system’s performance. In this way, municipal parking policy of a broader problem in public finance, which is governments’ increasing use of civil and criminal penalties to raise money). Transportation policy is deeply implicated in this problem, because many municipal fines are related to the ownership, operation or storage of vehicles. Transportation planners, however, have yet to grapple with their role in this system of finance and punishment.

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Key Words: parking, fines, equity, public finance, transportation

THE ROLE OF STATE PRACTICES IN ACHIEVING SUSTAINABLE TRANSPORTATION

Abstract ID: 968

Individual Paper Submission

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Central Theme: With the growing concern for the transportation impacts on the community and the environment, comprehensive policy schemes aiming at sustainable development have received considerable critical attention. In the United States, the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) addressed the negative impacts of increased motor vehicle travel. Its passage and other relevant policy acts have led to a renewed interest in the relationships between land use development and transportation planning (Weiner, 1999). The concept of neotraditional planning has been introduced to promote the development of fully integrated active transportation networks. Well-connected network together with higher-density and mixed-use development are designed to “foster safer, more livable, family-friendly communities; promote physical activity and health; and reduce vehicle emissions and fuel use” (FHWA, 2010). Besides addressing the concern for sustainability, the Intermodal Surface Transportation Efficiency Act (ISTEA) has significant influence on statewide planning. According to ISTEA regulations, states are required to switch from developing one plan to designing and maintaining their own transportation planning processes. As a comprehensive and broader system vision become particularly essential for state agencies, most states tie their transportation planning processes to other programs and plans, such as strategic plans, management systems, environmental plans, growth management, and other similar plans (Pederson, 1999). Meanwhile, this process is widely integrated with planning at local, metropolitan and regional levels. The intra-authority interaction and the structure of state government, to a great extent, determine delivery of policies and the achievement of planning goals and objectives.

Approach and methodology: Following these trends, this study explores the integration and implementation of state policies at both local and regional levels and their impacts on safety, community and environmental goals in addition to mobility objectives. By using case studies, this research first profiles the available state instruments in three states - Florida, North Carolina and Washington State – to understand how the state frames local practice based upon state websites and practice documents. To develop a better understanding about the state-of-practice and the joint working practices, interviews will be conducted with planners in state DOTs and municipal agencies.

Findings/Relevance to Practice: These case studies highlight the norms of state interventions and possible impacts on local delivery of sustainable transport solutions and they can be used to develop a framework for understanding state practices in sustainable transportation planning.

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Key Words: sustainable transportation, multimodal planning, transportation and land use, state planning

ON-DEMAND RIDEHAILING AND SUSTAINABLE TRANSPORTATION; PERSPECTIVES FROM TRANSPORTATION PROFESSIONALS

Abstract ID: 1000

Individual Paper Submission

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The evolving landscape of on-demand ridehailing services may provide opportunities for improved mobility, and reductions in congestion, VMT, and emissions; or may exacerbate these transportation challenges. The extent to which on-demand ridehailing services have positive environmental outcomes depends on how these services are integrated into existing systems. This in turn depends to a large extent on sustainable transportation planning and policy, as well as the perceptions and expectations of local jurisdictions and transportation planners. Understanding the perspectives of transportation professionals from a variety of sectors is an essential step in the process of policy development, and ensuring these new services do not exacerbate existing transportation challenges.

This study compiles perspectives from transportation professionals across sectors to investigate the following questions: 1. How well do stakeholders in different sectors and regions, agree about the potential impacts of on-demand ridehailing services? 2. What actions, if any, are being taken in local and regional transportation planning to address these potential impacts? 3. What are the largest hurdles to ensure on-demand ridehailing services have positive environmental and equity impacts? To answer these questions, a series of interviews were completed with transportation professionals from California MPOs and RTPAs, the ridehailing industry, state agencies, NGOs and public interest groups, and local jurisdictions.

The outcomes of this study build on past work that has found mixed impacts on travel behavior related to on-demand ridehailing services. Existing literature suggests that those who use ride-sourcing services may have lower VMT (Rayle et al. 2014) and less dependency on automobile travel. Others have found that those who use on-demand ridehailing services also tend to use transit (American Public Transportation Association 2016). However, in one recent study, 42% of the ridehailing customers surveyed reported they would have used mass transit had ridehailing not been available, and an additional 12% would have walked or biked (Metropolitan Area Planning Council 2018). Another recent study found a similar effect, with 3–5% of the participants reporting that they decreased transit use after starting ridehailing (Clewlow and Mishra 2017). Due to these mixed impacts, policy intervention is likely necessary in order to achieve the best sustainable transportation outcomes with on-demand ridehailing. Indeed, the authors of TRB Special Report 319 call on policy makers to “formulate public policies and regulations designed to steer the development of innovative services to improve mobility, safety, and sustainability.” (Taylor 2016 p. 102). This study aims to understand how transportation professionals are considering these mixed impacts in sustainable transportation planning and policy.

Approximately 40 interviews were completed. Interviewees were split into three main groups in terms of how much they are thinking about these issues. Some participants reported they are not really thinking about this topic

at all, while others are actively engaged, but taking a wait and see approach. Still others are trying out new programs, and involved in discussions on this topic with a broad range of groups. A number of important factors were identified as challenges, including local culture or attitudes about transportation and mode choices, funding, and the importance of transit operators in some of the potential policy approaches. A few interviewees stressed the importance of state or federal guidance on these challenges. This study highlights the variety of perspectives among transportation professionals from different sectors. As policy and planning related to on-demand ridehailing services begins to take shape, policy makers should account for these different perspectives, and address the needs of stakeholders of different types to the greatest extent possible.

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Key Words: on-demand transportation, TNCs, shared use mobility, transportation planning, sustainable transportation

COMMUTING IN URBAN KENYA

Abstract ID: 1002

Individual Paper Submission

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News reports as well as some studies suggest that commuting in Kenya's capital city of Nairobi is a nightmare. Streets are gridlocked with a mix of cars, trucks, and matatus – the vans that serve as the city's primary means of public transport. Reports claim that commutes are regularly more than 2 hours each way (e.g. Gyimesi, Vincent, & Lamba, 2011), and the combined economic cost of this wasted time to the city is enormous.

There are also reports of the large percentage of commuters who are not stuck in traffic because the only means of transport that they can afford is their own feet. These commuters are walking, often on footpaths alongside the gridlocked traffic, and therefore often also subject to high levels of air pollutants (Vliet & Kinney, 2007) as well as the inherent danger of being pedestrians in a tense traffic environment. Kenya has one of the highest pedestrian fatality rates in the world (WHO, 2012).

These common perceptions are based on surprisingly limited data. It is clear that roads are congested at peak hours, but it is not known what percent of commuters are actually experiencing that congestion or what their commute times actually are. Further, multiple studies discussing these issues all refer back to the same small number of studies (e.g. Salon & Aligula, 2012) to support their arguments.

This paper contributes new evidence on this topic from a survey of 15,000 households in urban Kenya, conducted in 15 Kenyan cities by the World Bank in 2014. Specifically, we use multivariate statistical models to investigate access to motorized transport, the modes actually used for commuting, and commute time burdens.

Overall, we find that commutes in urban Kenya are not as long and arduous as prior reports made them seem. Most commuters in urban Kenya have basic access to motorized public transport, but higher income households as well as those residing farther than 2 km from the city center are more likely to use it. Commuters in the smaller Kenyan cities have relatively short commutes; the median commute time is 20 minutes. In Nairobi, the median commute time is 30 minutes, and only 5% of those surveyed reported commuting an hour or longer.

Further, in every city surveyed, motorized commute times were substantially longer than walk commutes; a relatively small minority of commuters walk more than 20 minutes each way. These long walk commutes are more prevalent in smaller Kenyan cities, and poverty, informality, education, and matatu access are the main determining factors.

We do find, however, that the survey respondents who experience the longest commutes are also the most highly educated commuters. This suggests one explanation for why news reports and some prior literature seem to exaggerate commute times – those writing the stories and those with political power have the longest commute times.

Reflecting on what these new data mean for planning practice in Kenya, we note that there are two ways to solve transportation problems. One is to move more quickly and safely through the city. The other is to reduce the need for urban travel. Given the undisputed severity of Nairobi's traffic congestion, the 2014 survey evidence suggests that most Nairobi residents are solving their transportation problems by limiting their commutes to short distances, off-peak hours, or both. An important next step to unpack what is going is to gain a better understanding of how much households are limiting their choice of where to live in order to avoid an arduous commute, and what that means for housing affordability and quality.

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Key Words: transport planning, commute time, commute mode, transit access, Nairobi

ASSESSING RENTERS' WILLINGNESS TO PAY FOR NEIGHBORHOOD WALKABILITY

Abstract ID: 1022

Individual Paper Submission

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During the past decade, homeownership has been declining in many American cities, and rental cost has been on the rise. Such a phenomenon, coupled with the declining car ownership, poses a challenge to urban planners and policy makers to offer renters better non-motorized transportation choices. Walkable communities, which have increasingly gained its momentum, may serve as an effective strategy to address such a challenge. However, it is little known whether and how much renters are willing to pay for neighborhood walkability.

This study assesses renters' willingness to pay for neighborhood walkability based on a spatial hedonic study in Austin, Texas. The dataset includes 12,324 single-family and 4,585 condominium rental transactions that took place in Austin during 2010-2012. The main indicator of neighborhood walkability is the Street Smart Walk Score. The researcher uses the Spatial Cliff-Ord Model as the analytical method to control for spatial autocorrelation effects.

Increased walkability would elevate rental prices for 48% of the single-family properties and 81% of the condominium properties. On average, one-percent increase in walkability will lead to an increase of 0.0223% in the single-family rental price, and 0.1965% in the condominium rental price. While the former seems minimal, the latter raises an affordability concern for renters seeking walkable communities. For example, the rental price impact of one-percent increase in walkability could be as high as 0.62% for condominium homes located in highly walkable communities.

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Key Words: Walkable communities, Affordable Housing, Hedonic Pricing Models, Spatial Hedonic Models, Rental Housing

COMPARING TOD AND NON-TOD STATIONS IN TERMS OF EQUITY INDICATORS

Abstract ID: 1023

Individual Paper Submission

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In recent years, Transit-Oriented Development (TOD) approach has been trending in cities, creating walkable, mixed-use development, increasing property value, providing a higher quality of life, and attracting investments, people, jobs, labor and housing around these stations. (Nelson, et al., 2015). In 2004, there were 100 TOD stations in the United States (Cervero, 2004) that increased rapidly to reach 1,600 stations in 2016. (Renne et al., 2016).

TOD's have resulted in a massive economic development around stations (Renne et al., 2016), creating job accessibility, and resulting an increase in housing. Therefore, the increase of TOD stations raised the concern of equity around these stations as several studies reported.

A study investigated the relationship between transit in affluent neighborhoods and transit ridership in the Atlanta metropolitan area arguing that transit is decentralizing poverty. The results have shown that affluent neighborhoods have become more diverse in income and race. (Wang, and Woo, 2017). Moreover, an evaluation of TOD stations in the Portland suburban area didn't find evidence that rail-transits catalyzes gentrification; therefore, any significant effects on household income, minorities living in suburban neighborhoods, home value, and housing affordability were not observed. (Dong, 2017).

Researchers have been focusing on gentrification and equity in TOD's, but these studies have used specific locations as case studies. However, there was no research that compares TOD and non-TOD in terms of equity.

This study seeks to address this gap by conducting a national comparison of TOD and non-TOD stations in the US in terms of equity indicators. The classification of TOD and non-TOD stations is based on Renne et al., (2016) and their classification of transit stations. Based on the literature review, the research focuses on race, income, education attainment, tenure, vehicle ownership, and housing as equity indicators.

As a method, we are using factor analysis to operationalize equity and run a T-test to compare equity between TOD and non-TOD stations. Also, the research will use a T-test for each indicator to compare between TOD and non-TOD stations. The unit of analysis used for this research is a half mile buffer from transit stations because it's the most widely used distance as the catchment area of transit stations in previous studies (Renne et al., 2016). The research includes all transit stations in the US which are 3,724 rail stations in 39 cities. Our data is collected from the TOD Database, Census data, and Alltransit metrics data.

We expect to find that minorities, low income, jobs, and affordable housing are embraced close to stations that are classified as TOD, but these areas may not be suitable for low education in terms of jobs that are attached to TOD's. On the other hand, non-TOD stations may be attractive for other jobs that don't require a high education.

The concern of equity near rail stations has been rising in urban development policies. This study claims that job allocation and economic outcome around transit stations is not in favor of people who live around stations regarding job skill requirement and payments, which are the significant indicators of the equity for this research. To bring balance to these areas, business developers and city planners should create more balanced economic activities, which don't require high education or job skills to the residents who live in the area.

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Key Words: Transit, TOD, Equity

THE VALUE OF TRANSPORTATION RESEARCH: RESEARCHER AND PRACTITIONER PERSPECTIVES

Abstract ID: 1024

Individual Paper Submission

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Transportation agencies provide substantial funding for research, but research is only one of many programmatic needs competing for financial support. Transportation research is a vulnerable budget item because unlike, e.g., construction or maintenance projects, research rarely delivers a tangible product, or if it does, the product often requires further development to move into market or practice. Increasingly, funders are asked to demonstrate that the benefits of research justify its costs. This raises the question, what are the benefits of research and how and over what time frame can they be measured?

This paper examines the value of transportation research as viewed by seasoned transportation researchers and senior-level practitioners in universities, public agencies, NGOs, and the private sector. The paper documents the changing research landscape (funding levels, decision processes, expected products, dissemination strategies) in general and for transportation research in particular, drawing upon a wide-ranging review of the literature and over 40 interviews we conducted with producers and users of transportation research. The paper discusses perspectives on the value and limitations of current research paradigms and products, documents how research is used, and notes the direct and indirect benefits that leaders in the field attribute to transportation research. The

paper also identifies concerns about current research practices and barriers to moving research results into practice.

Previous studies (e.g., OTA, 1986; Pavitt, 1991; Mansfield, 1998; Salter and Martin, 2001; Schuller et al., 2001) point out that research can produce new conceptual frameworks and understandings for policy and planning as well as develop new products or processes. In addition, research findings and hands-on research experience are incorporated into undergraduate and graduate education and training, which in turn leads to personnel who have both explicit and tacit state-of-the-art knowledge as well as mindsets and work habits that are beneficial to employers. A previous study on research and innovation in transportation (Deakin, Frick and Phu, 2014) noted the importance of assessing research in accordance with its objectives, since the types of benefits that can be expected and how fast they are realized differ with research type.

Our interviews revealed an increasing separation in what university researchers value vs. what practitioners value in terms of publications. Researchers aim to publish in highly ranked peer reviewed journals but these are rarely read by practitioners, who stay up-to-date through blogs, online newsletters, and other brief research summaries. Practitioners also make considerable use of professional networks, including associations with professors and graduate student interns, as a way of gaining quick access to current thinking. Conferences that bring researchers and practitioners together are an important source of learning for practitioners.

Both researchers and practitioners expressed frustration with a growing tendency of faculty members to publish very similar papers in several outlets and voiced concern about highly technical papers that stopped short of explaining their implications and significance. Case studies whose contribution to the previous body of research is unclear were also criticized. Practitioners noted that the fast pace of change limited their ability to wade through lengthy reports. Still, many practitioners as well as researchers noted the value of research that opened up new pathways but might take years or decades to have a significant impact (citing work on pricing and environmental impacts as examples.)

The study indicates the importance of new media approaches to research dissemination. It also confirms the importance of university – practitioner partnerships as a means of building networks for bringing research into practice and suggests the need for a more critical view of academic publication strategies.

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Key Words: transportation research, implementation, transportation practice, barriers to innovation, research dissemination

CAUSAL IMPACTS OF AN URBAN GREENWAY ON PHYSICAL ACTIVITY AND SEDENTARY BEHAVIOR

Abstract ID: 1026

Individual Paper Submission

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Central theme or hypothesis:

This study evaluates the causal effects of an urban greenway intervention on physical activity (PA) and sedentary behavior. One strategy to promote PA and active living is investing in pedestrian and cyclist improvements. Some communities are building dedicated active transportation facilities such as greenways close to individual's homes. Urban greenways are linear landscaped and traffic-calmed pathways that have a mix of bicycle facilities and other streetscape improvements that link major open spaces, parks, public facilities, and neighborhood centers together. Greenways re-appropriate road space from sedentary to active modes of travel, and shift the relative utility to be more favorable for walking and biking. For this reason, the provision of safe and accessible active transportation infrastructure is believed to increase active travel behavior, and subsequently increase PA (Coutts, 2008).

However, existing research on the health impacts of greenways is mixed. Some studies have reported statistically significant increases in walking, cycling, and overall PA counts after the construction of a greenway, whereas other studies reported no effects (Evenson et al., 2005; West and Shores, 2011). In addition, the effect of greenways in terms of distance decay or diminishing impacts over space is not well understood. How close to a greenway does someone need to be to receive more health benefit, and how much benefit is there for someone close compared to someone else with similar characteristics further away? (Duncan et al., 2016). Finally, most studies of urban greenways cannot make causal inference because they typically rely on cross-sectional data. For this reason, longitudinal studies are currently a research priority to better establish and assess causal relationships between community design and health-related outcomes (Hunter et al., 2015).

Approach and methodology:

The study uses data from the Comox-Helmcken Greenway Study, a three-year study that took place from 2012 to 2015, investigating the impacts of the Comox Greenway in Vancouver, Canada. A survey was conducted during the fall and winter for both pre- and post-periods. The baseline period was from October 2012–March 2013. The greenway opened in June 2013, and a follow-up was conducted from October 2014–March 2015. Participants completed a two-day travel diary survey and a questionnaire. The final sample size for analysis was 524 participants (30.1% response rate; 47.1% attrition rate). To define the treatment and control groups (exposure to the greenway), a dummy variable was created using five distance thresholds measuring residential proximity to the greenway: 100, 200, 300, 400, and 500 meters or greater.

Findings:

For participants living near the greenway (treatment; n=239), the odds of meeting the recommended MVPA increased by 100% or doubled (OR=2.0; 95% CI=1.0, 4.0; $p < 0.05$) after the greenway's opening. The odds of being sedentary for more than 9 hours declined by 55% (OR=0.5; 95% CI=0.2, 0.8; $p < 0.01$) after opening. For MVPA, the health benefit from the greenway declined with distance from 100 meters to 500 meters. For sedentary behavior, the reduction was lowest at 100 meters and greatest at 300 meters.

Relevance to planning scholarship, practice, or education:

Existing causal research on the relationship between community design, travel behavior, and health-related outcomes is limited. Our study contributes to a small but growing body of causal evidence that the provision of active transportation facilities leads to health benefits. For public health and urban planning professionals, built environment interventions through modest investments in active transportation facilities can be successful in promoting PA and reducing sedentary behavior in dense urban neighborhoods with relatively low vehicle ownership.

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Key Words: Built environment, Active transportation, Urban greenway, Physical activity, Sedentary behavior

ON THE POTENTIAL OF E-BIKES TO SUPPORT ACTIVE AND SUSTAINABLE TRANSPORTATION AND INDEPENDENT MOBILITY AMONG OLDER ADULTS: A CASE STUDY IN WATERLOO, ONTARIO, CANADA

Abstract ID: 1039

Individual Paper Submission

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The predominance of automobile dependency in North America is associated with a host of negative health and environmental impacts and has sparked promotion of low-carbon and active modes of transportation. Encompassing both priorities, electric-bicycles have become a popular mode of transportation in some parts of the world. While multiple studies have suggested older adult populations may be most likely to benefit from e-bike technology, few studies have exclusively focused on this demographic and factors that may promote or inhibit e-bike adoption amongst this group. The aim of this study was to explore the perceived viability of older adult e-bike adoption in the car-dependent Canadian context with focus on both the structural (built and socio-cultural environments) and individual (cycling history) determinants. In doing so, we make a novel contribution to the literatures on older adult cycling and active aging, and emerging sustainable transportation technology.

This case study in the Region of Waterloo, Ontario utilized qualitative methods to gather perceptual and experiential data from 17 key informants and 37 older adults about facilitators and barriers to e-bike adoption. The Region has diverse built form including the three mid-sized cities of Cambridge, Kitchener and Waterloo representing both dense urban and sprawling suburban form, and four surrounding rural townships. Older adults aged 65 and over make up a growing portion of the population with a 21.4% growth rate between 2011 and 2016. This is a typical mid-sized region from which to explore older adult mobility in relation to e-bikes. Adults over the age of 55 years took part in interactive focus groups that included two activities related to lifelong cycling history and physical infrastructure preferences along with open discussion about cycling. Key informants with expertise in transportation planning, cycling, older adult well-being or health communities took part in individual interviews. An inductive thematic analysis approach was used for both key informant interviews and focus groups, whereby new themes emerged from the data.

The findings shed light on the individual facilitators and structural barriers to e-bike adoption among older adult participants. Of note, e-bikes are a more convenient and supportive mode of transit for older adults particularly when health conditions limit walking and traditional cycling abilities. Participants noted that e-bikes delayed the transition from more active modes of transport to the automobile for short trips; in this way e-bikes were described as a mobility aid. Barriers to e-bike adoption among this population overlapped with barriers to cycling more broadly (i.e., lack of cycling infrastructure, perceptions of road safety) though social stigma was reported as a unique barrier to e-bike use. Other facilitators of electric cycling included social interaction, and bicycle design while lack of regulation of the emerging technology was a notable barrier. The research concludes by highlight future directions for researchers, policy-makers and practitioners who are tackling tripartite concerns of active and sustainable transportation, aging-in-place, and independent mobility.

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Key Words: electric bicycles, older adults , active transportation, independent mobility, aging-in-place

EXPLORING THE INTERACTION OF URBAN STRUCTURE AND LOCAL ACCESSIBILITY WITH WALKING

Abstract ID: 1040

Individual Paper Submission

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The established literature on travel behavior and the built environment has converged on around key findings, including the relative importance of individual measures of the built environment, the role of self-selection, and the key travel outcomes of interest (see Stevens 2017). The literature demonstrates different approaches to understanding the effect of the built environment, the urban structure, and travel behavior. One approach has used elasticity of trip making with respect to various built environment conditions (Ewing & Cervero, 2010). Results have shown that more dense and compact cities can reduce vehicle miles traveled. This approach has the limitation that assumes that a singular relationship holds across all urban environments and that investments in the built environment yield similar relative effects regardless of the location of implementation. Another approach focuses on local accessibility measures and their potential to influence travel by more active modes (Talen & Koschinsky, 2013). Here, the limitation is the focus on the immediate environment around the home, work, or other trip origin or destination without considering the larger urban structure.

Both approaches have helped to understand the relationship between the built environment and travel outcomes. However, there are unanswered questions regarding the two limitations identified here: the lack of understanding of the interaction between local accessibility and urban spatial structure at the metropolitan scale. We propose to fill this gap by analyzing how patterns of travel behavior change across a metropolitan area and how the urban structure interacts with local accessibility to shape walking behavior.

In preliminary work using the Pedestrian Index of the Environment (PIE), we have found that the probability of walking has different behavioral response in suburban and urban regimes. Here we found that in areas with a low PIE score the effect of the built environment on walking is smaller than in places with a high PIE score. In this abstract, we propose to expand upon this initial work using more refined measures of the urban structure along with measures of walkability. The paper aims to answer the following questions:

- Are their different regimes of walkability within a metropolitan area?
- How does urban spatial structure matter in defining the role of local accessibility in walking?
- What are the characteristics of these different urban regimes of travel?

To do this, we will utilize household travel surveys for several regions (Portland, OR; Los Angeles, San Francisco, Seattle, and Minneapolis) in concert with local measures of the built environment (density, mixed use, connectivity, e.g.) and measures of larger urban structure (regional accessibility, polycentricity, density gradients, e.g.) to understand how various travel outcomes vary by these locational attributes. Here, we place some emphasis on not just the value of individual attributes (or combinations of these attributes) but also their gradients and relative locations in the region.

Our findings advance the investigation of the travel and the built environment beyond the examination of local characteristics in isolation. They provide more robust and refined insights about the expected transportation outcomes of planning investments.

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Key Words: Walking, built environment, Urban Structure, Travel behavior, active transportation

THE INFLUENCE OF ACCESSIBILITY AND CONNECTIVITY ON URBAN TRAIL USE: A CASE STUDY OF GREATER CINCINNATI

Abstract ID: 1042

Individual Paper Submission

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For the past several decades, policy-makers have recognized the negative externalities (e.g., energy pollution, adverse health and obesity, and reduced social interaction) associated with auto-dependency and auto-oriented urban and metropolitan regions. Along with this trend, a growing number of research findings in various fields (e.g., transportation, planning, public health, and urban design) have provided evidence being used to promote active transportation, specifically cycling and walking (Mueller et al. 2015, Marshall and Garrick 2010). The measures used by scholars to investigate active travel vary across fields. In transportation, most studies focus on choice analyses and factors that affect the probability of choosing non-motorized modes. In public health, research has analyzed minutes or distances of cycling and walking for transport and other purposes as input to health impact analyses or to complete health benefits assessments. In both transportation and recreation, researchers have analyzed the usage of non-motorized infrastructure like urban trails because of the importance of this type of infrastructure for active transportation and recreation (Wojan and Hamrick 2015, Wang et al. 2016). Many studies of trail use have focused on counts of users observed on trails; fewer studies have explored urban trail users' behaviors, perceptions, and preferences in urbanized metropolitan areas. Similarly, although the effect of the built environment on travel behavior has been broadly explored (Nasri and Zhang 2015), consensus of the magnitude of effects has yet to be achieved. The ambiguous results are commonly ascribed to the variety of methods in measuring and modeling the built-environmental variables based on data availability and research purposes. Overall, the limited knowledge about factors that influence urban trail use has become an important barrier in advocating more investment in trails and related infrastructure.

This study adds to the literature on active transportation and trail use through exploring the different effects of both trail users' attitudes and the built-environment on trail use. In particular, we examine the effects of accessibility and connectivity on urban trail use for recreational and utilitarian purposes at the individual level, using the Greater Cincinnati trail user survey. We emphasize accessibility to recreational and utilitarian urban opportunities through cycling and walking and network connectivity from urban trails to on-street cycling lanes, sidewalks, bike share stations, and transit stops. Furthermore, the effects of these built environment features are examined locally to control for spatial autocorrelation and heterogeneity, both of which are often ignored in studies. For instance, trail users in some neighborhoods might be less sensitive to connectivity improvements than users in other neighborhoods. We adopt a geographically weighted regression (GWR) approach to capture the spatially varied relationships between urban trail users' choice and the built environment. This approach allows the estimated coefficients of explanatory variables to vary across the region, thus provides greater insight into the heterogeneous effects of the built environment.

Data were collected through a systematic trail user intercept survey (n= 734 respondents) on multiple trails across the Cincinnati metropolitan region. Using valid location data (self-reported), accessibility to some major utilitarian and recreational opportunities by cycling and walking are calculated separately for each respondent. Among other findings, we show that factors that affect use of trails for recreational and utilitarian purposes vary. The results using the logistic GWR approach can be applied by active transportation planners to understand the differences of the built-environmental and attitudinal influence on urban trail users' choice of using trails for utilitarian and recreational activities respectively at the local level. With insights provided by the models, policy-makers can locally allocate land-use and transportation resources to improve the efficiency and fairness according to the spatially varied needs and preferences.

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Key Words: Urban Trail Use, Accessibility, Connectivity, Spatial Analysis

THE EFFECTS OF NEIGHBORHOOD CHARACTERISTICS ON SPATIAL DISPARITIES IN BIKE SHARE USE IN THE TWIN CITIES

Abstract ID: 1054

Individual Paper Submission

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Bike share programs have the potential to reduce traffic congestion, provide environmental benefits by reducing greenhouse gas emissions, and provide health benefits by increasing physical activity (Shaheen et al., 2010). Because of these perceived benefits, bike share programs have become increasingly popular throughout the world, with over 1000 cities operating bike share programs (Meddin and DeMaio, 2017). Bike-share operators have largely targeted middle- and upper-class communities for improvements despite the fact that low-income and minority neighborhoods tend to experience: (1) lower rates of mobility/accessibility; (2) higher rates of obesity and related health risks; and (3) higher rates of bicycle-related fatalities (Fishman 2015). Furthermore, studies (Shaheen et al., 2012) have shown that current bike share users in the US are disproportionately white, young, and highly educated, with higher incomes. There is a valid concern that traditionally disadvantaged populations will again be marginalized or unable to share in the full benefits of existing and future bicycle-oriented planning efforts. In this study, we examine spatial disparities in bike share use in the Twin Cities. Our objectives are to improve our understanding of spatial disparities associated with the behaviors of bike share members and help inform policies aimed at making bike share more accessible for disadvantaged groups.

Previous studies have identified different barriers to bike share use faced by disadvantaged groups, including geographic placement (Shaheen et al., 2010), credit/debit card requirements (Schmitt, 2012), and language

barriers (Shaheen et al., 2012). However, more information about the differences of bike share use among different subgroups and neighborhoods is needed to inform effective policy change. For example, who uses bike share more often? Who is more likely to take longer bike share trips? Are disadvantaged groups more likely to use bike share for utilitarian rather than recreational purposes? Are there differences among population subgroups in connecting bike share service with transit?

The research presented here seek to answer these questions. Specifically, using the Nice Ride program in Twin Cities as a case study, we examine spatial disparities of bike share use among different population subgroups and neighborhoods. We have two primary research questions:

- How do bike share use characteristics differ among different population subgroups and neighborhoods?
- How do the socio-demographic characteristics of the neighborhoods in which Nice Ride operates impact bike share use?

We use the 2016 individual member level bike share trip dataset in the Twin Cities for our analyses, which provides information about social-demographic characteristics of bike share members, home addresses, and each bike trip origin and destination. We focus on bike share trips, in which origins and destinations repeatedly made by bike share members and examine how these trips are correlated with socio-demographic characteristics of members and neighborhoods. Moreover, we develop random effects models to examine the impacts of socio-demographic characteristics of neighborhoods on the weekly use frequency of individual members. The results show that members living in disadvantaged neighborhoods have a higher weekly use after controlling for station accessibility, station service quality, and built environment variables.

Understanding these issues is useful for those planning new bike share systems or extensions to existing systems. Our findings also provide an understanding of bicycle travel patterns among neighborhoods of different socio-demographic characteristics. These findings can lead to insights about how policymakers can better serve different subgroups of the urban population.

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Key Words: Bike Share, Equity, Travel Behavior

THE CHANGING LANDSCAPE OF ACCESS TO HEALTH CARE: POLICY SHIFTS AND INFLUENCE OF SHARED MOBILITY

Abstract ID: 1061

Individual Paper Submission

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Background: Every year approximately 3.6 million Americans miss or delay non-emergency medical treatment due to lack of transportation (Wallace et al., 2005). It is widely acknowledged that when patients have access to routine and preventative care, overall health outcomes are improved and costly ambulance bills or emergency department visits can be avoided (Syed, Gerber, & Sharp, 2013). Non-emergency health care transportation (NEHCT) refers to any transportation to medical appointments or care facilities that is not related to emergencies

(e.g. to medical appointments, urgent care, or a therapist's office). Transportation Network Companies (TNCs) like Uber and Lyft have entered this space to fill critical gaps in access to health care (Ganuza & Davis, 2017). Nationwide, transit providers and health care systems are partnering with TNCs to establish creative avenues through which patients can use mobile apps and on-demand ride requests to travel to medical appointments. Such innovative efforts have been arising for several years. This research asks: How is shared mobility being leveraged in NEHCT and who are these efforts serving? How can regions plan for, or even facilitate, these shifts in access?

Methods: This research first descriptively analyzes the dynamic policy context that has facilitated the unique partnerships and collaborations between health care providers, transit agencies, and TNCs. An environmental scan is conducted using on publicly available and subscription-based search engines (e.g. LexisNexis, ProQuest, EBSCO, Google) to search for academic or news-based sources that describe or refer to any instance in which shared mobility technology is being leveraged by a medical provider or transit provider to facilitate NEHCT in the U.S. Environmental scans are used to retrieve and catalogue data to provide decision makers with knowledge about current social, economic, technological, and political contexts, and help to identify any potential short- and long-term shifts (Graham et al., 2008).

Findings: Using a snowball sampling method, this scan examined any instance of innovation in NEHCT in which either 1) a TNC or ridesharing company facilitates a from of NEHCT or 2) shared mobility technology (e.g. smartphone app) is utilized to connect patients to trips in a vehicle for non-emergency medical purposes. The scan catalogues these instances by highlighting key features and identifying populations who are being targeted for such services. Six types of innovative collaborations were catalogued from the results of the scan, including instances in which a 1) Paratransit (ADA) provider partners with existing TNC; 2) traditional Medicaid/Medicare nonemergency medical transportation broker partners with TNC; 3) Ridesharing company provides NEHCT service; 4) Health Plan/Care Delivery System partners with TNC; 5) Health system leverages ridesharing digital platform; and 6) Hospital leverages TNC services. Key features of each type are discussed and examples representing geographic and service area diversity are illustrated.

Relevance: While the future of the Affordable Care Act and the reach of Medicaid is uncertain, a general movement toward value-based alternative payment models in health care has created incentives for states and payers to provide services in more innovative and efficient ways. As NEHCT delivery models continue to collaborate with TNCs and adopt technology from shared mobility, planners and planning research must consider how these shifts will influence future demand for transit and paratransit. At the same time, health care providers should consider whether innovative platforms and new modes of access are attainable for the patients they intend to serve.

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Key Words: access to healthcare, shared mobility, non-emergency medical transportation, TNCs, medical trips

ANALYZING THE FACTORS CAUSING FATAL TRAFFIC CRASHES IN DHAKA CITY, BANGLADESH

Abstract ID: 1067

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This paper attempts to explore and analyze different environmental and traffic factors that influence traffic crash severity in Dhaka city, Bangladesh. As travel behavior and modes of transportation vary between developing and developed countries, this study discusses this issue as well with respect to their traffic crash severity and impacts of different factors on a crash. Using a multinomial logit model, the authors regressed 12 roadway, environmental, and traffic factors on traffic crash severity. The study uses 2716 crash records that occurred over a period of 2007-2011. The study collected the data from Dhaka Metropolitan Police Department. The methodology of the study includes three steps. In the first step, the study presents a general descriptive statistics of the variables. The second step presents the correlation matrix of the variables. The third step introduces the results of a multinomial logistic regression model to help understand the impacts of different variables on traffic crash severity.

The study finds that 69% of the crashes were fatal. Seventy-one percent of them occurred at non-intersection locations, 63% occurred at uncontrolled or not prior supervised traffic intersections, 73% occurred on one-way or single direction roads, and 80% took place at road segments without the presence of road divider. The study found pedestrian (60%) and rear-end (25%) collisions to be the most common types of collision. Weather and daylight conditions do not play significant impacts on reducing crashes. The authors also find that 96% of the crashes took place on straight and plain roads, of which 67% occurred on the National Highways. Almost all (98%) of the crashes took place on the roads which are in good condition compared to roads in poor condition roads. The most crash-prone period of the year comes out to be March–June. Variance Inflation Factors (VIF) and correlation coefficients were performed to test if there were multicollinearity among the explanatory variables. The overall model shows to be significant with the log-likelihood value of 1044.67 and pseudo r-square value of .37. Road segments and 3-way intersections with traffic control assistance come out to be more vulnerable to traffic crashes. However, police controlled intersections are found less vulnerable than that with automatic traffic controlled intersections. One-way roads without road dividers are more vulnerable to fatal crashes. Similarly, night times come out to cause more fatal crashes than day times. National Highways are more vulnerable to fatal crashes than the city and feeder roads. But Extensive injuries are higher in the city roads compared to the highways.

The study is one of very few that investigate causes of traffic fatalities in Dhaka, a city of about 20 million. Severe crashes cause not only loss of lives of people, but also a significant economic loss of the country. Reduction of traffic crashes is one of the major factors that the traffic engineers and transportation planners need to focus on an urgent basis in a crowded city like Dhaka. For that, appropriate and evidence-based policies need to be in place. The findings of this study can play significant roles towards that end and help transportation planners and policymakers in preparing such policies to reduce traffic crashes

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Key Words: Traffic Crashes, Multinomial Logistic Regression, Correlation Matrix, Developing Countries

DID TRANSPORTATION NETWORK COMPANIES SLOW DOWN TRAFFIC IN NEW YORK CITY?

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Research question

The rapid expansion of app-based ride services offered by Transportation Network Companies (TNCs) like Uber and Lyft has drawn the attention of transportation planners and researchers. This paper explores an important question in the debate over TNC vehicles: to what extent, if at all, do ridesharing services affect traffic patterns?

Previous studies have shown contradicting results. Li et al. (2016) estimate that, after Uber enters an urban area, the total annual delay cost, delay time, and excess fuel on average would decrease by about 1.2%. However, by comparing the declined traffic speeds estimated from the taxi cab fleet and the increase of TNC service trips, Schaller (2017) proposes that TNC vehicles are the main contributors of increased traffic congestion by comparing the numbers at the city level. Based on an online survey on airport staff members responsible for ground transportation operations of 72 U.S. airports, Mandle and Box (2017) state that TNCs have increased curbside or roadway congestion for airport operations. None of these studies are peer-reviewed publications. Solid empirical research is still lacking to support or invalidate these claims.

Data and methodology

We estimate traffic speed using yellow and green taxi trip records from New York City Taxi and Limousine Commission (TLC), which include the origin and destination taxi zones (on average, one taxi zone contain 10 census tracts), time, and distance traveled for each trip. For five time periods in each day – early morning (0-7am), morning peak (7-10am), mid-day (10am-5pm), afternoon peak (5pm-8pm) and late night (8pm-0am) – average traffic speeds for each taxi zone are calculated by aggregating the speeds of taxi trips within the taxi zone, or between the zone and one of its neighboring zones.

The volume of TNC trips is extracted from TLC's For Hire Vehicle trip records. We analyze over 0.95 million observations from January 2015 to June 2017 to test whether the growth of TNC trips has resulted in lower traffic speeds. Using fixed effect models controlling for seasonality, day of week, and the overall trend in traffic speed, we find that both the numbers of taxi trips and TNC trips negatively affect traffic speeds. The largest effects are found during the morning peak. We also find a positive (0.34) correlation between the numbers of taxi and TNC trips, even after controlling for taxi zone fixed effects and other factors. It suggests the growth of TNC trips has not led to the decline of taxi usage.

By examining the correlation between TNC trips and traffics at a relatively fine grain level, this study is able to identify how TNC trips are associated with traffic changes in New York City. The result does not necessarily mean that TNCs are bad for traffic because waiting time and travel time have to be considered as well. However, it indeed suggests that certain regulations might be necessary in the TNC market to reflect this externality, at least in New York City, which is unique in many aspects but the analysis approach could be applied to other cities.

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Key Words: Transportation Network Company, traffic congestion, New York City

APPLYING GINI COEFFICIENTS TO EVALUATE PUBLIC TRANSPORTATION EQUITY WITHIN THE DART SERVICE AREA

Abstract ID: 1080

Individual Paper Submission

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Access to public transportation empowers disadvantaged families and other transit-dependent groups to commute within urban areas. As low-income workers and minorities stand to reap the greatest benefits from public transit, it is vital to ensure that these groups have adequate access to this service. The present study implemented Lorenz curves and the Gini coefficients to examine the equity of public transit services within the Dallas Area Rapid Transit (DART) service area. Multiple datasets were gathered from several sources to analyze public transit within the DART service area. These data sources include the U.S Census, American Community Survey (ACS) 2014 5-Year Estimates, Longitudinal Employer-Household Dynamics (LEHD), the North Central Texas Council of Governments (NCTCOG) 2014 On-Board Transit Survey, and General Transit Feed Specification (GTFS). Using these data sources, this study explores the equity distribution of public transportation for six separate transit-dependent groups: low-income workers, families below the poverty threshold, households without vehicles, elderly residents, and Black and Hispanic populations. The results of the Gini coefficient presented that the greatest inequality in transit services is experienced by low-wage workers, with a Gini coefficient equal to 0.64. In other words, the Lorenz curve of low-wage workers showed that 70% of low-income workers had access to 22% of transit services within the DART service area. Ultimately, this study offers a multi-step geospatial approach to understanding transit-dependent populations and examines public transport equity with the advantage of using a Lorenz Curve that provides a disaggregated inequality analysis while providing critical information for transit agencies and decision-makers to understand the gap between transit service distribution and transit-dependent populations.

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Key Words: Equity, Transit Supply, Transit Demand, Accessibility, Transit-dependent Population

FACTORS AFFECTING TRANSIT RIDERSHIP AND THE IMPACT OF INTELLIGENT TRANSIT INFORMATION SYSTEMS CASE STUDY OF DALLAS AREA RAPID TRANSIT (DART)

Abstract ID: 1086

Individual Paper Submission

Transit ridership is at the heart of transportation policy making and the success of any transit system. Urban planners have been focusing on the need to reduce car dependence and promote more sustainable transportation alternatives. Automobile dependence is a concern for many reasons including congestion in urban areas, pollution, and environmental damages caused by pollution. Switching to more sustainable and environmentally friendly transportation modes such as public transit is likely to be an effective solution to most of these problems. As an alternative to the private car, public transit is an efficient means to move large numbers of people within cities, and transit systems play an important role in combating traffic congestion, reducing carbon emissions, and promoting compact, sustainable urban communities (Taylor et al., 2009).

This study explores the factors affecting transit ridership in Dallas Area Rapid Transit (DART) to determine if policy and/or actions can be taken to improve ridership in the study area. In order to achieve this purpose, the research examines the factors affecting train, bus, and transit ridership. In addition, this study attempts to fill some of the gaps that exist in the literature by exploring the impact of intelligent transit information systems (ITIS) on transit ridership, and how its availability has affected transit ridership since 2012. The study adopts a monthly time series perspective (2007 to 2017) to enable the researcher to examine changes in transit ridership over a 10-year period and the incremental exposure to ITIS technology. This enables the research to capture any changes in ridership over this 10-year period, few years before to few years after the implementation of ITIS transit applications, in addition to any seasonal changes.

Most previous studies of transit ridership have not included many of the variables thought to influence transit ridership. Therefore, the disparities among the findings of empirical research completed to date point to the necessity for further study. This study addresses these shortcomings by exploring multiple factors measuring population, technology, geography, and socioeconomic characteristics. This is examined through using Time Series / Multiple Regression methods on the dataset to estimate the relationship between the models' variables to answer the research questions related to demand for transit ridership in the DFW area. In this type of research quite frequently, one is interested in interpreting the effect of a percent change of an independent variable on the dependent variable, which we can achieve through a double-log (log-log) model. As such, the elasticity of demand for transit with respect to some of the factors in the model such as percent change in fare, income or the research question variable, ITIS usage, are explored and policy implications out of these elasticities are discussed.

Finally, it has been argued that ITIS reduces negative aspects and cost of using transit through providing information, saving time and other attributes, and makes transit more competitive with automobile. Therefore, it behoove us to include also some measure of auto ridership in the models. In order to measure the responsiveness of demand for transit to a relative change in the price related to auto usage, we examine cross price elasticity of demand for transit and how cross price elasticity of demand could help us in measuring possible shifts from car to transit as an effect of ITIS usage. We think this research provides a significant contribution to transportation planning literature.

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Key Words: Transit ridership, Rail transit, Intelligent transit information systems (ITIS), Bus transit, Time-series analysis

STUDY ON ACCESSIBILITY TO URBAN RAIL TRANSIT IN PORTLAND, OREGON

Abstract ID: 1092

Individual Paper Submission

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Issues of accessibility and equity have been critical to important debates in the field of transportation planning and urban studies. Public transportation infrastructure plays a central role in allowing low-socioeconomic groups to access jobs and amenities. Planning and other social science scholars have debated whether low-income and minority communities have less access to public transit than other groups. Some researchers maintain that many lower income people now live in suburban neighborhoods where access to public transit services is worse than in urban cores. Currently, transit agencies tend to prioritize their investments in urban rail transit rather than bus systems. Many research papers reveal that more in the disadvantaged groups use buses than rail transit services.

Portland, Oregon, has an advanced and extensive urban rail transit system. It is considered one of the best in the United States. Nevertheless, even in Portland, a previous research paper has asserted low-income and minority families face barriers to access the rail services. This research analysis examines the relationships between demographic characteristics such as race, ethnicity, and income and the urban rail transit accessibility in Portland. Most research works only focus on one or two vulnerable demographic groups, mostly Black Americans and the lowest-income residents. It is difficult to find challenges of diverse ethnic and economic groups to access public transit. Furthermore, they only analyze one transit catchment area as an accessible zone. In fact, multiple levels of accessible zones to transit stops may exist. The research gaps motivate me to form two questions: First, do different racial, ethnic and income groups have different levels of access to rail transit services? Second, how are all the demographic groups located in different levels of rail transit accessible zones in Portland?

This study compares all income and ethnic communities. In addition, it looks carefully into multi-tiered accessibility areas. In this analysis, I do not create only accessible zones by walking, but areas that can be accessible to the stations if one uses a bicycle or a bus. The hypotheses are constructed based on an argument that low-income and minority households have poorer accessibility than wealthier and White communities. A multinomial econometric model compares the likelihood of each demographic living in various accessible zones. The empirical results indicate that residents in poverty and near-poverty enjoy equal or better accessibility to the rail stops than wealthier residents. Moreover, ethnic minorities such as Black, Latino, and Asian Americans do not have worse accessibility than their White counterparts. It is true that communities of color and low-income families are concentrated in the suburban neighborhoods in Portland metropolitan area. However, the rail transit networks are so extensive that the suburban low-income neighborhoods are well accessible to the railway stations.

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Key Words: urban rail transit, accessibility, equity, public transportation

ECONOMIC RESILIENCE OF COMPLETE STREETS ON AFFORDABLE HOME VALUES DURING A HOUSING MARKET CRISIS

Abstract ID: 1095

Individual Paper Submission

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Introduction: Complete Streets are designed to allow for safe access and use for all (e.g., pedestrians, bicyclists, transit commuters, motorists) to improve mobility and accessibility. Retrofitting Complete Street designs acts as an intervention by increasing active transportation activities and providing safety benefits (e.g., reducing motor vehicle related crashes and injuries). However, the economic effects of Complete Street are not well documented. A study demonstrated that housing units along complete streets experienced more resilient during the housing market downturn (Yu et al. 2017), the influence of this environmental intervention on housing affordability is still understudied.

Methods: A longitudinal and case-control design was used to explore the value resilience of Complete Street on preserving affordable single-family (SF) housing values during the housing market crash (2007-2011) at Edgewater Dr. in Orlando, FL. The SF units with housing value below 2007 median Orlando regional sales price were considered as affordable housing and classified into two case-control groups based on their locations: (1) exposed case (1279 units within 800m around Edgewater Dr.) vs. adjacent non-exposed control (2282 units between 801-2000m away from Edgewater Dr.) and (2) exposed case (1279 units within 800m around Edgewater Dr.) vs. nonadjacent control road (1620 units within 800m around the control road). Propensity score matching (PSM) and Difference-in-Differences (DID) analyses were used to match each case and control affordable SF units with the most identical building attributes and calculate average treatment effects.

Results: 1204 affordable SF units in exposed areas were matched with 1204 counterparts for the 1st case-control group while 1128 case affordable SF units were paired with 1128 controls for the 2nd case-control group. After controlling for housing age, living areas, number of stories, bedrooms and bathrooms, and presence of swimming pool, on average, affordable SF units exposed to Complete Streets preserved 5.7% and 8.3% more in housing values than their counterparts in the adjacent non-exposed control area and the nonadjacent control road during the housing market crisis, respectively.

Discussion: This study fills the gap of economic aspect of Complete Streets by documenting the relative price resilience of affordable housing exposed to Complete Streets during a housing market crisis. It also added methodological insights by using PSM and DID approaches to reduce the selection bias and strength causal evidence. Given the fact that median housing sales value dropped 64% in Orlando region during 2007-2011, the median affordable housing value dropped 30% in Complete Street performed much better in terms of economic resilience. After controlling for building attributes, 5.7% and 8.3% more on value preservation during the economic crisis are still significant for affordable housing homeowners, given that lower income households can be faced with mortgage default when housing values drop significantly.

Implication: The implications of this study can inform local planning practice providing evidence that Complete Streets perform better than conventional street designs on maintaining a 'healthy' affordable housing market during recession. The findings can be integrated with research that demonstrates public health and safety benefits of Complete Streets to address the current barriers in implementing Complete Streets and support for policies facilitating the implementation of Complete Streets nationally.

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Key Words: Complete Street, road diet, affordable housing, housing value preservation, propensity score matching

TRAVEL BEHAVIOR IN TODS: THE JOINT IMPACT OF TRANSIT ACCESS, INCOME, AND NEIGHBORHOOD CHARACTERISTICS

Abstract ID: 1107

Individual Paper Submission

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Transit-Oriented Development (TOD) goals are often twofold: to increase mobility and to reduce greenhouse gas emissions. Planners have justified building TODs -- a form of 'sustainable urbanism' -- by touting its environmental impacts (Cervero and Murakami 2010). The impact comes from TOD households' travel behavior change toward fewer automotive trips, reduced vehicle miles traveled (VMT), and more transit trips, which in aggregate reduce the regional transportation-related GHG emission footprint. Planners have also promoted social equity benefits of transit and TOD, which also improve system efficiency. Lower-income households often have lower access to vehicles and are more reliant on transit. Hence, promoting subsidized or naturally-occurring affordable housing near transit produces a ready supply of transit riders which increases transit system efficiency. Adding employment and retail uses and density further increases transit usage.

Yet, the two goals are not necessarily aligned. First, as demand for living near transit increases, prices for TOD residences may increase without a commensurate increase in supply. This puts pressures on affordability near transit stations and may make subsidized housing development more expensive. Second, since higher-income households drive more miles than lower-income households (Santos et al. 2009), they may reduce their VMT by a larger absolute amount when living near rail stations. Empirically, two recent studies demonstrate this effect in Los Angeles and the San Francisco Bay Area, where households with incomes above \$100,000 reduce VMT by over two times than of households within incomes below \$50,000 when living within 0.5 miles of transit (Chatman et al. 2017, Boarnet et al. 2017). Both these studies use household travel survey data and compare households living near transit to control households living further from transit.

Yet, what if transit stations and TODs are built in qualitatively different neighborhoods by income? Perhaps differences in density or land use mix affect the VMT-income-transit access relationship? Previous studies have suggested that density, land use mix, and transit access all affect VMT (National Resource Council 2010) and the income-VMT relationship is also well established (e.g., Santos et al. 2009). However, no previous studies have looked at the interrelationship of neighborhood type (via density and land use), income, transit access, and travel behavior.

In this study, we examine the income-travel behavior relationship across levels of transit access and neighborhood types and find trade-offs between mobility and emissions. We compare four commonly-identified travel behavior outcomes (VMT, number of transit trips, share of trips that are made by transit, and the probability of taking a transit trip) between households living within and outside of 1 mile of a rail transit station pooled across four California metropolitan areas, controlling for household income and neighborhood type (National Resource Council 2010). To operationalize the study, we utilize three Tobit regressions and one Logit regression on data from the 2010-2012 California Household Travel Survey.

Results suggest that higher-income households reduce vehicle miles traveled most when living near transit regardless of neighborhood type, while lower-income households use transit system most in denser, transit-served neighborhoods. This suggests a need for transit policy and planning to jointly consider the needs and behaviors of both higher and lower-income populations in context of the transit's goals.

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Key Words: Transit-Oriented Development, Travel Behavior, Vehicle Miles Travelled, Transit, California

THE SPATIOTEMPORAL IMPACT OF SMOG ON RESIDENTS' TRAVEL INTENSITY: EMPIRICAL STUDY BASED ON CELLULAR SIGNALING DATA FROM SHANGHAI

Abstract ID: 1120

Individual Paper Submission

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China is one of the countries with the smog problem in the world. In recent years, the public has become more concerned about the smog problem mainly on personal health, but the government has little action to improve it. In fact, smog affects not only personal health, but also the vitality of the city, finally damages the sustainability of the city.

At present, the research on smog focuses more on the medical field, but less on urban travel, because of scarcity of travel data at city level and demands of technic and hardware equipment.

This research, with the question of how smog affects the residents' travel intensity from various aspects, is based on the following data: two-week cellular signaling data from Shanghai (16 million anonymous users with 0.7 billion records per day), meteorological data from the Shanghai Meteorology Service, and smog data from 10 air quality monitoring sites in Shanghai. Firstly, the residents' trip chains and the trip indicators (frequency, distance, time, range etc.) are identified by an improved spatiotemporal-threshold method. Then the effects of smog on different travel indicators are analysed from various dimensions —— temporal dimension, spatial dimension, travel dimension.

The results show that, mild smog pollution will reduce residents' travel intensity by about 4.4%. As the pollution level rises, the impact will be stronger, but the marginal effect will be reduced. From temporal dimension, smog has different effects at different time periods: the impact during the day is strongest, affecting about 6-10% of trips; the impact at night is lower, affecting about 4% of trips; the impact at the morning and evening peak hours is weakest, affecting about 2% of the trips. From spatial dimension, the main areas affected by smog composed of major trading areas, transportation hubs like airport or train station, and industrial zones in Pudong. From travel dimension, smog has the weakest impact (about 1%) on trips with short distances (shorter than 3 km). As the distance increases, the impact grows until the distance is longer than 10 km, and the impact stabilizes at around 6%. The travel range (radius of gyration) shows similar feature. Also, for people with different travel pattern, there are different effects by smog.

The study of smog effect on residents' travel intensity to some degree fill up the lack of research in this area. And with the study, we can better explain the residents' travel patterns and predict the impact of smog on urban vitality when it comes.

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Key Words: smog, big data, travel intensity

PARK ACCESS FOR THE TRANSIT-DEPENDENT. DO COMMUNITIES REALLY HAVE ACCESS?

Abstract ID: 1123

Individual Paper Submission

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Environmental justice scholars have long been concerned with the unequal distribution of environmental disamenities among communities. Research reveals that low-income, minority communities bear a disproportionate burden of environmental hazard. Research however has done little yet to understand distributions of environmental amenities.

Accessible neighborhood parks of acceptable quality are an important part of the built environment and are often cited as amenities for the people living close by. These parks provide opportunities for outdoor recreation, leisure time, and a venue for neighborhood members to interact. An estimated 60% of California adolescents do not participate in the recommended 60 minutes or more of physical activity five or more days a week (Babey, Wolstein, Krumholz, 2013). Further, adolescents from low-income families are less likely to engage in regular physical activities and it has been suggested that this may be due to lack of access to parks (Babey et al., 2013). Many Californians, particularly those in neighborhoods of environmental concern, may lack access to parks, an important environmental amenity

True park accessibility goes beyond counting the number of parks in a city to insure true access — especially for adolescents who do not likely have cars. Where there might be a park in a neighborhood, it may not be possible

for all people to easily access it. Thus it is crucial to examine whether parks are accessible to people who are transit-dependent (Talen 2003). These populations have been defined in the literature as those most in need of nearby parks. The transit-dependent may include people too young to drive, people too old to drive, and people without the financial means necessary for a car.

This paper contributes to the environmental justice literature through a new method of measuring access by transit and analyzing transit access to parks and park quality. Specifically, I examine park access for the transit-dependent groups in Los Angeles County. Different from previous studies that have relied on distance-based methods or strict counting of parks, I instead rely upon new open access transit data and use travel time to measure access (Babey et al., 2013; Boone et al., 2009). Using Remix, a private web-based application for transit mapping, I map the transit access zone for people in each of Los Angeles County's census tracts. Remix relies on General Transit Feed Specified Data to map the transit network and schedule for routes across Los Angeles and calculates how far a person can go using public transit and walking in 15, 30, 45 and 60 minutes. Using City and County spatial data on parks, I then measure park access for people living in each tract. Through this process, I calculate which tracts have the best access to parks both in quantity and in proximity measured in travel time.

The second aim of this study is to test the quality of parks in relation to traditional environmental justice hypotheses. This part of the study aims to understand if neighborhoods of environmental justice concern suffer from restricted access to quality parks. Park acreage and other measures of park quality including availability of recreational equipment have been included in the data to estimate park quality. A 2007 study by Boone et al. found that a higher proportion of African Americans had access to parks within walking distance than whites, but whites had access to more park acreage. This study expands upon this work by not only considering parks within walking distance, but parks within transit sheds too. Further, through consideration of other park characteristics beyond acreage, this study deepens our understanding of who has access to parks and to what degree those parks provide an amenity.

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Key Words: accessibility, transit, parks, recreation, GTFS

WHAT DRIVES CITIES TO CONSIDER AND ADOPT INNOVATIVE APPROACHES TO TRAFFIC IMPACT ASSESSMENT?

Abstract ID: 1132

Individual Paper Submission

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For the past several decades, municipalities have come to rely on Traffic Impact Assessment (TIA) as a means to predict the automobile traffic impacts imposed by new developments, and to exact funds from developers in order to improve and expand transportation networks. The conventional approach to TIA, which is based on coefficients derived from trip generation data collected by the Institute of Transportation Engineers (ITE), has been adopted widely across the US, and is required by law for state-controlled roads in many states.

Underlying the TIA approach is a philosophy of predicting and accommodating increased automobile demand in order to forestall congestion. Accordingly, conventional TIA has been roundly criticized as prioritizing car traffic at the expense of other modes, and encouraging peripheral and suburban development (where existing surplus traffic capacity minimizes the need for developer mitigation) over infill projects. Furthermore, the data from which ITE's coefficients are derived are outdated, generated largely from auto-oriented suburban developments that do not reflect contemporary demand for compact, livable projects that support walking, bicycling, and transit use. Recent research suggests that the ITE-based approach overestimates the traffic impacts of developments in dense, mixed use urban neighborhoods, leading to an oversupply of roadway capacity that detracts from the urban fabric and undermines efforts to improve livability (e.g., Clifton et al., 2015; Schneider et al., 2015).

Following shifting priorities away from congestion mitigation and toward livability, there have been increasing efforts by scholars and practitioners to develop new data on the traffic impacts of compact, mixed-use development, and new approaches to offsetting the social costs of private development. However, little knowledge exists regarding what sorts of innovation might be taking place, under what circumstances, and to what effect (Currans, 2017). The exploratory research presented in this paper begins to close this information gap through qualitative analysis of structured interviews with municipal planners involved with development approval processes across the southeast United States.

Approach and methodology

We are conducting 30 to 45 minute structured interviews with key planning staff in approximately 75 medium- to large-sized municipalities (>30,000 residents) in Florida, North Carolina, and Virginia, as well as Washington, DC, during the spring and summer of 2018. Interview recordings and written summaries will be analyzed using a general inductive content analysis approach. The interview instrument was developed to elicit information regarding current TIA procedures and, where applicable, motivations for, enablers of, and obstacles to innovation in estimating and mitigating impacts of private development. Questions on sources of information and guidance for alternative approaches will capture how innovation in planning processes diffuses across communities and between research and practice.

Findings

Preliminary observations suggest many communities are indeed experimenting with their approach to traffic impact assessment in a variety of ways, but few have adopted wholesale changes to the process. Innovation appears to be driven by a range of factors, including community, political, and developer support for multimodal streets and compact development, and pressure from developers to codify into standard practice what may previously have been one-off allowances for TIA exemptions. Barriers to innovation range from technical limitations regarding how to model non-auto traffic impacts to lack of awareness of alternate TIA approaches to state-level DOT regulations that mandate conventional TIA, particularly in smaller communities served largely by state-controlled roads.

Implications for planning

Understanding the diffusion of innovative approaches from practice and research is essential for the planning profession. This analysis provides a key study of how communities adapt new practices and what motivates change or stasis. For the transportation field, this study also provides insights into the rapid evolution of practice around development impact assessment.

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Key Words: traffic impact assessment, diffusion of innovation, structured interviews

EMBRACING AUTONOMOUS VEHICLES: HOW AND WHY LOCAL GOVERNMENTS ARE PREPARING FOR THE FUTURE

Abstract ID: 1137

Individual Paper Submission

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Autonomous vehicles (AVs) have arrived and city leaders are now grappling with what that means for our collective future. While some cities have sought first-mover advantages and are willingly acting as test labs for AV innovations, others have been more reserved in their approach to dealing with this change (Anderson, et al 2016). As autonomous vehicles become more ubiquitous, it will become increasingly important for planners to understand how cities are engaging with the idea of – and preparing for a future involving – AVs (Guerra, 2016; Fraedrich, et al. forthcoming). Utilizing data collected for the Global Atlas of Autonomous Vehicles in Cities, as well as supplementary interviews with stakeholders, this paper categorizes the approaches being taken by cities across the United States. The main research questions ask how and why cities vary in their approach to AVs; whether cities are generally inclined to license, facilitate, or invest in AVs; and the extent to which the answers to these questions relate to whether the city is partnering with the private, university, philanthropic, or civic sectors.

When making comparisons across cases, researchers have utilized typologies as a way of categorizing or sifting through both the nuances and the commonalities that they observe. Though simple sorting does little in the way of explaining causality, typologies do make it easier to compare and contrast across cases as well as identify commonalities worthy of future analysis. As the literature attests, numerous scholars have grappled with the construction of typologies to assist in the categorization of local government responses to various challenges (Reese 2006). None, however, have heretofore systematically categorized local government approaches to AVs.

Utilizing the Global Atlas of Autonomous Vehicles in Cities (a partnership between Bloomberg Philanthropies and the Aspen Institute), we began with a scan of 53 city profiles, which includes a combination of media reports, public documents, an online survey, and interviews with city officials. We utilize this data to devise a preliminary typology of local government approaches to AVs. Thereafter, we focus specifically on six US cases that vary across the typology categories. The mixed methods case study approach reviews and catalogs existing plans, task forces, and working groups dedicated to preparing for autonomous vehicles, and delves deeper into who the primary actors are and how the process is unfolding. Stakeholder interviews provide additional information regarding how local stakeholders understand or envision the integration of AVs in their cities, and the ways in which they weigh the sometimes competing interests of ensuring public safety, minimizing liability, and fostering investment and innovation.

We find that our selected cities vary greatly in terms of how they are preparing for the future with AVs and in terms of who is involved in that preparation process. Nevertheless, these cities are also united by common challenges, including uncertainty about state and federal policy interventions, as well as how to effectively deal with rapid technological innovations. The findings from this study will be of interest to practitioners, policymakers, and academics who are interested in AVs and other disruptive technologies, as well as those who are more generally interested in how planners and policymakers prepare for the future.

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Key Words: autonomous vehicles, local government, innovation

USE OF RIDEHAILING AND THEIR IMPACTS ON THE USE OF OTHER TRAVEL MODES IN CALIFORNIA: EVIDENCE FROM 2015-2018 CALIFORNIA PANEL STUDY

Abstract ID: 1157

Individual Paper Submission

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This paper investigates the relationship between the use of ridehailing services, such as Uber and Lyft in the U.S. market, and the use of other means of transportation and vehicle ownership. The availability and popularity of ridehailing services are quickly growing. So do their impacts on transportation demand and traffic congestion in cities. It is not yet clear the extent to which ridehailing can affect other components of travel behavior including mode choice and vehicle ownership. These effects may vary depending on the local context in which the services are provided, the characteristics of users and the availability of other alternatives.

The body of literature on the overall impacts of ridehailing on other components of travel behavior is growing (e.g. Fiegon and Morphy 2018; Clewlow and Mishra 2017; Babar and Burtch 2017) but is still limited largely due to the lack of longitudinal data or robust analytical approaches that capture the causal relationship among the use of ridehailing and other components of travel behavior. Most of the existing studies in this area, to date, are based on either descriptive statistics of the self-reported behavioral changes or other coarse proxy variables such as Google trend data that is used to measure the intensity of the use of Uber/Lyft. Further, many of the existing studies ignore the potential heterogeneity associated with use and the impacts of ridehailing on other travel modes and only report the aggregated results. Other relevant issues with these studies are the use of convenience or non-representative samples. Thus, it is often difficult to extrapolate the findings from these studies and generalize them to the entire population.

In this paper, we plan to address some of the mentioned inefficiencies and issues using both waves of data collection in the State of California. As part of the first wave of data collection, we designed a comprehensive online survey and administered it to a sample of 2400 California residents, including millennials and members of the preceding Generation X in fall 2015. The survey collected a rich amount of information on individual attitudes, lifestyles, travel patterns, the characteristics of the built environment in the place of residence, the adoption and frequency of use of various shared-mobility services. In the next stage of this panel study, the second wave of data collection will be carried out in spring 2018 and the data from this second wave will be integrated into the 2015 dataset. This will generate a longitudinal dataset with a rotating panel structure. We also plan to expand the data collection beyond millennials and Generation X to the entire population of adults in California, including baby boomers and the adult members of Generation Z.

Using the first wave of data, our research team has started to investigate the factors affecting the adoption, frequency of use of ridehailing and the potential impacts of these services on other means of transportation (see Circella et al. 2018). It is expected that more behavioral changes emerge as the availability and popularity of ridehailing grow over time. The second round of data collection will provide a unique opportunity to study the changes in the adoption and frequency of use of ridehailing services over time. Further, the panel study will allow us to better understand the causal relationships between the use of ridehailing and other components of travel behavior including the use of other travel modes and vehicle ownership, and disentangle the role of stage in life in affecting lifestyles and travel decisions. The research is still on-going and we expect to have final results ready to be presented by the time of the conference.

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Key Words: Ridehailing, Uber/Lyft, Vehicle Ownership, Public Transportation, California Panel Study

ASSESSING THE IMPACTS OF ROAD CAPACITY EXPANSION ON PROJECT COMMUNITIES: A CASE STUDY OF THE NATIONAL HIGHWAY-1 (N1-HIGHWAY) ACCRA, GHANA

Abstract ID: 1166

Individual Paper Submission

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Road projects are generally intended to improve the economic and social welfare of people. Increased road capacity can reduce travel times and lower the cost of vehicle, while increasing access to markets, jobs, education, and health services and reducing transport costs for both freight and passengers. For all the positive aspects of road projects, there can be significant negative impacts on nearby communities (World Bank, 1997). People and properties may be in the direct path of road works and affected in a major way. People may also be indirectly affected by projects through the disruption of livelihood, loss of accustomed travel paths and community linkages, and injury from road crashes. New roads may induce development in previously undeveloped areas, sometimes significantly affecting the social lifestyle and economic activity patterns of communities.

The purpose of this study was to obtain a better understanding of anticipated and unanticipated adverse impacts of the N-1 Highway upgrade on project communities in Accra, Ghana. This research focused on the adverse social, economic and spatial impacts of the highway upgrade, and evaluated the extent adverse impacts were anticipated and unanticipated. This analysis also considered if any of the unanticipated adverse impacts were overlooked, and if they were, to what extent they were unheeded. The study identified ways of avoiding, mitigating or reducing the

adverse impacts on project communities. Based on the study findings, recommendations were made to address identified problem areas.

International bodies such as the World Bank has indicated that much can be done in developing nations to avoid, mitigate, or compensate for the negative socioeconomic impacts of road projects, but it is important to identify potential impacts early in the road planning process and to make provisions to avoid or mitigate these effects. Failure to identify, and appropriately plan for these potential impacts may result in delays and cost increases later on in the project's development and implementation, and may cause government agencies to adopt solutions that compromise social and economic activities. Poor planning of these projects and their potential impacts can produce negative public perception of road projects (World Bank, 1997). Against this background, it is therefore not enough for developing nations to assess road projects primarily on the positive economic criteria. Rather, adverse social, economic and spatial impacts that emerge as a result of road projects should be considered and discussed as a major component of the planning process. These impacts should be addressed in the planning process because their effects could be critical to a community's quality of life (Transportation Research Board, 2001).

This qualitative study adopted a grounded theory approach where it followed an inductive process in which the study built from the data to broad themes to generalized concepts. The researcher with the use of semi-structured questionnaires posed open-ended questions to participants in the study area and institutions to gather detailed data. These interviews were recorded, transcribed, and further analyzed to form themes and categories. The themes and categories were further developed into broad patterns, concepts and generalizations that were compared to existing literature on the topic to determine if they conformed or deviated. A combination of secondary and primary data sources including literature review and field studies were used to gather information for the research. Findings from the research indicate some important planning and policy implications including the importance of public engagement, public education, and provision of easily accessible pedestrian and vehicular facilities, among others as part of the broader planning and implementation process.

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Key Words: highway impacts, sub-Saharan Africa, grounded theory, Ghana, developing nations

RESIDENTIAL AND EMPLOYMENT GENTRIFICATION IN NEW TRANSIT STATION AREAS IMPLICATIONS OF INFRASTRUCTURE, ACCESSIBILITY, RACE AND CLASS

Abstract ID: 1184

Individual Paper Submission

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Gentrification, or the displacement of low-income communities by affluent ones, is an increasingly serious problem in twenty-first century American cities. Even as progressive physical planning practice begin to achieve wide acceptance, concerns arise over who benefits from them. High-quality public transit is a prime case of this dilemma. While improved transit access could improve transportation equity by increasing employment accessibility and reducing spatial mismatch (Kain, 1968), gentrification of station areas could reduce or reverse such equity benefits by pushing lower-wage workers and the jobs they need into less transit-accessible areas. A

large body of empirical research already shows residential (Cao & Lou, 2017) and commercial (Cervero & Duncan, 2002) property value increases in transit station areas. Additionally, in a theoretical sense, transit infrastructure investments—frequently planned and promoted as development-oriented—are consistent with a pattern of real-estate sector-allied public policy supporting the creation of rent gaps in devalorized neighborhoods, thus allowing the private sector to capitalize on publicly-created value to the detriment of pre-existing communities (Smith, 2002).

This paper searches for evidence of gentrification in LRT and BRT station areas implemented from 2004 to 2010 in nine U.S. regions. We estimate six spatial error regression models to explain net change in low-, medium- and high-wage working residents and jobs following transit implementation as a function of transit job accessibility, transit mode, year of implementation, starting point real-estate market conditions and racial mix and control variables. Stations implemented in the same regions from 2014 to 2017 (after worker and job data collection) are included as controls, as any change in jobs and workers in these station areas cannot be attributed to transit implementation.

We find near stasis or modest net out-migration of low- and medium-wage workers from transit station areas, as well as significant in-migration of high-wage workers. We also find significant out-migration of low- and medium-wage jobs from station areas, as well as significant in-migration of high-wage jobs. In addition, we find out-migration of low-wage workers in station areas with high percentages of Black and Hispanic residents, as well as high percentages of housing cost-burdened households.

While transit implementation does not appear to lead to the wholesale displacement of low- and medium-wage workers in general, the model results show that low- and medium-wage workers are not taking advantage of transit accessibility benefits by moving into station areas, while high-wage workers are. This pattern of affluent in-migration may also eventually lead to cultural gentrification. Additionally, the model results present strong evidence of gentrification of work, whereby low-status jobs are displaced by high-status jobs. While arguably less disruptive to communities than residential gentrification, gentrification of work may lead to larger increases in spatial mismatch, as workers have less ability to self-selected their workplace than their place of residence.

Policy recommendations include aggressive promotion of affordable housing production in new transit station areas in general, as well as an additional focus on preservation of existing naturally-occurring affordable housing in station areas with high percentages of Black and/or Hispanic residents and/or housing cost-burdened households. Station area economic development focused on entry-level, living-wage jobs is needed to address the gentrification of work impacts found. The results suggest a need for close collaboration between transit and housing planning, particularly in neighborhoods susceptible to gentrification, as well as a specific need to plan fixed-guideway transit systems to benefit low- and medium-wage workers.

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Key Words: gentrification, rent gap, LRT, BRT, equity

TEST THE CONSTANT COMMUTING TIME HYPOTHESIS AMID SUBSTANTIAL CHANGES TO TRANSPORTATION AND LAND USE SYSTEM: A CASE STUDY OF PORTLAND, OR 1994-2011

Abstract ID: 1188

Individual Paper Submission

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A number of theoretical and empirical transportation research attest to the stability of travel time over time (Marchetti, 1994; Mokhtarian & Chen, 2004; Ahmed & Stopher, 2014). It posits that travelers trade-off trip frequencies and duration, shift across modes, and locators sort through locations so that travel time is within a travel time budget. But does commuting time remain stable after transportation and land use system go through substantial changes? We use the Portland, OR region as a test case to look into the research question. Between 1994 and 2011, the Portland, OR region has gone through substantial changes to its land use and transportation system: the region grew from slightly less than 600k households to more than 800k while employment declined slightly from 947k to 916k; expansion of the transit system almost doubled public transit passenger miles from 258.9 million miles to 499.3 million miles, and improvement to bike and walk infrastructure implemented throughout the region, which resulted in large shift in mode shares.

This study conducts aggregate and disaggregate analysis with travel survey conducted in 1994 and 2011. We employ descriptive analysis and t-test for aggregate analysis and activity-based modeling approach for disaggregate analysis. The evidence from this study shows that the commuting time increased from 1994 to 2011 in the Portland, OR region. The trip-related and socioeconomic characteristics explain a large portion of the variance in commuting time. The effect of trip-related and socioeconomic characteristics on commuting time are significantly different for the 1994 and 2011 survey. The age, gender, household size, household income, vehicle ownership, and race/ethnic do not have the same effect on commuting time for the 1994 and 2011 survey. Controlling for socioeconomic factors, trip-related characteristics are still significant and have different relationship with commuting time for two surveys. Results of our analysis provide empirical evidence for the long-term commuting trends amid substantial changes to transportation and land use system, which will help policymakers to devise policies and investment to improve transportation and land use system.

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Key Words: Commuting Time, Travel Time Budget, Interaction between Transportation and Land Use, Mode Share

YOU CAN'T GO IT ALONE: THE CHALLENGES OF SHARED AUTONOMY REPLACING PRIVATE OWNERSHIP WITHOUT TRANSIT

Abstract ID: 1192

Individual Paper Submission

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Vehicle automation represents the greatest revolution in transportation since the automobile itself. However, the greater the potential impact of a new technology, the harder the future is to predict; the nature of revolutionary advances is that they are not incremental, and they will be used in far different ways than what came before them. For automated vehicles, this could include wholesale shift towards shared automated vehicles (SAVs). While not a panacea, similar to self-driving taxis. While SAVs are not a panacea, this research is based on the premise that a shared future is far more desirable than one dominated by privately owned and operated AVs (PAVs).

Automation in concert with private ownership would encourage more sprawling development, more vehicle kilometers traveled, more congestion, more emissions, and more inequality.

Therefore, this work seeks to understand and model the conditions under which SAVs are more likely to succeed via a simplified and flexible agent-based model (ABM) that includes mode choice between transit, PAVs, and SAVs. It seeks to answer the broad question of under what conditions can SAVs encourage people to shift away from private vehicle ownership, specifically what levels of urban density and what relationships between transit and SAVs. It tests and support two hypotheses. First, that on their own, SAVs provide the biggest relative improvement over both transit and PAVs for medium densities between 500 and 4,000 people per km². Second, that while SAVs are not sufficient to break the dominance of private vehicles (never obtaining a mode share much above 13%), they can act as a supplement to transit, helping to provide rides that would be otherwise too difficult or expensive for transit to serve and thus lowering the feasible density to go “car-free.” For example, as modelled here, non-PAV trips reach a 50% mode share at a density of 8,000 people per km² when transit is the only non-PAV option, but at 5,500 people per km² when SAVs and transit are treated as a combined mode.

This paper tests these hypotheses via three main modelling runs. The first takes a fixed density and shows the effects of varying fleet size on mode choice (i.e. what percentage of the trips occur via SAVs). The second shows how SAV mode choice varies as a function of density when the traveler is choosing between all three modes. The third allows looks as SAV mode share as a function of density, but adds the possibility for multimodality, simulating an environment where a combination of transit and SAVs allows for a person to avoid the need to purchase a vehicle. For all runs, two types of “SAVs” are used: the first representing true automation, and the second mimicking the operational costs of ridesourcing services like Uber and Lyft. This allows for both calibration of the mode choice logit model (using current ridesourcing ridership estimates). The inclusion of ridesourcing also shows that it never achieves a mode share above 2.5%, and more importantly, ridesourcing-transit combinations are far less effective than SAV-transit combinations.

Any future will likely contain a combination of shared and private transportation, but there are many policy choices that will encourage greater amounts of sharing. The most important of these, and the one directly modeled here, is that automated vehicles must partner with transit. The gold standard is public-private partnerships combining transit and SAVs, but other enabling policies include coordinating SAV and transit service, requiring data sharing from ridesourcing companies, and establishing guiding principles and policies that include resilience, sustainability, equity, and accessibility, such as incentivizing SAVs to operate in underserved areas and taxing operation in denser areas where transit already serves.

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Key Words: Autonomous Vehicles, Shared Mobility, SAV, Mode Choice, Ridesourcing

THE REVIVAL OF TRANSIT RIDERSHIP IN CANADA: EXPLANATIONS AND FUTURE PROSPECTS

Abstract ID: 1204

Individual Paper Submission

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Transit use in Canada's metropolitan areas has grown since the late 1990s until the late 2010s, following a decade of decline that began in the late 1980s. In the 1990s, amidst the decline, researchers speculated that Canada's cities would eventually undergo ongoing transit decline as incomes rose, but the decline proved to be short-lived. This paper answers the questions of what caused the turnaround from decline to growth, whether this increase is likely to continue over coming decades, why growth rates have been faster in some metropolitan areas rather than others, what public policies could be used to increase transit growth rates. In order to answer these questions, the paper seeks to identify some of the underlying determinants of transit ridership in Canada. The paper analyzes a set of data on thirteen metropolitan areas: the six million-plus areas (Toronto, Montreal, Vancouver, Ottawa-Gatineau, Calgary, and Edmonton) and a cross-national sample of seven smaller metropolitan areas (Quebec City, Kitchener-Cambridge-Waterloo, Halifax, Victoria, Regina, St. John's, and Kingston). Panel data from the years 1986, 1996, 2006, and 2016 is used. Transit use measured in trips per capita declined in every one of the thirteen metropolitan areas between 1986 and 1996, but rose in almost every metropolitan area in next two intervals (1996-2006 and 2006-2016). The variables, chosen based on their identification in previous research on Canada (as well as factors identified in the US and with likely relevance in Canada) include transit ridership, transit service level, metropolitan population, metropolitan employment by sector, household income, population density in the urban core, average January temperature, land area in the urban core, gasoline price, CBD parking price, transit fare, and number of single person households. The findings provide guidance for transport and land use planners about which factors, that they could influence, may have an effect on transit ridership.

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Key Words: public transportation, Canada, transit ridership, revival, census metropolitan area

GOODS MOVEMENT IN COMMERCIAL CENTER: A CASE STUDY IN TEMPE, AZ

Abstract ID: 1212

Individual Paper Submission

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This research examines how truck traffic affects the use and function of streets and curbspace in downtown Tempe, Arizona. Downtown Tempe is a busy commercial and residential area near the Arizona State University (ASU) campus filled with restaurants, bars and a variety of retail establishments. Each of these businesses and apartment buildings require some amount of truck deliveries, but data about volume and location of deliveries are scarce, as is information about how truck activities affect vehicular flow, bicycle lanes, and pedestrian safety. To overcome these data deficiencies, an observational study of street activities and a survey of businesses were conducted. The observational study systematically collected the location and duration of truck delivery activities, plus assessed how truck activities affect other street users, including drivers, cyclists and pedestrians. Observational data are complemented with a survey of downtown merchants recruited through the Tempe Downtown Authority. The survey results reveal knowledge businesses have about their own freight deliveries, and attitudes about potential policy interventions.

The observational data was collected by ASU students over an eight-week period in spring 2018. These researchers worked in pairs to collect data through vehicle counts, measurement of truck delivery duration and location of trucks during deliveries. An online survey was administered in Spring 2018. Participants were recruited through the Tempe Downtown Authority, a member organization that provides services throughout downtown. Respondents were recruited via email. Questions asked included business characteristics (size, number of employees, etc.) and knowledge of freight deliveries (frequency, where trucks park, time of day of deliveries, etc.).

The results suggest that truck traffic and trucks stopped for deliveries have larger effects on traffic and street function than generally considered. Interventions such as specified loading zones are a partial solution, in that they will be used for deliveries but they do not prevent truck parking in other locations. The survey results show that freight management is a concern for businesses.

This research makes two contributions. The first is a detailed inventory and analysis of goods movement in a dense commercial area. This includes estimates of delivery volume by establishment type and size, plus other characteristics. These results have implications for policy to manage traffic and to improve curbside management and street design. The second contribution is a methodological approach to the study of urban goods movement that can be used by other researchers and cities for the systematic collection of freight data. Standardized data collection may help with policy development and transfer.

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Key Words: goods movement, curb space, parking, commercial centers, transportation

MEASURING AWARENESS AND UTILITY OF SMART TRANSPORTATION: USING CONTINGENT VALUE METHOD (CVM) FOR THE FEASIBILITY STUDIES OF SMART INTERSECTION IN BUSAN, SOUTH KOREA

Abstract ID: 1217

Individual Paper Submission

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Smart transportation, along with smart cities, has recently raised as a hot potato for the sustainable solution of the urban problems. The South Korean government has recently adopted similar initiatives and announced investment plans in smart transportation infrastructure development for traffic management and congestion mitigation. Experts are asserting that it will help to manage the traffic flow without the road expansion for limited land space and resources. Smart intersection can mitigate congestion and keep the traffic flow moving by collecting the data of traffic volume and analyzing the congestion level in real time. Smart streetlights can help traffic flow improvement. Therefore, smart transportation is attracting global attention, as well as South Korean government, for the sustainable traffic management, and in consequence, some cities in Korea are recently leading smart intersection development.

Smart transportation has globally emerged as a part of smart city initiatives, yet, many cities still only have planning visions without reasonable empirical analysis of feasibilities and utility values of the development. While there is no common consensus on smartness, many cities will have difficulties in measuring the feasibilities and utility values. Although there are exception of the successful smart city and smart transportation development plans, when the U.S. Department of Transportation (US DOT) collected ideas for the smart city and smart transportation development plan, most of metropolitan cities participated with a long-term plan of smart city development. Although those winning cities of USDOT's smart city challenge are currently well implementing smart city initiatives, still many plans only have visions based on theories without economical feasibility studies. Therefore, this study will examine the feasibilities and utility values of smart intersection, one of smart transportation and smart city initiatives, by the case study of Busan in South Korea, where recently announced development plan of smart intersection.

The main objectives of this research will be to examine the feasibilities, willingness to pay, and utility values of the implication of smart transportation system. Also, it will be to understand the residents' awareness of smart transportation. Sub-objective is identifying the impact of the smart intersection on the traffic management through the case study of Busan in South Korea. The methodology of this research will be the benefit-cost analysis based on the contingent value method (CVM) through the data that will be gathered by economic survey method. Lastly, the study will make a discussion on the result of feasibility and utility study and make a suggestion on implication for future smart transportation development plans. The outcome of this research can be used to develop a practical smart transportation plan, as well as smart city plan, and help to develop the guideline of smart transportation plan framework.

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Key Words: Smart Cities, Smart Transportation, Smart Intersection, Contingent Value Method

PREDICTING THE VMT AND EMISSIONS IMPACTS OF PARK AND RIDE TRANSIT IN THE TWIN CITIES

Abstract ID: 1223

Individual Paper Submission

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Central Theme:

This paper seeks to predict the impact of park-and-ride (P&R) facilities on VMT and emissions in the Twin Cities based on characteristics of the individual P&R users, characteristics of the station, and the type of transit that serves the P&R facility.

Approach:

An internet survey was recently given to sample of transit riders at various P&R facilities around the Twin Cities. Respondents were asked a series of questions to determine how they would travel if the P&R facility was not available. Based on how they answered these questions, a rough estimate of the net impact of P&R usage on

VTM and vehicle emissions has been calculated. These estimates will then serve as a dependent variable in regression models that will predict how various factors contribute to the VMT and emission reductions (or possibly increases) that are generated by P&R passengers.

Relevance:

Park-and-ride facilities are frequently used by transit operators to attract customers that do not live within walking distance of a transit stop. Given the low-density development patterns in most US cities, the provision of parking seems a pragmatic way to improve ridership. However, to the degree that transit investment seeks to redress the negative impacts of automobile travel, a park-and-ride strategy may prove suboptimal. For example, depending on how far park-and-ride passengers live from their transit stop relative to how far they live from their destinations, one can envision scenarios where the provision of station parking generates only a relatively modest reduction in VMT. This research will help to identify the situations where P&R transit can be most effective in reducing the negative impacts of auto use.

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Key Words: Park and Ride, VMT, vehicle emissions

MODELING HETEROGENEITY IN COMMUTERS' VALUATION OF TRAVEL TIME IN AN AUTONOMOUS VEHICLE

Abstract ID: 1231

Individual Paper Submission

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Issue: Autonomous vehicles (AVs) could encourage urban sprawl by making longer commutes more acceptable, because riders will be able to work, sleep, and play in the vehicle. The improved comfort and productivity of travel in AVs result in a reduction in willingness to pay for commuting time savings, especially in small and medium-sized cities where urban amenities are less than large metropolitan areas.

Research Questions: The researchers aim to answer the following questions. How does the valuation of travel time in an AV differ across trip characteristics and personal characteristics? How much do AVs reduce the value of commuting time savings? How would the reduction in the value of commuting time affect the commuting patterns in small and medium-sized cities in the US?

Methodology: Researchers designed a stated-choice experiment survey and distributed it to 4,624 individuals living in small and medium-sized cities in the US. Participants are assigned to various scenarios and asked to choose the preferable trip for their commute. Researchers received 2108 completed responses from the choice experiment. Researchers used the mixed logit models, rank-ordered logit model, and latent class model to estimate people's valuation of in-vehicle time and preferences for their current vehicles and autonomous vehicles.

Finally, researchers conducted simulations on the impact of introduction of autonomous vehicles on commuting time and the impact of pricing policies on autonomous vehicles adoption.

Anticipated Results and Implications: The study shows significant heterogeneity in the valuation of commuting time in an autonomous vehicle depending on individuals' attitude towards driving, trip characteristics, potential in-vehicle activities, and income. Moreover, results show that the majority of people still prefer regular vehicles to autonomous vehicles for commuting. This may be partly because that people enjoy driving. The simulation results show that AVs will not have significant impacts on commuting patterns and urban forms in small and medium-sized cities since only a small portion of people will choose autonomous vehicles for their current commutes. However, the adoption rate and commuting time could vary under different pricing schemes.

The rapid pace of the autonomous vehicle development makes this research timely. The results will help policymakers understand how autonomous vehicles would potentially influence people's travel behavior and residential location choices. The individual-level willingness to pay for commuting time savings in AVs and the reduction in the value of commuting time will provide guidance on parameter choices when conducting microsimulation modeling on the impacts of autonomous vehicles.

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Key Words: autonomous vehicle, valuation of travel time, stated choice experiment , discrete choice model

POST-RECESSION RENTAL MARKET DYNAMICS IN PROXIMITY TO TRANSIT STATIONS

Abstract ID: 1234

Individual Paper Submission

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During the post-recession period, rental prices have seemingly outpaced the average market in transit-oriented development (TOD) locations, which are characterized by walkable, transit-accessible, compact and mixed use neighborhoods. This study examines over 23,000 census tracts across the United States to predict the change in rental rates from January 2012 to June 2016. Significant independent variables include density, income, employment type, race, ethnicity, jobs and housing balance, walkability, distance to the station and distance to the CBD. The authors modelled the data using three model types, including: 1. Ordinary least squares (OLS) regression, 2. geographically weighted regression (GWR), and 3. a hierarchical spatial autoregressive model (HSAR). The OLS model revealed that density, income, professional and service workers and walkability are all associated with increases in rental prices whereas retail employment, black and Hispanic, increasing distance to the station and distance to the CBD were each associated with a downward pressure on rental rates. The OLS model also controlled for 39 regions, using Dallas as the reference. The GWR model controlled for the impact of census tracts in close proximity and found similar patterns except the sign for Hispanic was reversed, meaning tracts with higher shares of Hispanics was associated with increasing rental prices. Finally, the HSAR model, the input includes the number of the nearest neighborhood to be included in the analysis at the region level and the tract level for developing a spatial weighting matrix. The signs of each independent variable follow a same pattern as the OLS results. The comparative methodology of this paper allows for triangulation to better understand the post-recession rental market dynamics in transit stations areas. Findings indicate that efforts which allow for denser, professionally-oriented, walkable locations in closer proximity to stations and the CBD are associated with escalating rental prices. Rental price growth has been less evident in locations with poorer

and minority residents, communities with more retail employees, and somewhat surprisingly, locations with a greater degree of jobs-housing balance. Prices decline significantly further from transit stations and further from the CBD. The implications of this study are useful when considering the allocation of affordable housing subsidies and the overall possibility of gentrification in TODs. If left to the private market, rental housing in station locations that are characterized as TODs run the risk of only being accessible by residents who are increasingly wealthy, white, and professionals. Minorities, lower income, and retail workers, who may need access to transit are being priced-out of such locations.

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Key Words: transit oriented development, rent prices, housing, gentrification, transportation planning

CLIMATE JUSTICE IN TRANSPORTATION VULNERABILITY ANALYSIS TOWARDS SEA-LEVEL-RISE

Abstract ID: 1247

Individual Paper Submission

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Many coastal cities are facing increasing flooding risks due to sea-level-rise (SLR). In an effort to establish corresponding adaptation plans, researchers and local agencies have conducted transportation vulnerability assessments towards SLR-induced coastal flooding. However, few empirical studies have incorporated climate justice in these assessments. Rather, most vulnerability indexes proposed in previous studies assign equal weight to each trip/person, with little regard to the variances in travel needs of different social groups (Mattsson & Jenelius, 2015). Climate justice is a concept derived from environmental justice that can refer to a wide range of inequities associated with climate change (Schlosberg, D., & Collins, L. B., 2014). Since President Clinton issued Executive Order 12898 in 1994, Federal Highway Administration is required to develop environmental justice strategies to identify and address disproportionate environmental effects of their programs, policies and activities on minority population and low-income population. So far, the discussions of climate justice are mainly focusing on global and regional scale, providing little support for local vulnerability reduction and adaptation efforts (Barrett, S., 2013). As a key step in building resilient coastal communities towards SLR, transportation vulnerability analyses, if done without considering climate justice, may not only overlook the travel needs of certain groups, but also facilitate the establishment of an improper adaptation plan that redistributes flood risks in a way that actually widens the existing injustice.

This paper aims to extend previous research on transportation vulnerability analysis by incorporating climate justice in an empirical study. Here, climate justice refers to "harm avoidance justice" in transportation accessibility associated with SLR-induced-flooding (Simon Caney, 2014). This study evaluates the distributions of accessibility-based multimodal transportation vulnerabilities among social groups using data of Hillsborough County, Florida. Hillsborough County is located in U.S.'s top one aging metropolitan area—Tampa Bay Area. It contains the largest urban center in the region—Tampa City, which is also Florida's top two city in income inequality. Due to its diverse, rapidly aging population and severe income inequality issue, Hillsborough County

has a substantial number of transportation-disadvantaged residents that traditional transportation vulnerability assessments may overlook.

This study groups households by income, race and age to highlight the needs of potential transportation-disadvantaged groups. To mimic future transportation network and travel demands, this study adopts 2040 cost affordable network alternative scenario in Tampa Bay Regional Planning Model v8.2 (TBRPM v8.2), which is consistent with Tampa's long-range transportation plan and comprehensive plan. Based on National Oceanic and Atmospheric Administration (NOAA)'s adjusted local SLR scenarios at the closest tide gauge (in St. Petersburg), flooding maps of 1ft and 2ft SLR scenarios are chosen and derived from NOAA's Sea Level Rise Viewer for inundation analyses. First, for each SLR scenario, the study identifies inundated road links, nodes and traffic analysis zones in the study area through spatial analysis in ArcGIS. Second, it simulates three transportation scenarios in TBRPM v8.2: one base scenario, one scenario with a disrupted transportation network under the impacts of 1ft SLR, and the other scenario corresponding with 2ft SLR. Based on the simulation results, the study then calculates the multimodal transportation vulnerability for each social group with a newly proposed index that integrates their mode choice preferences. The expected findings of this paper will answer the following questions: 1) Does climate justice issue exist in Hillsborough County? 2) If so, which groups are the most vulnerable to SLR's impacts on accessibility? Finally, the paper will discuss the policy implications of these findings on adaptive transportation planning.

Though using the empirical data of Hillsborough County, this study will shed some light on the existence, severity and evaluation methods of climate justice in SLR-related transportation vulnerability assessments in general.

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Key Words: transportation vulnerability, sea level rise, climate justice

POTENTIAL AUTOMATED/CONNECTED VEHICLE IMPACTS TO TRAVEL DEMAND FORECASTING: A CASE STUDY IN CENTRAL TEXAS REGION

Abstract ID: 1255

Individual Paper Submission

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Over the last few years, there has been a growing interest in automated vehicles (AV) and connected vehicles (CV) and how this technology will shape the way that we live and travel. Transportation researchers and practitioners are particularly interested in understanding the impacts AV/CV technologies may have on future system demand and the potential benefit to address the growing problems of traffic safety, congestion and air quality associated with current mobility patterns and behavior. While AV/CV technologies are evolving and may lead to revolutionary changes, they will bring a high degree of uncertainty to transportation and therefore, to the field of travel forecasting.

Given that AV/CV technologies are not yet part of the transportation system, no observed data are yet available to build (or validate) travel forecasting models. Evidentially, MPOs are not yet sure how to plan for and model this future. Researchers and practitioners are eager to attempt to quantify the potential outcomes by developing different scenarios of possible outcomes, including the current study.

The primary objective of this study is to examine the potential impacts that AV/CV technologies may have on the capability of the future transportation plans to accommodate these technologies. The study utilizes an existing unmodified trip-based travel demand model and implements a case study of a congested urbanized region in Texas.

For this research study, it was assumed that 100 percent of the vehicle mix would reflect a fully integrated self-driving automated system. This assumption is consistent with the National Highway Traffic Safety Administration (NHTSA) automated vehicle Level 4 definition. A number of research reports attempt to document the anticipated adoption of different enabling technologies and fleet turnover but for this study, the entire driving fleet was assumed to be fully autonomous and connected. Within different scenarios tested, households would maintain current vehicle ownership levels (and activities) but drivers would relinquish navigation to the automated vehicle or would participate (albeit limited) in greater shared-ride alternatives. Rather than trying to address multiple topics simultaneously, this study design focused on incrementally evaluating the impacts of certain changes and developed five scenarios as below:

- S1) This scenario represents the retirement of one directional emergency lane since two emergency lanes may no longer be necessary in a fully automated system that improves vehicle flow and corresponding safety. Alternatively, this scenario could be thought of as narrowing of lanes that allows for an additional direction lane.
- S2) Utilize the Scenario 1 network geography and increase the per-lane per-hour capacity for freeway functional classes to 4,000 vehicles per hour per lane. The network capacities tested in Scenario 2 conceptually might be achieved if weaving, ramp metering, and gaps between vehicles are reduced.
- S3) Utilize the Scenario 2 network geography and increase the per-lane per-hour capacity for arterials by 10 percent. The per-lane per-hour capacity of the arterial roadway network increase was minimized relative to the freeway concept used in Scenario 2 because there are limits to how much traffic can be improved at intersections with existing technologies. This scenario does acknowledge that there will be some benefits to the signal controlled system.
- S4) Utilize the Scenario 3 network geography and move all transit trips to HOV trip tables. This was manually accomplished post mode choice and is meant to determine the impact of converting all transit trips to shared-ride auto trips (e.g., robot-taxis).
- S5) Utilize the Scenario 4 network geography and consider the intelligent transportation system (ITS). In this scenario, we assume all robot-driver can recognize each other and move with a regional goal. Specifically, the optimization for the traffic assignment is not based on user equilibrium but a system optimization.

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Key Words: Automated/Connected Vehicle, Travel Demand Forecasting

THE UNOBSERVED TRANSPORTATION EQUITY EFFECTS OF LONDON'S BUS PRIORITY NETWORK

Abstract ID: 1262

Individual Paper Submission

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Between 1993 and 2010, London's bus system doubled in ridership. Ridership increases track with the deployment of bus lanes, transit signal priority, and service expansion through both the Red Routes program begun in 1992 and the London Bus Priority Network (LBPN) begun the following year. Red Routes refer to roads controlled by the Department for Transport's Traffic Director for London and the LBPN for roads controlled by London's 31 boroughs. Over the 1990s, London's traffic director and traffic engineers in the boroughs systematically reallocated road space away from cars to buses and excess waiting times for buses fell. Combined with policies to keep bus fares low and improvements in bus accessibility for those with mobility impairments, the improvements to the bus network were also net positive on equity grounds and counteracted some of the effects of rising Underground fares and house prices.

This research uses spatial analysis of the Red Routes and LBPN deployment to assess the equity effects of the improvements. Using UK census data on race, age, and income demographics, Transport for London data on excess wait times by bus route, and historical data on bus lane deployment, I trace the travel improvements over time. The analysis tests both the difference in changes to Public Transport Accessibility Level measures by area demographic characteristics and direct measures of falling wait times on the bus network (Wu and Hine, 2003). While London Regional Transport and its successor Transport for London conducted before and after analyses on some deployments (e.g. Wood and Smith, 2003), this research represents the first study of the Red Routes and London Bus Priority Network as a whole and the first to explore the equity effects.

Understanding the equity effects is particularly important for the bus priority policies because of their linkage to congestion pricing. Given that it charges a fixed price for road space regardless of income, congestion pricing is an inherently regressive policy and thus often packaged with more progressive policies like bus service improvements. The bus service improvements also can reduce vehicle miles traveled as more users switch off the road to a more appealing service (Givoni, 2012). By looking historically and granularly over a period that had both fare changes and service improvements it is possible to identify which aspects of the bus improvements had the strongest equity impact. The analysis finds that low fares, and particularly the switch to a single fare had the strongest impacts, while bus priority also had a significant effect, consistent with White (2009).

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Key Words: bus priority, transportation equity, PTAL

REVISING THE QUESTION OF “TRANSIT SUBSIDIES: BY WHOM, FOR WHOM?”: THE DISTRIBUTION OF TRANSIT SUBSIDIES IN THE US URBANIZED AREAS

Abstract ID: 1270

Individual Paper Submission

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In Journal of the American Institute of Planners in 1969, Alan A. Altshuler, Professor of Urban Policy and Planning at Harvard University's John F. Kennedy School of Government, wrote an article on transit subsidies to argue that “the use of subsidies should, as a general rule, be confined to enabling the needy to enjoy this service,” and that “we need better designed subsidies, subsidies which concentrate their full impact on high priority welfare objectives.” More than five decades later, we still have transportation policies and funding mechanisms that subsidize transit agencies, rather than individuals and households that depend on public transportation due to their limited access to private automobiles. These policies and funding mechanisms of transit agency subsidies, combined with fare structures that are insensitive to the variance in mode, distance, and time of travel, made difficult to achieve the social policy / income distribution goals of public transit service. In addition, the development of rail systems across the US often exacerbated the outcomes, connecting suburban neighborhoods to central business districts and attracting more affluent choice riders, rather than serving residents and works in poor inner-city neighborhoods. Moreover, several studies indicated that the large proportion of transit subsidies was absorbed by the increasing operating costs—especially labor costs—resulting in lower cost efficiency in service production over years.

A number of studies examined equity in transit finance in the 1970s, 1980s, and 1990s. Particularly, Pucher (1981) conducted an aggregate analysis of the distribution of transit subsidies, costs, and benefits among income classes for selected metropolitan areas. Since the early 1980s, 25 commuter rail systems, 4 heavy rail systems, and more than 40 light rail system (including street cars) have been built across the US. In addition, there has been an increasing number of cities and counties that now finance public transit by local option transportation taxes. Considering these changes in the US rail service and transit financing over thirty five years, this study will conduct an analysis of equity in transit finance similar to the one by Pucher (1981), using data from National Household Travel Survey of 2009 (or 2017) of Federal Highway Administration, National Transit Database (NTD) of Federal Transit Administration, American Community Survey (ACS) of US Census Bureau, and the Tax Foundation’s report on “the Distribution of Tax and Spending Policies in the United States.” More specifically, research questions include: (1) to what extent the low-income households benefited from transit subsidies, and (2) to what extent they have born the tax costs of subsidies.

This study will contribute to the literature of transit financing, which in practice continues to pose substantial challenges to local governments and transit agencies as their fare revenues, on average, only one third of operating costs while equity concerns in terms of mobility and accessibility for transit dependents keeps increasing. In addition to the general findings from the analysis, the study will also discuss the implication of transit subsidy program that targets at low-income households that has been implemented in King County, WA, following the argument made by Altshuler back in 1969.

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Key Words: transit finance, equity , transit subsidy, distribution of costs and benefits, low-income travelers

AUTOMATED TRAFFIC AND PEDESTRIAN ACCESSIBILITY

Abstract ID: 1273

Individual Paper Submission

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A number of projections have estimated that automated vehicles are likely to shift a large share of private vehicle owners to transport network companies (TNCs), such as Uber and Lyft, drastically decreasing the number of privately owned vehicles in cities (OECD 2015). At the same time, in the absence of considerable regulations, lower mobility costs in driverless TNCs will increase automobile travel demand, increasing vehicle miles travelled (Anderson, Kalra et al. 2016; Sperling 2018). Paradoxically, a city with less vehicles will likely have more traffic on the roads. Capitalizing on these trends, some transportation engineers are already proposing new signal-free intersection typologies and street designs that facilitate automated TNC operations (Yang, David et al 2018). But such traffic solutions would also hinder pedestrians from crossing streets at unmarked location and bias signal intervals in favor of motorized traffic. In this paper I discuss how emerging infrastructure designs for AV-based intersections and roadways could affect pedestrian accessibility, as well as alternative uses of streets for social, commercial, and cultural activities in dense urban settings. Using time-lapse videos of a number of Boston and Los Angeles streets, I demonstrate how “jaywalking” on human-driven streets is both pervasive and necessary for maximizing accessibility on foot (Norton 2007). I then use spatial network analysis to estimate how the impact of signal-free traffic intersections (only signal remaining for pedestrians) as well as exclusive AV lanes affects pedestrian accessibility to retail and service destinations in two case study areas in downtown Los Angeles and Boston. The findings demonstrate that pedestrian accessibility could be significantly hindered with AV road transformations and suggest that proactive policies will be needed to prioritize active mobility modes and transit ridership from the negative externalities of futuristic traffic planning.

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Key Words: automated vehicles, ridesharing, pedestrian accessibility, streets, infrastructure design

ECONOMIC DEVELOPMENT AND THE ABANDONMENT OF EQUITY GOALS IN PUBLIC TRANSPORTATION

Abstract ID: 1284

Individual Paper Submission

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Progressive cities across the country have adopted equity initiatives in their regional transportation plans, with the intention of providing greater opportunities for accessing employment and services through deliberate route design and fare structures that benefit low-income riders. While these efforts have resulted in shifts in transportation funding towards transit projects, the increasing attractiveness of central cities for affluent newcomers has also prompted a greater push for municipal investment and economic development. Public transit, in addition to its functional role as a means of moving local residents around the region, has increasingly been used as an effective means of spurring greater private investment. Many urban corridors within low-income neighborhoods, with transit that has not adequately served the existing population, have been targeted at the request of business leaders, local officials, and investors for large financial investments in new rail transit

infrastructure, with the intention of revitalizing these areas and generating public and private revenue. These projects are often massively successful, yielding large benefits for newcomers, local businesses, and the city, but often coming at the expense of regional transit's professed commitment to promoting equity (Garrett and Taylor, 1998). In this paper, I examine the effects that this shift in priorities has on transportation provision for the long-term, predominantly low-income residents of these communities. I argue that calls for the creation or upgrading of public transit in major cities for the purposes of promoting economic development create a strong tendency to deprioritize the stated objectives of transportation equity initiatives. Much of the literature on TOD (transit-oriented development) highlights the benefits of increasing accessibility for residents, but careful examination of the long-term effects of this type of development, and the building of rail infrastructure in general, has revealed that it can have disastrous effects on the affordability of once-improverished neighborhoods (Dawkins and Moeckel, 2016). This study shows that explicit efforts at linking transit expansion to neighborhood revitalization frequently undermine the goals of transportation equity initiatives, but that cities overwhelmingly choose the former at the expense of the latter (Taylor and Morris, 2015). Using South Seattle's LINK light rail and North Portland's Yellow Line light rail as case studies, this paper examines the project plans of TriMet and Sound Transit, and shows that they were functionally incompatible with a set of equity objectives that could meaningfully mitigate low-income accessibility issues on the ground (Manaugh, Badami, and El-Geneidy, 2015). In addition, a review of transportation improvement plans, comprehensive plans, relevant press releases, public hearing transcripts, and the transit agencies' literature on equity planning initiatives will be undertaken to evaluate the stated and implicit goals of these projects. While it is arguable that any public transportation investment has the potential to benefit all residents, this paper demonstrates that low-income and minority residents, who are the target populations for Title VI and most regional equity initiatives, were not truly the primary intended beneficiaries. This study has implications for research on how cities and regions select and justify their transportation investments, as it is increasingly apparent that deliberate choices are made between new private investment and the aims of increased mobility and accessibility for low-income riders.

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Key Words: Economic Development, Equity, Transit, Transportation, Light Rail

DOES UBER REDUCE VEHICLE OWNERSHIP?

Abstract ID: 1317

Individual Paper Submission

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It is almost eight years since Uber started to work and so far, it has been used in more than 200 urban areas. Much has been speculated, but not much has been tested regarding the impacts of Uber or other ride-sharing services on the transportation system. We are working with Uber and in this study, we want to examine whether car shedding is happening in urban areas that Uber has marketed since Uber is widely available and less expensive than owning a car. According to American Automobile Association report in 2017, the average costs of owning a new car is \$8,469 per year. This will pay for an Uber ride a day.

Literature Review: As Clewlow and Mishra (2017) explained, the innovation in mobility business models makes it difficult to effectively measure the potential impacts of these new mobility services on transportation systems

and infrastructure. Additionally, because of the confidentiality of the data both for privacy and business incentives, seldom researchers such as Clewlow & Mishra (2017) and Cramer & Krueger (2016) have been able to look for changes in the choice of transportation mode, trip frequency and vehicle ownership.

Data collection: We acquired Uber launch dates from Uber. We acquired vehicle ownership from the American Community Survey (ACS) from 2007 up to 2016 (the most recent). The number of urban areas that we examine in this study is 78 because of the availability of data. Also, Uber entered in these urban areas before 2015 and therefore, we can understand the trends of before and after Uber came to those areas. We acquired other variables such as average income, household size, freeway lane miles and fuel from VMT growth database (Ewing et al., 2014).

Analysis and result: The first step was analyzing the difference of means (paired sample t-test) to see vehicle ownership before and after Uber was launched in 78 urban areas. The mean was significantly lower for the 3 years after Uber than 3 years before. However, there is a downward trend in vehicle ownership during the period. So, the apparent car shedding after Uber is confounded by general trends in vehicle ownership.

Next, we conducted an econometric study which we pulled data from VMT growth data base (Ewing et al., 2014). This step required multi-level modeling since we have data for a 10-year period and years are nested within places. We estimated the growth curve with vehicle ownership per capita at level 1 as a function of the years since Uber launched. At level 2, we had variables that didn't change appreciably over the course of time series such as population, population density, household size, freeway lane miles and fuel.

The results of this longitudinal analysis were counter-intuitive. Vehicle ownership declined during the 10 years of our series. But, vehicle ownership increased in years after Uber was launched. This makes no sense unless possibly people are acquiring cars to offer Uber service and Uber costumers are not shedding cars. However, when we estimated a random coefficient model, capturing interaction between years after launch and population of the metropolitan area, we found that for the largest metropolitan areas like New York and Los Angeles, the number of vehicles does actually decrease with time after the launch.

Implications: Uber is not a panacea for the auto dependence of the US population. However, it is too early to drop the hard conclusion from this very preliminary study. As soon as the data for 2017 and 2018 gets published from ACS, we will re-estimate our models and we'll be working with Uber to refine these results and test other impacts of Uber service.

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Key Words: Ride-Sharing Services, Uber, Vehicle Ownership, Travel Behavior

SCHOOL TRANSPORTATION DISADVANTAGED: CAPTIVE VERSUS FREE-CHOICE WALKERS FOR SCHOOL COMMUTING

Abstract ID: 1373

Individual Paper Submission

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INTRODUCTION: Despite the growing body of knowledge on school transportation and active commuting, studies addressing disparities or differences among special sub-groups of children are limited. Certain lower-income and/or minority children are forced to walk to school as they lack other feasible alternatives, and therefore can be considered as “captive” walkers. Captive walkers often bear additional health or safety risks while walking, because they tend to live in and exposed to environments with unfavorable or unsafe conditions (e.g. lack of adequate pedestrian infrastructure, environmental hazards or pollutants).

OBJECTIVES: Building onto the previous literature recognizing the differences between captive and free-choice commuters, this study examines personal and contextual (perceived environmental) factors that are differentially associated with captive versus free-choice walkers in terms of school commuting mode choice. “Captive walkers” in this study are defined as those who are from a carless household and perceive their home-to-school distance to be too far to walk, and “free-choice walkers” are those walkers who do not have such conditions.

METHODS: This study used data from a large-sample parental survey (response rate=34.2%) conducted in 20 elementary schools in Austin, Texas, in 2010. This study analyzed a subset of 1,492 respondents who met the definitions of captive walkers (N=389, 26.1%) or free-choice walkers (N=1,103, 73.9%). In addition to unadjusted/bivariate analyses, multivariate mixed effect models were estimated to predict the odds of being a captive walker (versus free-choice walker) while accounting for the school-level data clustering. Statistical significance was determined as $p < 0.05$.

FINDINGS: Free-choice walkers were more likely to be White and non-Hispanic. Unadjusted logistic analyses showed that parents of free-choice walkers had more walking-friendly environments, such as well-maintained, clean and quiet neighborhoods; and were more likely to have social supports from family, friends, and neighbors. Parents of captive walkers, on the other hand, were more likely to worry about getting their child lost and taken by a stranger or hit by a car. Captive walkers were more likely to be exposed to traffic-generating land uses (e.g. convenience stores, restaurants/cafes, retails/businesses, and gas stations) and highway/freeway crossings en route to school, while free-choice walkers were more likely to have sidewalks, playgrounds and parks, and be satisfied with sidewalk conditions (well-maintained, clean, wide, and free of obstructions).

Multivariate models further showed that captive walkers spent more time for commuting than free-choice walkers, while the objectively/GIS-measured home-to-school street network distance was not significantly different between the two groups. Parents of captive walkers were more likely to express negative attitudes about walking to school, and less likely to have supportive social influences from their neighbors and be aware of pedestrian safety education/programs. For the home-to-school route environment, captive walkers were less likely to have sidewalks (OR=0.770) and positive changes in the neighborhood, such as newly built playgrounds (OR=0.323), but more likely to have restaurants/cafés (OR= 3.255).

IMPLICATIONS: Findings from this study highlighted modifiable factors that differed between captive and free-choice walkers, including parental attitude toward walking, availability of safety education/programs, and physical environmental features (i.e. sidewalks, playgrounds, and restaurants/cafes). Future research on school commuting should consider population-specific requirements of and disparities in environmental and program supports for walking.

To enhance safety and walking experiences especially for captive walkers, promising strategies for planners and policy makers to consider include: (1) providing training programs on pedestrian safety, (2) providing media campaigns and educational programs to reduce negative attitudes about walking, (3) installing more sidewalks and maintaining them in good conditions, and (4) reducing traffic-generating land uses, and (5) providing more playgrounds and other child-friendly facilities near school.

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Key Words: school transportation, walking to school, neighborhood environment, children

PRIVATE VEHICLE OWNERSHIP AND OPERATING COST CALCULATOR FOR TEACHING AND RESEARCH

Abstract ID: 28

Poster

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The goal of this study is to develop a tool that can help students and the public to better understand the total cost of owning and operating a private vehicle, also known as True Cost to Own (TCO). TCO consists of visible costs such as purchase cost and invisible costs, e.g. financing, fuel, insurance, etc. Underestimating such hidden costs embedded in TCO often lead people to choose unaffordable vehicles in their financial situation. As such, educating students studying transportation planning on the TCO calculation is important to help them better understand the behaviors of people's vehicle purchases.

Typical online websites, such as Edmunds® and Kelley Blue Book®, are applicable resources to help understand TCO calculation, providing users with a simple five-year cost of ownership calculation, employing average purchase price data and depreciation tables, average mileage accrual, fuel cost estimates, and ongoing costs such as maintenance and insurance provided as typical averages. However, actual purchase price and financing arrangements, annual insurance costs, parking and tolls, and a variety of other costs can vary widely across geographic regions (specifically, urban versus rural environments) and from household to household and individual to individual. Furthermore, the existing sites do not provide the level of detail needed by users to see how they might change their operating costs.

Regarding this, to provide a more personalized calculation approach, the research team developed an NCST (National Center for Sustainable Transportation) Vehicle Ownership and Operating Cost Calculator (<http://costcalculator.ce.gatech.edu/>). The NCST website provides users with data entry flexibility and a clear, intuitive, and interactive user-interface through which users can better understand their vehicle ownership costs. Vehicle ownership costs are calculated based upon lookup data and user input data for such elements as: purchase price, down payment, interest rates, loan term, annual insurance, maintenance, tire, smog check, parking, tolls, etc. All lookup data can be modified as desired by the user. The research team developed the cost calculator using data from: 1) EPA Certification Test Result Database, for the assortment of vehicle make, model, model year and fuel type data; 2) the State of Georgia Department of Revenue Motor Vehicle Division Database, for vehicle purchase price information; and 3) US Department of Energy's Fuel Economy Database, for fuel economy data.

Particularly, NCST website is designed to provide students and the public a tool that can be used at any educational level and in research. Students and the public can use the tool to calculate the cent/mile and total cost

of vehicle ownership over the life of the vehicle, with cost estimates for each component specifically identified so that users can weigh these importance in their decisions on vehicle purchase and use. From an educational perspective, this tool can be used as an instructional aid to specific courses. For example, the tool has been deployed for the urban transportation planning course at Georgia Tech (CEE6602), where the students are asked to compare different vehicle choices based on a real-life case study problem. In addition, the authors plan to introduce this tool to high school consumer economics class to help students make reasonable choices by educating them to consider TCO in the whole life cycle.

As a part of this research, the team conducted a pre- and post- survey on students taking CEE6602 class about their perception of TCO. The results indicate that educating students on the TCO calculation through NCST website have led to a change in their perception of TCO. In particular, for example, the students became more aware of the importance of depreciation costs in TCO.

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Key Words: True Cost to Own, Transportation planning education, Online calculator, Vehicle ownership

EVALUATING TRANSIT-SERVED AREAS WITH NON-TRADITIONAL DATA: AN EXPLORATORY STUDY OF SHENZHEN, CHINA

Abstract ID: 192

Poster

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In this study, transit-served areas (TSAs) are defined as areas within a reasonable distance of transit. Transit-oriented development (TOD) is regarded as a subset of TSAs. TSAs have two key dimensions: physical features and performance (regarding human behaviors). It is partially because of the characteristics of input (traditional) data that it is difficult for us to measure both the features and performance of TOD/TSAs and develop useful and replicable indicators/benchmarks to differentiate many TSAs simultaneously. It shows that non-traditional data (NTD) can supplement traditional data to help overcome the about difficulty. Through a case study of Shenzhen, China, it demonstrates how NTD such as social media check-ins, on-line points of interest and human heatmaps can be used to quantify/assess the features and performance of 167 TSAs. Based on the case study, one can find that: the features (measured by the number of POIs with check-ins) and the performance (measured by the number of popular app users) of different TSAs can vary significantly; even for the same TSAs, their features and the performance can vary across days and the extremely underperforming or performing TSAs can be totally different across days; the POI efficiency, that is, the average app users attracted by each POI) seems to be a useful indicator to further differentiate TSAs' performance.

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Key Words: Transit-served area, feature, performance, non-traditional data

TRANSIT DESIRABILITY: A NOVEL MARKET SEGMENTATION APPROACH FOR PREDICTING CUSTOMER RETENTION

Abstract ID: 603

Poster

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Public transit is increasingly considered as an attractive travel option for many urban residents. Especially, fixed-rail transit, such as subway, light rail transit, and bus rapid transit, can provide more affordable, more sustainable, and more convenient form of transportation than automobiles in highly congested urban areas. As demand for public transit grows in many cities, transit operators will need to continue to understand their transit market and customer retention to maintain their service levels and market share. However, there is a limited understanding of transit market and lack of easy-to-use metric to determine the likelihood of current customers to remain active users.

Market segmentation has been advocated as a means of increasing transit ridership. Giuliano and Hayden (2005) describe a broad range of existing marketing strategies for increasing public transport patronage, including segmentation strategies to better serve various submarkets. Traditionally, segmentation for travel-behavior analysis is estimated by probabilistic choice models that associate socioeconomic, spatial, and attitudinal factors with the assignment of market segments (Badoe and Miller, 1998; Bhat, 1997). However, this stream of research has a very limited application in transit market. While a body of literature uses direct ridership model to predict the market demand for public transit (Cervero et al, 2010), it is more efficient to target different transit user groups by different market strategies.

This research proposes to develop a “transit desirability” score, a novel data-driven metric to assess transit market and predict customer retention. Three years of customer satisfaction surveys from Edmonton Transit System (ETS) from the City of Edmonton, Canada are used to assess transit market segmentation, including non-user, captive users, and choice users (Krizek and El-Geneidy 2007). Instead of conventional choice models, this study adopts a data-driven approach using machine learning models, such as hierarchical clustering, k-means clustering, and Gaussian mixture model, to classify market segments. Machine learning models, including support vector machine, decision tree, and random forest, will then be used to develop a predictive model that estimates future customer retention based on customer loyalty, satisfactions, and other underlying socioeconomic and spatial characteristics.

Preliminary results indicate that k-means clustering technique provides a fairly accurate classification of transit market segments. Vehicle ownership, travel purpose, transit usage, and age are among the most important factors in the classification scheme. In the next few months, the authors will use the customer satisfaction survey as the training data set to develop predictive models. The resulting predictive analytics will form the basis of the transit desirability score.

The advantage of machine learning techniques is the capability to capture non-utility based behaviors and make full use of the features in the data to achieve highly accurate classification and prediction. The authors expect to derive the transit market segmentation for the City of Edmonton, but similar approaches can be applied to other jurisdictions. Furthermore, customer retention for each market segment is predicted so that local transit authorities can implement targeted market strategies to attract ridership for heterogeneous user groups.

This study will provide new perspectives to inadequate research on transit market segmentation by introducing multiple machine learning techniques. The predictability of modeling framework will help transit agencies effectively forecast customer retention for different market segments and alter strategies to achieve better retention outcomes.

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Key Words: Transit Market, Market Segmentation, Customer Retention, Customer Satisfaction, Machine Learning

IMPACT ON TRANSIT RIDERSHIP OF UBERX AND LYFT IN THE PHILADELPHIA REGION

Abstract ID: 622

Poster

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Due to the recentness of the emergence of transportation network companies (TNC) and the lack of publicly available data, relatively few studies have investigated the impact on transit ridership of services such as UberX and Lyft. As a result, the exact nature of these services' influence on transit has so far been unclear. On the one hand, the flexibility and affordability of services provided by TNCs could allow them to become a viable first and last mile solution by connecting transit passengers between stations and their origins or destinations. Furthermore, services like UberX and Lyft provide an alternative to passengers when transit services are unavailable or infrequent. As such, TNCs have advertised their services as a complement to transit services. On the other hand, several transit agencies speculate that the growth of the services provided by TNCs has contributed to the recent loss or slowed growth in transit ridership. Confounding the relationship between ridership and TNCs' services is the fact that urban transit ridership is subject to a series of demographic, geographic, economic, and transport system related factors. The lack of understanding of TNCs' impact on ridership poses a challenge to transit agencies' service planning and operation and undermines their efforts to allocate resources to respond to market demand. Through time series analysis and regression discontinuity analysis, this study attempts to identify the impact on both bus and rail transit ridership of UberX and Lyft in the Philadelphia urbanized area (defined by the U.S. Census Bureau). Monthly unlinked ridership data for Philadelphia's regional transit service provider, SEPTA, come from the National Transit Database. These data cover the period between January 2002 and November 2017. Preliminary findings from the analysis suggest that the ridership trends for both bus and heavy rail (including subway and regional rail) kept constant before the market entry of UberX. A noticeable decline occurred a few months after the launch of UberX and Lyft in the study area. The rate of decline for each type of transit service is similar. Findings from this analysis could help the local public transit agency, SEPTA, make informed decisions to ensure efficient operations. Other regions could adopt similar methodology to study the impact on their transit ridership of services from transportation network companies in their local markets.

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Key Words: Philadelphia, ridership, TNC, transit

TRAVEL-LIKING ATTITUDE REVISITED: EVIDENCE FROM WASHINGTON, DC AND BLACKSBURG, VA

Abstract ID: 762

Poster

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The positive utility of travel is defined as the intrinsic value of travel that provides travelers with pleasure and affection (Mokhtarian & Salomon, 2001). Thus, travelers with a travel liking attitude seek satisfaction not only through activities that are possible by traveling, but also through the act of traveling itself. Treating travel as a demand of its own may change the way transport researchers and practitioners model travel demand.

In the past decade, attention to studies of travel liking attitude and the positive utility of travel has grown (Redmond & Mokhtarian, 2001; Smith, 2017, Singleton, 2017). Previous studies on the topic often have a narrow focus on school- and/or work-related commute trips. These studies typically use recall surveys to collect information on trip characteristics and satisfaction levels. For a more comprehensive and accurate understanding of the positive utility of trips, there is a need for studies that use methods that address these limitations – namely, survey methods that allow for instantaneous response and that examine all types of trips.

Aiming to overcome these limitations, this study leverages a mobile phone application that incorporates a 1-week trip diary with GPS-tracking that allows for instantaneous reporting of travelers’ experience directly after each trip. The study was available to anyone who was 18 years of age or older and lived in the Washington, DC or Blacksburg – Roanoke, Virginia metropolitan areas during the fall of 2016 to the spring of 2018. For this analysis, we removed train trips due to the poor or absent GPS signal on the train.

We measured travel liking attitude by asking respondents about their ideal travel time for each trip. After cleaning, the dataset contains 3,078 trips from 182 individuals. To explore the determinants of desired amount of travel, we estimated a set of Tobit models that accounted for panel effect and groupwise heteroskedasticity. Our hypotheses are: (1) active travel mode users, such as bicyclists and pedestrians, are more likely to report a longer ideal travel time; and (2) more tasks performed during trips (e.g., talking, reading, working) increases reported ideal travel time.

Our results suggest that activities during trips (e.g., talking, using phones, looking at the landscape) have a positive effect on ideal travel time. We also found a weak positive association between actual and ideal travel time. Respondents desired a longer travel time for leisure trips compared to other trip purposes, but a shorter travel time for car and bus trips as compared to bike and walk trips. We did not find a significant difference between ideal travel time by walking and bicycling.

Demographically, people who work at home have shorter ideal travel times as compared to full time students and employees. People of color have longer stated ideal travel times as compared to their white counterparts. Those who work at home also like shorter travel time. Respondents in Washington, DC have longer stated travel times

as compared to Blacksburg respondents. In general, these findings align with the results from previous studies on travel liking and positive utility of travel (Le et al., 2017).

The results offer some implications for planning and transportation practice. Transportation practitioners should be cautious in evaluating the effectiveness of travel demand management strategies aimed to reduce the amount of travel. The positive correlation of travel-based activities and ideal travel time may have implications for the potential effect of autonomous vehicle use (where multitasking is enabled) and travel time in the future. Additionally, certain types of trips, such as trips made by bicycles or walking, are worth promoting for enhancing human well-being.

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Key Words: travel behavior, positive utility of travel, satisfaction, activity, smartphone survey

THE PERCEPTIONS OF BICYCLING INTERSECTION SAFETY BY FIVE TYPES OF CYCLISTS

Abstract ID: 961

Poster

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Bicycling is an environmentally friendly, healthy, and affordable mode of transportation that is viable for short distance trips in particular. Safety concern is one of the most important deterrents preventing people from cycling (e.g., Akar & Clifton, 2009). Past studies have found that cycling through intersections may significantly increase the risk of experiencing traffic accidents (e.g., Dozza & Werneke, 2014). As the number of bicyclists grows in the US (e.g., Pucher et al., 2011), many cities are increasing their investments in bicycle facilities to improve perceived and actual bicyclist safety at the intersection level (e.g., Dill et al., 2012). However, the needs and concerns regarding cycling are heterogeneous among cyclists. For example, experienced cyclists are less likely to use cycling facilities as compared to others. This is because they may feel less stress even when riding through busy intersections. There is a need for comprehensive understanding of the varying relationships between street intersection features and bicycling safety perceptions across different types of cyclists.

To date, the most famous cyclist typology is developed by Geller (2006) for the city of Portland. The typology divides the entire commuting population into four types: no way no how, interested but concerned, enthused and confident, and strong and fearless. His classification is based on a person's level of comfort when cycling on different types of bikeways. Geller's theory (2006) provides great assistance to policy-makers as it points out the target population segments for investments in bicycle facilities. However, this classification assumes bicycle facilities would not affect non-cyclists' comfort levels of cycling. Though these individuals do not currently bicycle at all, they should not be ignored while making policy and infrastructure decisions.

This study contributes to the literature by analyzing and comparing the influences of intersection design features on the safety perceptions of multiple types of cyclists. The data used in this study come from an online visual survey conducted at the main campus of The Ohio State University in 2017. We collected data on respondents' safety perceptions at various intersections. These respondents rate our intersection images on a five-point scale of "Very unsafe to cross" to "Very safe to cross". We received responses from 1,376 individuals. We also collected data on other factors that are known to affect bicycling decisions such as socio-demographic characteristics, bicycling experience levels, and main travel mode. We first group our respondents into five categories: (i) advanced and intermediate cyclists, (ii) novice cyclists, (iii) non-cyclists who are pro-walk, (iv) non-cyclists who are pro-public transit, and (v) non-cyclists who are pro-drive. The exploratory analysis results suggest that advanced and intermediate cyclists may feel safer than others while riding through intersections. We develop ordinal response models with safety perceptions as the dependent variable. We find that the effects of our variables of interest (such as traffic volumes, two-stage turn boxes, cycle tracks, the presence of crosswalks) do vary across different types of cyclists. For example, the presence of bicycle crossing sign is positively associated with novice cyclists' safety perceptions at the intersection level. However, this facility does not significantly affect the perceived safety of other cyclists. Our results indicate that intersection design tends to have a larger impact on the safety perceptions of novice cyclists than that of non-cyclists.

Our results can be used by transportation planners to project the changes in different cyclists' safety perceptions with respect to changes in intersection features. The research results also suggest specific policy interventions for promoting cycling for urban mobility.

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Key Words: Intersection safety, Cyclist typologies , Bicycling facilities , Non-cyclists

THE HEALTH IMPACTS OF FIXED-GUIDEWAY TRANSIT INVESTMENTS: A SYSTEMATIC REVIEW AND RESEARCH AGENDA

Abstract ID: 970

Poster

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CENTRAL THEME: Fixed alignment transit such as light rail and bus rapid transit are large and important regional investments that impact land value and are linked with economic development, housing, and social justice strategies. A large body of research also suggests these investments can improve community health through increased physical activity. In preparation for the development of the Millennium Line Broadway Extension (MLBE) in Vancouver, British Columbia, this team reviewed the state of longitudinal health research around fixed-guideway (bus rapid transit and light rail) investments.

METHODS: Through a systematic literature review, the authors identified 52 studies (50 published journal articles and 2 theses and dissertations) that clearly reported on rapid transit interventions and the longitudinal impacts on health-related outcomes of interest. The included studies contain pre-post evaluation of 33 unique rapid transit systems in 31 cities across North America, South America, Europe, and Asia. The studies describe 8 Bus Rapid Transit, 22 rail (Light Rail Transit, Metro Rail, or Subway), and 3 tram or streetcar systems.

Because bodies of literature and methodological challenges are often unique to outcomes studied, studies were organized by the following five outcome categories:

- Transportation outcomes such as mode, ownership and vehicle kilometers traveled (VKT);
- Intermediate behavioral outcomes such as physical activity and obesity;
- Environmental outcomes associated with emissions;
- Social and economic outcomes including income, crime, land use, density, employment; and
- Health outcomes such as mortality and morbidity.

FINDINGS: There was wide variation in the methods used to study the community-level health impacts of fixed-guideway transit investment. The relationship between a transit investment and measurable health outcomes is complex and includes study of multiple steps to get from the intervention to health outcome. Further, study design, sample size, control groups, and other methodological choices differ by outcome, population and geographic scale. This makes it difficult to compare studies.

Transit intervention studies that explicitly focus on health outcomes are very limited and typically stop at the intermediate body-mass index (BMI) outcome. Few studies of health-related outcomes have isolated the impact of transit from other factors such as non-motorized investments that occur contemporaneously. Studies that capture potential benefits from physical activity rarely include, but should address, potential risks from exposure to air pollution, noise, and traffic injuries.

IMPLICATION FOR RESEARCH: To study and document the health impacts of MLBE or any other fixed-guideway investment, mixing several types of study designs may be required to understand both behavioral and exposure-based health impacts. This can be done by leverage existing data on larger samples while conducting targeted primary data collection. Capturing vulnerable underserved populations potentially displaced by transit is critical and requires targeted geographic sampling. Researchers and funders should prioritize collection of morbidity measures such as diabetes and cardiovascular disease. Finally, there are opportunities for analysis of potential health care cost savings benefits in relation to transit investment.

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Key Words: physical activity, health, light rail, transit, study design

MEASURE THE LOCAL AND GLOBAL COMMUTING EFFICIENCY: AN EXPLORATORY ANALYSIS OF TAXI COMMUTING IN NEW YORK CITY

Abstract ID: 984

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Research Question

Analyzing and improving the commuting efficiency can not only decrease energy consumption, but also accelerate urban flows, which are critical for the sustainability of cities. The popular excess commuting method in measuring the commuting efficiency mainly focuses on the global level of the city, but the urban planners and transportation engineers are more concerned about where the specific low efficient regions and transportation network are located in practice.

In this study, we proposed a bottom-up approach to address the gap, in other words, the measure method could measure both the local and global efficiency. We choose the New York City as the study area, for the city has released taxi data to the public with detailed travel information.

Approach

The first step is to identify the taxi commuting travel by analyzing the peak hour and discovering the residential area and workplace by some rules. Then, the efficiency can be measured at two levels. At local level, we can calculate the efficiency of each taxi commuting travel. The efficiency can be calculated by:

$$e_{(i,j)}^n = (c_{(i,j)}^n / c_{\max}) * (v_{\text{route}(i,j)}^n / v_{\max}) * (d_{\text{geo}(i,j)}^n / d_{\text{route}(i,j)}^n)$$

Where $c_{(i,j)}^n$ is the passenger population of n th trip between region i and region j ; $c_{\max}$ is the maximum capacity of each taxi; $d_{\text{geo}(i,j)}^n$ is the geometric distance of n th trip in (i,j) OD pair; $d_{\text{route}(i,j)}^n$ is the shortest route of n th trip in (i,j) OD pair; $v_{\text{route}(i,j)}^n$ is the average speed of n th in (i,j) OD pair; $v_{\max}$ is the speed limit in the city.

Then we aggregate the individual travel efficiency into Neighborhood Tabulation Area (NTA) level, so that the efficiency of each OD pair can be computed.

$$e_{(i,j)} = \sum e_{(i,j)}^n$$

At global level, we introduced an indicator called efficiency impedance (Eimp), which is an alternative to the time or distance in traditional linear programming calculations of excess commuting.

$$E_{\text{imp}(i,j)} = 1 / (e_{(i,j)} + \lambda)$$

Finally, we compare the effectiveness of Time, Distance and Eimp as cost unit in the solution to theoretical average minimum commute ($T_{\min}$, $D_{\min}$, $E_{\text{imp}\min}$) in a city.

$$EC = (T_{\text{act}} - T_{\min}) / T_{\text{act}}$$

Findings

One finding of local efficiency is that the distance of high efficient (top 10%) commuting is much longer than that of low efficient commuting (bottom 10%) while the travel time of high and low efficient commuting is close. This finding challenges the previous non-weighted measure model. Specifically, in New York City, an attractive finding is that 75% of these critical inefficient travel flows are across the East River and the origin and destination points are along the river. At global level, the commuting efficiency is derived from the excess commuting while the parameter of travel cost usually adopted (time or distance) is replaced by the Eimp of each OD pair. The result indicates that the excess commuting calculated by Eimp (92.7%) is close to the one calculated by the time (94.3%) and distance (92.6%) in the measure model. But the flow distribution pattern of minimized solution is different in that the Eimp based solution suggests more concentrated travel flow within Manhattan and edge areas to Manhattan.

Contributions

Theoretically, we proposed a new approach in measuring the local commuting efficiency based on taxi data. Then, we demonstrated that the results can be alternative to time and distance as the cost unit in excess commuting analysis. In this way, the bottom-up approach can be applied in the local efficiency and global efficiency measure. Apart from contributions to the literature, our study can help the transportation planners and urban planners in practice by making decision on which part of the road network design should be enhanced and which area should be planned with more industrial land use and mixed land use.

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Key Words: Commuting Efficiency, Local, Global

ANALYZING AN EMPLOYER-BASED TRIP REDUCTION PROGRAM'S POTENTIAL FOR GREENHOUSE GAS EMISSION REDUCTION IN SOUTHERN CALIFORNIA

Abstract ID: 1093

Poster

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Travel demand management is a broad category of local actions which are intended to reduce vehicle miles traveled (VMT) for the promotion of locally, regionally, and globally-distributed benefits such as reduced congestion, air pollution, greenhouse gas emissions, and community integration (Salon et al. 2012). Mandatory employer-based trip reduction (EBTR) is a longstanding program in some regions requiring employers to manage the commutes of their employees, providing incentives for increased average vehicle ridership (AVR) and requiring a fee payment if a certain threshold is not met. Extant analyses of EBTR policies have generally found at least some evidence of program effectiveness in increasing AVR. Beginning in the 1980s, southern California's South Coast Air Quality Monitoring District's (AQMD) EBTR, known as Rule 2202, has required all employers with more than 250 employees at a worksite to implement a program – or pay a fee-in-lieu – if a certain AVR threshold is not met. Rule 2202 applies to roughly 2400 employers and 1.2 million workers in the region.

Despite the longevity of EBTR programs, the compliance and fee requirements are increasingly seen as unduly burdensome to employers—the programs are generally inconsistent with the economic development mission of local government. In 1997, California's threshold for mandatory EBTR was raised from 100 to 250 employees, while a survey of employers in Atlanta showed limited support by employers for the principles of EBTR (Dill 1998, Zuehlke and Guensler 2007). While congestion and pollution reduction were the original goals of EBTR, AVR reduction is also a goal of newer greenhouse gas (GHG) reduction targets such as those contained in California's SB375 or "Smart Growth" legislation (Skelton 2008) which mandates that metropolitan planning organizations (MPOs) craft land use, housing, and transportation strategies to meet future GHG emission reduction targets.

This study evaluates AQMD's Rule 2202 in light of this new goal using a longitudinal, employer-level regression model of changes in AVR over 2004-2016. Specifically, we test the contribution of employer, locational, and policy-based characteristics to AVR increase. Using GIS, geocoded employer locations are combined with parcel-level land use data and street network data to determine the built environment surrounding employers (e.g. suburban office park vs. downtown, pedestrian friendliness, etc.) while transit data are used to evaluate the extent to which service impacts AVR. AQMD data indicate whether employers chose mitigation strategies such as carpool subsidies, discounted transit passes, or guaranteed ride home programs or whether they chose fee payment options, which the model evaluates for effectiveness in AVR reduction.

Preliminary results indicate that since 2004 fewer large employers chose to implement commute reduction programs with an increase in fee-in-lieu payments. However, the average single-occupant vehicle share remained

constant at roughly 50%. Employers in the core of downtown Los Angeles as well as those on the urban fringe experienced slightly increasing AVR over the study period, while employers in more established suburban areas had slightly decreasing AVR. The results of this study, covering a longstanding program in one of the United States' largest regions, will inform policymakers and stakeholders about effective program design which can help EBTR to adapt to newly realized goals of regional GHG emission reduction.

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Key Words: transportation demand management, greenhouse gas emissions, transit, built environment

RELATIONSHIP BETWEEN HIGH INJURY CORRIDOR AND BUILT ENVIRONMENT

Abstract ID: 1124

Poster

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Although it is reasonable to hypothesize that safety countermeasures can be applied by identifying high injury corridors, there has been a lack of research in identifying and analyzing the built environment along these corridors to better plan for the safety countermeasures. The goal of this research is to identify the contribution of the built environment to a specific collision type by mode, along the high injury corridor for Los Angeles County. Identifying the high injury corridor locations at a regional level and built environment along those corridors may potentially help in understanding the safety countermeasures and allocating grants.

To achieve this goal, a high injury corridor was created using Geographic Information System, GIS, for Los Angeles County by using a 5-year data set for collisions from 2010-2014 which included fatal and severe injury collisions on all streets excluding freeways. A high injury corridor is defined as a street segment where more than 50% of fatal and severe injury crashes occur. The built environment in the vicinity of the high injury corridor was generated using GIS data obtained from SCAG. Two buffer sizes of quarter mile and one mile were considered to capture the impact of built environment on the collisions.

The built environment involves land use, development density, roadway characteristics, roadway infrastructure, and roadway design. A large body of literature identified that built environment contributes to collisions (L. Chen, C. Chen, Ewing, McKnight, Srinivasan, & Roe, 2013; Clifton & Kreamer-Fults, 2007). Some literature also indicates that built environment needs to be considered to improve safety for pedestrians and bicyclists (Chen, 2015; Clifton, Burnier, & Akar, 2009).

With Vision Zero strategy, many jurisdictions have aimed towards eliminating traffic deaths to create a safe, healthy and equitable mobility for people as most of the traffic crashes are preventable (Vision Zero Network). Through the RTP/SCS, SCAG also prioritizes the safety and mobility of the region's residents along with the drivers, pedestrians, transit riders and bicyclists. To reduce the number of fatalities and serious injuries, some cities like Los Angeles, San Francisco and New York have developed a high injury corridor at a city level to target improvements in the city whereas Oregon Metro has developed a High injury corridor for its Metro region. Los Angeles developed a high injury corridor by considering vulnerability of children and seniors along with social, whereas San Francisco developed its high injury corridor based on the severity of the crash.

The results of this study will be useful to understand the relationship between high injury corridor and built environment in Los Angeles County. A precise countermeasure can be articulated based on the results to reduce the collisions and achieve the goal of zero traffic deaths. The method of mapping high injury corridor with GIS can also be replicated for other counties with collision data.

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Key Words: High Injury Corridor, Built Environment, Collision, Geographic Information System GIS, Safety Countermeasure

EXPLORING THE DETERMINANTS OF EXTREME COMMUTING AT THE CENSUS-TRACT AND PERSONAL LEVEL: AN EMPIRICAL ANALYSIS IN THE PUGET SOUND REGION

Abstract ID: 1271

Poster

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Research Question

With decades of horizontal expansion in land development and the resulting changes in employment landscape, the extreme commuters are growing in U.S., defined as people who spend a one-way commute time of 90 minutes or more to work. And it is hard to ignore the certain group of people who go to work extremely early or return from their workplace extremely late. Since long commuting travel or abnormal departure and arrival timing is not just a transportation issue but also a symptom or indication of serious social, economic and racial problems, analyzing extreme commuting behavior can help us better qualify, diagnose and even cure those problems. Relevant research is still limited and mostly focused on the description of the socioeconomic and demographic profiles of extreme commuters.

Using the Puget Sound Region as a case study, this paper investigated the determinants of Extreme Commuting at the Census Tract and Personal Level based on the 2014 household travel survey data collected by Puget Sound Region Council.

Approach

In this study, we firstly extend the meaning of extreme commuting by taking people who go to work or come back home at abnormal time point into consideration. The three types of extreme commuters includes: 1)ELDs: people with extremely long duration of commuting time;2)EEDs: commuters whose departure from home is extremely early (before 6 am) ;3)ELBs: commuters who come back from work extremely late (after 10 pm) . Then we identify the spatiotemporal patterns and profile the socioeconomic characteristics of these extreme commuters. After that, the determinants of extreme commuting behaviors is examined at census-tract level and personal level respectively. At the census-tract level, the Tobit Regression Model is used to investigate the impact of land use layout, infrastructure construction, industrial distribution, together with other environmental and demographic

variables on the proportion of extreme commuters. At the personal level, the binary-logistic model is firstly used to examine the probability of the three types of extreme commuters, then we use multivariate linear regression to make comparison between the normal commuters and extreme ones.

Findings

The expected research findings could indicate whether significant socioeconomic and land use determinants of normal commuters is also applicable to extreme commuters. It could also reveal the threshold of the presence of extreme commuting behavior, and further examine the actual effects of the existing smart growth centers on the travel behavior of the commuters in the whole region, which could give some light to the transportation forecasting and planning.

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Key Words: Extended meaning of Extreme Commuting, Model choices, Puget Sound Region

TRANSIT RIDERSHIP, TRANSIT ACCESSIBILITY, AND TRANSIT SUPPLY-DEMAND MISMATCH IN LOS ANGELES AREA

Abstract ID: 1307

Poster

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Los Angeles area has invested significantly to expand the capacity of public transportation. Yet, transit ridership is still under five percent according to the American Community Survey (ACS). What are the reasons? Why transit ridership continues to decline nationwide? Is it because of car ownership and low gas prices? Is it because of poor, unreliable, and crowded transit services? Is it because other types of services such as Uber/Lyft are more convenient? Is it because bus stops and rail stations are not accessible from houses and jobs? Are there different patterns in cities in urban and suburban? Are there different patterns among different age groups or racial/ethnic groups? Many questions arise but answers to these questions are still difficult due to lack of data.

There are several studies that analyzed public transit accessibility. Mavoa et al. (2012) measured combined public transit and walking accessibility index for major destinations in Auckland, New Zealand. They used transit network, parcel data, and location of major destinations to identify service areas accessible by public transit and walking. They applied the estimated accessibility scores to see which areas are accessible by public transit and walking. Tribby and Zandbergen (2012) constructed a multi-modal network model by applying bus network and street network. They used the location of bus stops and street networks to estimate total travel time to arrive at each bus stop from residential locations. The constructed model was applied to test the impact of adding a new bus route in Albuquerque, New Mexico. Biba et al. (2014) proposed a parcel-network method to estimate the population in transit service area. They utilized parcel data, street network, Census data, and transit network to estimate the population who can access to bus stops by walking. They applied the model in Dallas, Texas and

demonstrated that traditional methods (i.e. buffer method, network-ratio method) have overestimated population in transit service area compared to the parcel-network method.

Although previous research constructed models to measure transit accessibility, few studies utilized the constructed data or models to explain the relationship between transit accessibility and transit ridership. Therefore, this study focuses on explaining the relationship between public transit accessibility and transit ridership. Several steps are involved in the study. First, we estimate the population within walking distance of transit stops by utilizing population data and Parcel data. Locations of bus stops and rail stations are collected from transit network in the 2016 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) provided by the Southern California Association of Government. Second, the estimated population within walking distance of transit stops are combined with transit ridership in various geographies (i.e. census tract, city). Third, various socioeconomic data are used to explain the relationship between transit accessibility and transit ridership. In addition, commuting patterns that are obtained from Longitudinal Employer-Household Dynamics program and transit commuting time among areas are used to estimate transit supply-demand mismatch.

The results of this study will be useful to understand the relationship between transit ridership, transit accessibility, and transit supply-demand mismatch in Los Angeles area. More accurate understanding about the relationship in various geographies will help to develop better transit plan and to increase transit ridership. Although the study area is Los Angeles area, the method can also be applied to other areas with available data.

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Key Words: Transit Accessibility, transit ridership

CABBY CRISIS: THE THREATENED LIVELIHOODS OF TRADITIONAL TAXI DRIVERS IN THE ERA OF RIDESHARING

Abstract ID: 1337

Poster

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Ridesharing services of Transportation Network Companies (TNCs) such as Uber and Lyft have been transforming the traditional for-hire vehicle market dramatically and aggressively. A large proportion of customers have shifted to ridesharing because of its low cost, flexibility, and convenience. Meanwhile, technologies of TNCs' mobile apps and their "driver-partner" policies have encouraged many people to start their business as ridesharing drivers. The number of TNC driver-partners has been booming since 2011, the year that Uber entered the industry, which has tremendously inflated the market of for-hire vehicles. Based on the data published by the US Census Bureau, there were in total 308,659 taxi drivers in the US in 2011. However, in December 2015, four years after the birth of Uber, the total number of Uber drivers reached 464,681, which was about 50% more than the total number of taxi drivers in 2011. Only one in five of them (18%) were previously taxi or black car drivers, while almost 65% had no any previous professional driving experience.

The consequence is that traditional licensed taxi drivers are suffering the loss of passengers, income, and even jobs. Many senior cabbies have driven taxis for decades. When they started their business in their young ages, they received rigorous professional training and passed rigid skill exams. They can navigate in their brains and find the fastest routes in cities proficiently without any assistance from GPS navigators or smartphone apps. However, these technologies depreciated their knowledge and skills, and most of them are too old to learn new skills for making a living. What is worse, they may have applied for a substantial amount of loans from banks to buy or rent the medallion licenses, which were highly valuable and extremely expensive in the past. Now, the medallions are also depreciated because of the prosperity of ridesharing services. Thus, many cabbies are stuck in debt.

The society is also bearing the costs and risks of the “Cabby Crisis.” There are increasingly severe confrontations, protests, riots, and strikes launched by traditional taxi drivers in numerous major cities throughout the world. Moreover, in February 2018, a senior male livery driver killed himself with a gun in Manhattan. In his long suicide note on Facebook, the old driver expressed his extreme desperation and anger for the fact that TNCs have destroyed his job, financial situation, and life.

Apparently, all these facts reflect the hardship that traditional taxi drivers are currently facing. However, there is scant literature that directly and explicitly presented how livelihoods of traditional taxi drivers have been changed after TNCs came to the market. The objective of this research is to address this gap in the literature.

We investigate the data of the Public Use Microdata Sample (PUMS) based on the American Community Survey (ACS) and the Panel Study of Income Dynamics (PSID) in the period between 2003 and 2016. We first examine the trajectory of the number, average income, and the standard deviation of incomes of taxi drivers during this period. Then, we compared the trends of these indicators before and after 2011, the year that Uber started to enter the US cities. Moreover, we select a set of major metropolitan areas in the US to analyze the patterns of changes by region. The findings of this study not only present the quantitative evidence that how ridesharing services undermine the interests of traditional taxi drivers, but also inform policymakers and taxi operators or organizations as they seek for solutions to protect taxi drivers and mitigate the conflicts between taxis and ridesharing services.

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Key Words: taxi drivers, ridesharing, transportation network companies

DETECTING FINE-SCALE TRAVEL BEHAVIORS: A COMPARATIVE ANALYSIS BETWEEN PERSONAL ACTIVITY LOCATION MEASUREMENT SYSTEM AND TRAVEL DIARY

Abstract ID: 377

Lightning Research Presentation

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Identifying and understanding human location and movement is a crucial part of transportation planning, public health, and health geography research. Since the 1970s, governmental planning agencies have relied on travel survey data in order to create transportation models, including identifying origins and destinations of people's reported movements, travel modes, and related activities. More recently, as active transportation, primarily walking and bicycling, has become a focus for public health, several research groups have sought to obtain more objectively measured data through the use of such devices as global positioning system (GPS) data loggers and accelerometers to inform transportation models. However, computational algorithms are required to process the massive quantities of GPS and accelerometer data generated in these studies, and to date, limited work has evaluated these algorithms to understand the details on how they quantify fine-scale travel behaviors. In this study, we compared travel behaviors identified by a commonly used automated algorithm that integrates GPS and accelerometer versus travel diary estimates of travel behavior.

Sixty subjects, who made 2,100 trips during seven consecutive days of data collection, were selected from among the baseline sample of a project examining the travel behavior impact of a new light rail system. GPS point level analyses were first conducted by simply using contingency tables. Then, trip level analyses were carried out to investigate detailed travel behaviors. Global performance and individual performance analyses were also compared at the trip level. At the GPS point level, the overall agreement rate of travel mode detection was 77.4% between the algorithm and travel diary. Agreement rate of vehicular trip detection (84.5%) was higher than bicycling (53.5%) and walking (58.2%). At the trip level, the global performance and individual performance of algorithms were 46.4% and 42.4%, respectively. Vehicular trip detection showed highest agreement rates in all analyses. Primary travel mode and car ownership were significantly related to the individual agreement rates.

For a thorough investigation, we used multiple methods to compare automated algorithm outcomes with travel diary data. The algorithm showed moderate agreement for trip and travel modes using GPS point level analyses. However, trip level analyses gave relatively low agreement rates, particularly for walking, bicycling, and transit trips. To enhance the overall performance of the algorithm, further efforts are needed to identify non-motorized travel modes. Use of shorter measurement intervals may improve differentiation between walking and other modes. Use of ancillary data sources, such as heart rate monitoring, may help differentiate active (walking, bicycling) and passive (vehicular) modes. Improvements should be made to discriminate between public transit and automobile trips. Geographic information systems (GIS) data already in existence, such as transit routes, stops, and stations may play a strong role. Finally, systematic evaluation of different parameter settings of algorithm, could lead to better detection of places and temporary stops.

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Key Words: Travel Behavior, GPS, GIS, Algorithm, Travel Diary

PLANNING FOR THE FUTURE: AUTONOMOUS VEHICLES, EQUITY & SPRAWL

Abstract ID: 1070

Lightning Research Presentation

WIETERS, K. Meghan [University of Oklahoma] kmeghanwieters@ou.edu, presenting author

The future is now. When the car emerged, did we as planners forecast sprawl as a negative consequence? What can and should we be doing to plan for automated vehicles? In this lightening session, I would like to highlight key elements where planning practice and pedagogy should lead the way. New land use policies, streetscape design changes, and planning for humans rather than cars will be critical to get out in ahead of the next wave of transportation technology. The focus on automated vehicles in the news has centered around safety, mixed fleet of self-driving vehicles with human-driven cars, to a fully automated system. There are additional implications of this technology on planning for cities such as elimination of the need for parking lots or garages, planning for curbside use for deliveries and human drop-off zones, as well as narrower and fewer travel lanes needed. Additionally, there could be increased tendencies towards sprawl and decentralization of land use patterns with this technology without accompanying land use policies. Impacts on equitable distribution and access to this technology also remains for discussion. This session is an opportunity to acknowledge how this technology could change our transportation systems and balance the impacts based on our past history of land use changes with increased access and mobility.

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Key Words: autonomous vehicles, urban design, sprawl, pedagogy

THE IMPLICATIONS OF A SWITCH FROM LOS TO VMT PERFORMANCE METRICS

Abstract ID: 1274

Lightning Research Presentation

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Concern about climate change has led to policies in California that aim to decrease greenhouse gas (GHG) emissions from transportation. Many of these policies promote technological innovations, but some aim to reduce GHG emissions by reducing the amount of driving, measured in vehicle miles traveled (VMT), through land use and transportation planning. The focus on VMT reduction represents a dramatic shift for the land use and transportation planning fields, which have traditionally prioritized auto mobility by reducing vehicle delay, measured as level of service (LOS). California has taken the bold step to replace LOS with VMT as the metric of transportation impact in the environmental review process for land use and transportation plans and projects under the California Environmental Quality Act (CEQA).

This study explores the direct impacts of the use of LOS and VMT to the built environment by evaluating the measures employed to mitigate the transportation impacts identified with each metric. We collected over 300 environmental impact reports (EIRs) from three jurisdictions in California – City of Los Angeles, City of Sacramento, and San Joaquin County – that were prepared for land use projects between 2001 and 2016. We analyzed the LOS-based transportation impacts identified in those EIRs and the relevant LOS-based mitigation measures, which are required under CEQA to lessen transportation impacts to the “extent feasible”. We then compare changes to the built environment per LOS mitigation to the goals and visions of the three communities as communicated in their General Plans. Preliminary findings show how the CEQA process per se impacts the built environment. They show how LOS analysis and requisite mitigations spur expensive, automobile capacity-increasing mitigation measures in attempts to ease auto congestion. Additionally, we find that a switch from LOS- to VMT-based impact metrics may lead to a less burdensome mitigation process for land use projects that reduce travel demand through their location or design, such as projects that bring housing to employment-rich town centers and corridors and thus create more efficient land development patterns with a range of transportation options. Finally, our findings indicate that the automobile capacity constructed to mitigate LOS decay may contravene the goals and visions of many communities in California, as well as the State’s goals for GHG reductions.

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Key Words: Vehicle miles traveled, Level of service, Environmental review, Performance metrics, California

TRACK 15 - URBAN DESIGN

ROUNDTABLE: WHAT WORKS WHERE, AND CAN IT WORK HERE? URBAN POLICY MOBILITY AND THE USE OF PRECEDENTS IN URBAN DESIGN PRACTICE AND PEDAGOGY.

Abstract ID: 86

Roundtable

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Bringing together the diverse perspectives of four urban design researchers, this roundtable invites critical discussion surrounding the mobility of urban design precedents and best practice. In practice, the transfer of ideas through precedent models is encouraged in studio-based teaching (Senbel et al 2013). Planners and designers have long travelled to new places to learn about tools and methods used elsewhere (e.g. Nasr and Volait 2003) and the global appeal of ‘packaged’ best practices is emblematic of the wider diffusion of neoliberal ideas in city building (Gonzalez 2011) and the employment of design-led planning for urban ‘boosterism’ (McCann 2013). Planners and designers are often under pressure to ‘act fast’ and find innovative solutions to local problems on both a limited budget and within an unrealistic time frame.

The use and transfer of precedents to generate urban design proposals is founded in the belief that urban design models will operate similarly in different contexts, and more specifically, that the urban design precedent can meet the same planning goals when applied elsewhere. However, this process of transfer and reapplication, or ‘mobilization’ as it is often referred to in the literature (e.g. Peck and Theodore 2012), is often utilized without substantial evidence that the urban design concepts being mobilized can meet local goals. It is the aim of this roundtable to further the conversation about the global circulation of urban design precedents and to question the assumptions of both practicing urban designers and design and planning scholars using ‘the design precedent’ in the practice and teaching.

To generate discussion on this topic, the roundtable will consider the following questions: (1) When is it appropriate to mobilize urban design precedents, and what contextual factors should be taken into consideration? (2) What are the contextual limitations of adapting precedents from one place in another? Does the use of precedents in practice and pedagogy undermine local knowledge and encourage generic urban form? The research of the four participants will bring a range of perspectives to this topic. Kelly Gregg’s research engages both with historic and contemporary perspectives to examine the replication of urban design precedents in downtown revitalization; Ian Trivers’ research recognizes the global scale in the replication of precedents and considers their repetition through online media; James White specifically addresses how the transfer of an urban design model from one city plays out in different political and geographic contexts; and Michael Kordas examines the local implications of transferring ‘ways of doing’ urban design practice at an international scale.

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Key Words: Urban Design Precedents, Policy Mobility, Idea Transfer, Urban Design Pedagogy, Urban Design Best Practice

ROUNDTABLE: PLANNING AND URBAN DESIGN IN GATEWAY AND NATURAL AMENITY COMMUNITIES - AN EMERGING AREA OF RESEARCH, EDUCATION, AND PRACTICE

Abstract ID: 303

Roundtable

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Small towns and cities outside of national parks and other major natural amenities throughout the United States are becoming increasingly popular places to visit and live. As a result, many of these gateway and natural amenity region (GNAR) communities—including places such as Jackson, Wyoming; Moab, Utah; and Hood River, Oregon—are facing a variety of “big city” issues, such as severe congestion, lack of affordable workforce housing, and concerns about sprawl and density. Problematically, professional and academic planners and urban designers have paid far too little attention to these communities; this blind spot is evinced by the fact that the interconnected concerns of these communities do not well fit into any of the tracks of the Association of Collegiate Schools of Planning conference. This roundtable aims to draw attention to the unique planning and urban design challenges and opportunities of GNAR communities. Through doing so, we aim to increase academic focus on these places. The speakers will introduce the planning and urban design related concerns being experienced by GNAR communities throughout the country. We will then discuss key opportunities for planning and urban design research, education, and practice aimed at assisting these communities in addressing the challenges they face.

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Key Words: Gateway community, Natural amenity community, Livability, Rural development, Sustainability

ROUNDTABLE: LEARNING FROM PRACTICE - THE RUDY BRUNER AWARD FOR URBAN EXCELLENCE

Abstract ID: 776

Roundtable

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ADHYA, Anirban [Lawrence Technological University]
LOWE, Rick [Project Row Houses, Houston, Texas]
LUBENAU, Anne-Marie [Rudy Bruner Award for Urban Excellence]

The Rudy Bruner Award for Urban Excellence (RBA), created in 1986, is a national design award program that recognizes transformative urban places that contribute to the economic, environmental, and social vitality of American cities. The program conducts a distinctive form of urban research that has produced a unique body of knowledge on the place-making process. The RBA now spans 30 years and encompasses 83 awarded projects and

published case studies, along with an archive of hundreds of project applications, which together offer a valuable resource for teaching urban design, planning, and development.

The RBA recognizes the complex, collaborative, and multi-disciplinary processes of creating excellent places. Instead of honoring any individual planner, designer, developer, or elected official the award goes to the place. In short, the RBA acknowledges city-making as a team sport. As such, this body of case study work offers a rich vein of experience for teachers to mine with students of planning, design, and policy. The RBA examines the planning, design, development, financing, operations, and impact of each project, providing insight into how we can create places that foster social interaction and democratic dialogue, promote public health, and increase equity.

The full slate of prize-winning places encompasses a wide array of project types including a variety of housing types, arts and cultural facilities, educational institutions, parks and public spaces, public markets, mixed-use developments, revitalization and historic preservation efforts in neighborhoods and districts, health care and healthy food initiatives, job training and rehabilitation facilities, infrastructure and transit.

Three decades of investigating urban excellence provide valuable insight into the evolution of urban development in American cities and the complex, multidisciplinary process of placemaking. It has revealed themes common among RBA winners including: the critical role of leadership and vision, the value of collaborative partnerships, the benefits of engaging and empowering people and communities, the importance of anchoring projects in their own unique place and time, and the power of design to create transformative places. Study of RBA case histories and essays summarizing observations and lessons learned from the evaluative and deliberation processes illuminate methodological choices, allow cross-comparison among cases and evaluation of impacts over time, and invite theory-building about the placemaking process.

The panel will consider how this body of case study work can be a valuable tool for use by teachers of planning, urban design, architecture, real estate development and allied subjects, as precedent material, as illustration of collaborative and democratic process, and to theorize the professional encounter. With 30 years of documented projects, observations, and lessons learned, the RBA provides an historical view of the urban process and offers an opportunity to assess the long-term success and impact of past winners.

At a time when we seem poised on the threshold of a new era of urban development and attendant challenges—climate change, technology change, economic and social disparity, and aging and inadequate urban infrastructure—the panelists believe RBA offers planning educators a way to help students understand the power of our collective creativity to formulate place-making solutions that promote social and economic equity in our urban world.

This discussion will bring together four individuals, each with a distinct role in and perspective on the process, variously as program creator, selector, award winner, analyst, and educator:

Anirban Adhya, Ph.D., Lawrence Technological University College of Architecture and Design.

Rick Lowe, Project Row Houses, Houston, Texas.

Anne-Marie Lubenau, FAIA, director Rudy Bruner Award for Urban Excellence.

Robert G. Shibley, FAIA, FAICP, Dean, School of Architecture and Planning, University at Buffalo, co-creator and professional advisor, RBA.

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Key Words: urban design, placemaking, pedagogy, community

PRE-ORGANIZED SESSION SUMMARY

BEST PRACTICE AND THE ROLE OF THE URBAN DESIGN PRECEDENT

Summary ID: 9

Abstract ID: 81

Abstract ID: 84

Abstract ID: 85

Abstract ID: 90

This pre-organised session will explore the topic of 'design precedents' and critically analyse how globally-mobile 'best practices' dominate the practice and theory of urban design. The session will offer a series of research-based reflections that question the legitimacy of best practices taking both a contemporary and historical perspective and considering various examples with an international dimension.

Objectives:

- Developing new understandings about the meaning of 'best practice'
- Gain a critical understanding of how design precedents are used in practice
- Appreciate the global mobility of design ideas and concepts

WHAT ONCE WAS OLD IS NEW AGAIN: THE DESIGN AND MASTERPLANNING OF TRANSFORMATIONAL REGENERATION IN GLASGOW

Abstract ID: 81

Group Submission: Best Practice and the Role of the Urban Design Precedent

WHITE, James [The University of Glasgow] jtwhiteuk@gmail.com, presenting author

'Best practice' planning and design precedents, whether local or international; contemporary or historical, directly influence the form of the city and can have profound impacts on the physical and social character of places (Healey 2010). The challenge for planners and designers is not to over simplify the knowledge that might be gleaned from precedents or best practices, nor to think of lesson drawing as a simple linear process whereby a good policy or design idea is successfully transplanted from one place to another or from a particular moment in time to the present. In this paper, the role of the design precedent is critically explored on a historical journey through rapid 19th century industrialism, steep post-war industrial decline, and more recent reinvention in the Scottish city of Glasgow, UK. The research for the paper is based on data collected from archival documents, direct observations and key informant interviews conducted in early 2018.

As a city born of the Victorian industrial age, the historic character of Glasgow's residential urban form is closely associated with the ubiquitous sandstone tenement block (Reed 1993), a form of high density flatted accommodation that was developed apace during the 19th century in response to the city's exponential population growth. As in many 19th century industrial cities, the middle classes of Glasgow enjoyed the benefits of grand tenemental apartments in leafy urban neighbourhoods, while the working classes suffered in over-crowded tenemental districts with barely tolerable living conditions (Pacione 2009). To address these problems, modernist planning policies in the 1950s and 1960s saw great swathes of inner city Glasgow cleared and redeveloped. Yet, the high-rise accommodation that replaced the tenements only led to further social and physical damage (Keating 1988).

The paper describes how Glasgow has, once again, adopted a comprehensive approach to redevelopment in the very areas that were cleared and rebuilt just half a century before. It will show that, rather than looking for a novel urban design and architectural design precedent, the city's planners have purposefully looked back at the celebrated qualities of the middle-class tenement city and adapted historical precedents to repair a fragmented urban fabric, while also encouraging tenure diversity and mixed use. To tell this story, the paper begins with a description of how the tenement neighbourhood was first 'reinvented' during the 1990s in the widely celebrated regeneration of Crown Street in the Gorbals (Thompson-Fawcett 2004), before detailing the formation of the 'Transforming Communities: Glasgow' programme that has sought to extend the lessons learned from Crown Street to other neighbourhoods badged as 'Transformational Regeneration Areas' (TRAs). Using the case study method, the paper analyses the design and development visions for two TRAs, Laurieston and Pollokshaws, and considers how they have evolved through various phases of masterplanning and delivery. The paper concludes with a series of reflections on the evolution of Glasgow's urban morphology and design. It offers a critical appraisal of how the vision of 'the tenement city' has impacted current regeneration efforts and questions whether locally-grounded historical precedents provide a sufficiently rigorous design framework for contemporary urban regeneration.

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Key Words: design precedents, best practice, urban design, Glasgow, tenements

EXAMINING TWO CONTEMPORARY METHODS FOR FOLLOWING AND ANALYZING THE TRANSFER OF URBAN DESIGN IDEAS AND PRECEDENTS.

Abstract ID: 84

Group Submission: Best Practice and the Role of the Urban Design Precedent

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The field of Urban planning and design has a long-standing interest in how precedents, ideas and policies are mobilized, transfer, and land (influence local policy and practices). Important research in this vein has investigated the transfer of phenomenon such as the Garden City, Modernist urban form and, more recently, the New Urbanism (e.g. Hall, 2002; Thompson-Fawcett, 2003). These investigations have often employed methods that analyze elite networks and actors, trade publications, news media and the actions of large organizations and governments. However, in the face of technological and socio-political change, these particular methods and sources, while still important, may be insufficient in many cases. For example, while a masterful work like Rodger's *Atlantic Crossings* (1998) pieces together the exchange of ideas about urban planning and design through the personal accounts, journals and papers of the few elite actors who could travel and act as transfer agents across continents during the progressive era, such methodology would prove too narrow in scope in our more intricately globalized and connected world today.

While the way urban design ideas and precedents are shared and transferred continues to involve elite actors and networks, formal publications, organizations and governments, new modes of transfer have emerged through an ever-expanding array of networks and media sources (McCann & Ward, 2012), enabled internet technology and affordable air travel. This paper examines two examples of methodologies developed to study the contemporary

transfer of a leading urban design idea and precedent; the linear park as exemplified by New York's renowned High Line. The first method follows and analyzes the spread and shaping of the High Line as a leading urban design precedent. It combines Google Alerts with a snowball method to collect data for categorization and discourse analysis. This method makes it possible to organize and analyze a snapshot of discourse on mobilized urban design ideas and precedents like the High Line that have become worldwide phenomenon in order better understand how a wider public discourse mediates its shaping and transfer. The second method is a wide scale analysis of scholarly and professionally oriented publication data comparing the spread of the High Line as a precedent to an earlier, but never as widely popularized precedent, the Promenade Plantée in Paris. It employed tools such as Google Books, Google Scholar and Web of Science to chart the frequency and dates of the appearance of a design idea in the professional and academic literature as well as organize the data for a discursive analysis. This method builds on the examination of more traditional media and agents in ideas transfer while widening the scope to capture the diffuse nature of the contemporary process.

The examination of these two contemporary methods illustrates their potential and pitfalls while encouraging a deeper exploration of future possibilities to inform our understanding of how contemporary urban design ideas and precedents transfer. Both methods provide a wide net by which to sample a larger discourse and effectively embrace the more diffuse, 'grassroots' development and transfer of ideas that occurs today. But, given the sheer volume of potential data and the complexities of managing and analyzing it, they also leave questions about what is missed both in a realistically manageable sample and what is not captured online at all. These and other insights can help researchers further explore innovative ways to study the transfer of urban design ideas and precedents.

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Key Words: urban design, idea transfer, mobile urbanism, traveling ideas

DESIGN CHARRETTES IN SCOTLAND: ADOPTING, REACTING AND ADAPTING IN THE STORY OF A MOBILE POLICY

Abstract ID: 85

Group Submission: Best Practice and the Role of the Urban Design Precedent

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This paper examines the Scottish Government's attempts to mainstream the design charrette as the preferred method for community participation in the country's planning system. The literature on planning, architecture and urban design frequently points to the lack of democracy and accountability in planning practices. The enduring model is that of the 'heroic' practitioner assuming their professional training allows them to act in the public interest in shaping the places where people live (Sandercock and Lyssiotis, 2003). Charrettes claim to redress this imbalance by bringing together practitioners and citizens through physical design workshops and group discussion, to establish consensus on urban form and planning principles. Charrettes originated in the USA as part of the New Urbanist planning and design movement, which espouses a return to traditional forms of design, construction and local democracy (Grant, 2006). From 2010 to present, the Scottish Government has provided dedicated funding to support both local authorities and community organisations to hold the workshops. It is the aim of this paper to examine the transfer of the charrette from North America to the United Kingdom, and to question why the charrette was mainstreamed in the Scottish planning system.

There is a long history of policy transfer in planning, particularly between Western Europe and North America, and charrettes are by no means the only participative method available to support the creation of new plans for the built environment. This paper therefore investigates the reaction among practitioners and communities to the New Urbanist charrette, and the challenges of adapting the format in a different local context. The research approaches the charrettes from a perspective that challenges the 'orthodox' view of international policy movement and adoption as a rational decision-making and learning behaviour, proceeding from an understanding of the policy tool as a 'mobility' that can never be properly understood free of its social and ideological context (Peck and Theodore, 2012, McCann, 2013).

Building on these theoretical perspectives, the paper outlines the complex network of both international and national agencies through which charrettes emerged in planning and design practice in Scotland (MacLeod, 2013). The paper draws on original document analysis and qualitative interviews and observational data. The findings show how the earliest charrettes in Scotland, directly facilitated by New Urbanist practitioners, framed deliberation in terms of a particular set of professional values. The paper therefore questions the democratic credentials of these events, as well as the motivations of Government in inviting such globally visible and mobile professionals to mediate sensitive local issues. The paper further demonstrates that a distinctly Scottish version of the charrette has evolved as the mainstreaming process has progressed, with the urban design and physical planning elements often associated with charrettes being diluted, in favour of more dialogue on social and community issues.

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Key Words: Planning, Urban Design, Community Participation, Policy Mobility

RECYCLING POST-WAR STREET DESIGNS FOR CONTEMPORARY USE – VICTOR GRUEN VS. JAN GEHL

Abstract ID: 90

Group Submission: Best Practice and the Role of the Urban Design Precedent

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Many contemporary planning trends are careful to conceptually distance themselves from modernist planning ideas. But contemporary street designs, however intentional or unintentional, are adapting past strategies for contemporary use. This literature, archival, and newspaper based research, carefully compares the planning proposals and writings of both Victor Gruen and Jan Gehl. And critically questions to what extent are contemporary pedestrianization strategies a break from modernist pedestrianization proposals, and in what ways are they simply recycling modernist ideas. The Green Light for Midtown plan, including the 2009 pedestrianization of Times Square was championed by Danish Architect Jan Gehl and Janette Sadik-Khan, the New York City Transportation Commissioner at the time (Sadik-Khan, 2017). Only a few decades earlier however, North American pedestrian malls were considered a planning failure and were dismissed along with other modernist urban renewal ideas (Klemek, 2011; Knack, 1982). Victor Gruen is iconic not only for his modernist suburban shopping centre designs, but also for his downtown pedestrian mall strategies popular after World War Two. These strategies promoted traffic reorganization and the separation of automobiles and pedestrians to reorient main shopping streets for public space and pedestrian use (Brambilla & Longo, 1977). In

contrast to Gruen's position within modernist planning, Gehl presents his work as a distinct break from modernism arguing that 'streets are for people' and there was a loss of public life due to modernist design and decentralization (Gehl, 1989). When evaluating the proposals from the post-war and contemporary planning eras however, there are striking similarities not only with the proposals to separate automobile and pedestrian traffic, but also in the rhetoric to remake the street for pedestrian enjoyment. Both Gruen and Gehl argue that a primary function of cities and streets should be enabling and encouraging the social engagement and interaction between people. There is however a subtle difference in their contextual approach. Gruen's proposals are reacting to the rise of automobility and the rapid suburbanization that was occurring during the post war and in response, attempt to adapt the physical form of city centres to the cultural and social structures of automobility and suburban development. Much of Gehl's work is positioned as a reaction against modernism. His proposals aim to change the culture of public life; arguing that public life was diminished from accommodating automobility and suburban decentralization indicative of the modernist planning era.

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Key Words: street design, pedestrianization , Jan Gehl, Victor Gruen, public space

PRE-ORGANIZED SESSION SUMMARY

KEVIN LYNCH'S IMAGEABILITY: PAST, PRESENT AND FUTURE OF AN URBAN DESIGN THEORY

Summary ID: 37

Abstract ID: 605

Abstract ID: 607

Abstract ID: 1115

Imageability proposes a relationship between people and their surroundings that emphasizes the importance of legible urban forms. However, rather than being solely a matter of form, imageability values active engagement and learning of "the city" by its inhabitants. On the 100th anniversary of Kevin Lynch's birth, this session revisits imageability: Speakers examine how the work of Lynch and his collaborators has informed scholarship and practice in urban design and planning and become part of a multidisciplinary theory of psycho-spatial relationships. As technology and the human relationship to the city continues to evolve, how can imageability continue to inform urban planning and design, and facilitate meaningful connection between people and their environments?

Objectives:

- Understand how Kevin Lynch's work on imageability has influenced urban planning and design
- Learn how imageability has contributed to a multidisciplinary theory of psycho-spatial relationships
- Address the way that changing cities and technologies are shifting the nature of imageability and its role in urban planning and design

THE IMAGE OF THE CONNECTED, AUTOMATED CITY: NEW MOBILITY TECHNOLOGIES AND THE TRANSFORMATION OF URBAN SPATIAL KNOWLEDGE

Abstract ID: 605

Group Submission: Kevin Lynch's Imageability: Past, Present and Future of an Urban Design Theory

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Kevin Lynch's study of urban form and imageability occurred at a particular moment in the history of cities: Automobility was already widespread, but walking at the neighborhood scale continued to occupy a privileged role in the human relationship to the urban fabric [1]. Driving and walking, both cognitively active modes of travel, facilitated urban experiences that accumulated as a distinct, spatially coherent image of the city. Lynch's collaborators and successors in urban design and planning, as well as geographers, psychologists, and neurobiologists, have demonstrated the strength of the link between everyday travel and urban imageability and highlighted the importance of spatial knowledge for personal accessibility [2]. Until quite recently, we have remained within Lynch's urban moment, in cities primarily experienced through cognitively active walking and driving. Now, and with increasing intensity, the human experience of daily travel is becoming less cognitively active as information technologies (e.g. GPS-based navigation) have permeated travel decisionmaking and vehicle automation (e.g. driverless cars) becomes an increasing if still uncertain likelihood [3]. In the face of this change, (a) will information and automation technologies reshape urban spatial knowledge and imageability, and (b) if yes, are these changes likely to have significant effects on the accessibility afforded by the transportation system?

This study takes an empirical approach to modeling the effects of information and automation technologies on the formation of spatial knowledge and its effects on personal accessibility. Drawing on imageability and spatial learning theory, the study uses a cognitive mapping survey completed by Los Angeles residents to estimate the effects of increasing travel choice "passivity" on spatial knowledge at local and regional scales [4]. Effects examined include map accuracy and landmark reliance. The effects observed for current modes (e.g. driving, walking, being a passenger, transit use) on spatial knowledge are applied to emerging travel modes, which generally reduce the need for human knowledge of destination locations and route selection. Based on a significant reduction in the number of choice points, where travelers engage in cognitively-demanding decisionmaking on a journey, the analysis suggests that the overall coherence of regional spatial knowledge will be significantly reduced. Conversely, local spatial knowledge, generated while walking or biking, may remain relatively coherent.

Despite the probable effects on spatial knowledge, the decoupling of imageability from daily mobility may, in turn, decouple imageability from accessibility. If we now longer rely on our cognitive maps to tell us where to go and how to get there, the number of accessible destinations may actually increase. For planners, however, accessibility remains a critical concern, and the new technologies of mobility present new challenges for providing equitable, sustainable accessibility in cities. Two primary challenges are maintaining resilient accessibility if computerized systems fail and limiting excess travel and as spatial constraints on accessibility are loosened. Both of these challenges speak to the continuing salience of Lynch's exhortation that imageability not just be a matter of urban form, including its pathways, but a matter of education and experience, where learning the city is a necessary part of living in it.

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Key Words: cognitive mapping, information technologies, vehicle automation, Kevin Lynch, imageability

COGNITIVE MAPS, SKETCH MAPS, AND THE FIVE ELEMENTS: REVISITING LYNCH'S THE IMAGE OF THE CITY AND ITS INFLUENCE ON PLANNING

Abstract ID: 606

Group Submission: Kevin Lynch's Imageability: Past, Present and Future of an Urban Design Theory

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Planners, designers, and social scientists are interpreting Kevin Lynch's seminal *The Image of the City* (1960) in new and innovative ways, reflecting changes in technology, cities, and society. In 2018, the 100th anniversary of Lynch's birth, the pinpoint accuracy of GPS, cartographic sophistication of GIS, and portability of digital maps and mobile devices are commonplace in the U.S. and countries around the world. But the technical precision and widespread availability of map information has stimulated new human-centered qualitative research approaches to the study of the experience of city form. Within the complex and multi-faceted body of literature that cites Lynch's work, a distinct strand has emerged in environmental psychology, cultural geography, and landscape studies in recent decades. This paper examines these scholarly literatures, investigates how they connect (or not) with recent scholarship in urban design, and proposes possible new directions in future teaching and research. The investigation focuses on three main themes: psycho-geographical approaches, critical cartography, and how socio-economic and cultural differences and identities structure the experience of the urban landscape.

Urban scholars inspired by Lynch's work who cite *The Image of the City* have tended to emphasize one of three components of the original work: the cognitive map and the brain, the use of sketch maps and associated research methods, or the five-part typology of path, edge, landmark, district, and node. In "Reconsidering *The Image of the City*," written more than 20 years after the book's original publication, Lynch noted that many planners viewed the book incorrectly as an articulation of "a new technique—complete with the magical classifications" of the five elements. Many readers, he commented, missed the main point: that planners should talk to the people who live in a place! This paper explores to what extent that basic philosophy (and, by implication, planning approach) is reflected in recent scholarship and how it might be useful to planners.

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Key Words: cognitive maps, mental maps, sketch maps, city image, imageability

HIS IDEAS WERE "IN THE WATER": THE LEGACY OF KEVIN LYNCH IN LOS ANGELES

Abstract ID: 1115

Group Submission: Kevin Lynch's Imageability: Past, Present and Future of an Urban Design Theory

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At the midpoint of the twentieth century, Kevin Lynch explored the public image of downtown Los Angeles as part of a larger three-city comparative survey. His findings, published in 1960 as *The Image of the City*, had a major influence on contemporary thinking about city design. Ten years later, Lynch returned to Los Angeles as a consultant for the Planning Department where he provided input on the citizen participation program for the city's first comprehensive plan.

Our paper examines the legacy of Kevin Lynch in Los Angeles. We ask how the city, and downtown in particular, has developed since *The Image of the City* and trace the ways that Lynch's ideas were part of that change. We use a mixed methods approach involving expert interviews and the analysis of archival documents, press coverage, oral histories, plans and reports.

Shortly before his death, Lynch reflected on the impact of *The Image of the City*. He expressed disappointment that the book had not had more of an influence on practice. While it is impossible to attribute the physical form of Los Angeles to Lynch's ideas, we can see the effects of his Aristotelian – deliberative, pluralistic -- approach to urban design in the empowerment of its citizens. Lynch's work with the Los Angeles Planning Department coincided with the emergence of an anti-growth movement designed to curb Los Angeles' astronomical development. Plans from the 1960s and 1970s include the input of thousands of indignant Angelenos who were tired of smog and congestion and an unresponsive government. In response to citizen-led ballot initiatives and anti-growth advocacy, the city's traditional growth machine redirected development from the periphery to downtown. In the last 60 years, the central city has been transformed from an under-appreciated commercial center to a vibrant global, if contested, hub. A variety of factors led to this shift, however Lynch's ideas infused the work of those who shaped the change.

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Key Words: Kevin Lynch, Los Angeles

WALKING THE SUPERBLOCKS: STREET LAYOUT EFFICIENCY AND THE SIKKAK SYSTEM IN ABU DHABI

Abstract ID: 19

Individual Paper Submission

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Abu Dhabi managed its fast paced growth using a clear planning and design strategy: a grid of arterial roads defining superblocks. However, it is not clear how well-connected these superblocks' street networks are and what their potential is for accommodating walking trips. This paper analyses the walkability of ten superblocks and the role of "sikkak", narrow alleyways between plots, in providing efficient and direct pedestrian routes within superblocks. Efficiency is quantified using Pedestrian Route Directness, a measure which captures the ability of the layout to provide direct routes between origins and destinations.

Sikkak play an important role in providing access to pedestrians and are a key feature in the hierarchy of the superblocks' movement networks. In superblocks, sikkak complement and enlarge the main network of streets—which carries both motorized and non-motorized traffic—increasing the number of pathways available to those traveling by foot. This paper studies the contribution of sikkak to the connectivity of superblocks. In particular, the contribution of sikkak is quantified in terms of their ability to provide short and direct routes—i.e., more efficient routes—between origins and destinations. Efficiency is evaluated using Pedestrian Route Directness (PRD), a metric which quantifies, in terms of percentages, how much longer than the shortest possible distance the actual routes in a street network are. In doing so, PRD takes into account the notion that the availability of short and direct routes is a key factor affecting the decision to walk (Berrigan, Pickle, & Dill, 2010; Handy et al., 2003; Handy, Tal, & Boarnet, 2010; Saelens, Sallis, & Frank, 2003).

This paper asks two questions. The first is concerned with sikkak systems as they are currently built and, while simple, it is also fundamental: what is the contribution of sikkak to the circulation efficiency of superblocks? The second question is more nuanced, although no less important. In this case, the focus is placed on better understanding the connectivity implications of building extensive sikkak systems. Currently, sikkak are placed between almost every plot in superblocks, leading to concerns regarding the potential loss of developable land

while also reducing superblocks' compactness (Nebel & von Richthofen, 2016). In view of this, the second question asked is: are the extensive and currently used sikkak systems necessary, or can they be reduced while retaining acceptable levels of connectivity? In answering these questions, this paper provides evidence which could assist in refining the sikkak system.

The paper will begin by introducing the main characteristics of the city of Abu Dhabi, briefly discussing its planning history and the use of superblocks. The origins of the sikkak system will also be discussed in this section. Measures of street connectivity, their characteristics, and the rationale for selecting PRD will be discussed in the following section. The third section will detail methods and data used for conducting this study. Results of the analysis will then be presented and discussed, to finally advance the conclusions.

Preliminary results indicate that sikkak make remarkable contributions to the efficiency of superblocks' street networks. However, analysis also reveals that the number of sikkak can be significantly reduced without substantially affecting network efficiency. Results could assist urban design and transportation practices particularly in regards to the provision of sikkak, alleyways, in new developments and the management of existing ones.

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Key Words: Pedestrian Route Directness (PRD), Superblock, Alleyways , Street Network Design

LIFESCAPES BYOND BIGNESS

Abstract ID: 24

Individual Paper Submission

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Often headlined for its grandiose urbanism, the UAE is replete with examples of impressive monuments and seemingly miraculous constructions. As indicated in an interview conducted by the American Society of Landscape Architects with the urban scholar Jan Ghel, a “big change in paradigms” of how cities are designed took place around 1960s. This paradigm shift in urban design ideology and action appeared three decades later in the UAE. Cities like Abu Dhabi and Dubai were mass producing big buildings, vast suburbs, and privatized public realm. Our cities were handled by traffic engineers and real estate developers. People were moving to new developments and urban design in the region was not mature enough to take care of people and their daily social life at the eye level. Since early 1990s, urban designers forgot that cities firstly and mostly are designed to serve people. No systematic approach or ideology considered the “human scale” or valued socially-sensitive environments. Instead, urban design was mainly considered as “big architecture” or “an architectural outgrowth” (Rayan, 2017).

Since 1990s, Dubai and Abu Dhabi had a large propensity to bigness in architecture to meet particular economic motifs: These words echo Michael Sorkin's argument about the “dead end” of urban design as a discipline; it withered and reached its full capacity unable to provide new theoretical pathways. Sorkin's criticism of the narrowness and ineffectiveness of urban design reflects UAE's contemporary or post-modern urban design practice. Once “hopeful,” and diverse confronting the human needs and scales, urban design practice in the region

had reached a level that is “rigid,” monotonous, and mostly privatized unable to be responsible of people’s movement and necessities at the street level (as cited in Rayan, 2017).

The architectural feats required to raise the gleaming structures for global branding are noteworthy, but many other facets of urban design also warrant recognition and exploration. One example is human-scale landscapes, which promote everydayness and pedestrian-driven urbanism that put people at the center of city development. Using advanced qualitative and quantitative methods (e.g. spatial analysis, site observation, interviews, and mapping techniques) that capture both the physical environment and the dynamism of everyday life, the paper invites readers to experience important landscapes that are often sidelined in urban studies literature. The human scale will be explored through a selection of different typologies and places across different places in Abu Dhabi and Dubai. Examples includes sites at different scales (e.g. neighborhoods, urban blocks, public spaces, and streets and alleyways) that have been built over the past 50 years. The article attempts to answer the following questions:

1. What ideological traditions of architecture and urban design shaped the UAE’s urbanism?
2. What are the typologies and spiritual characteristics of human scale landscapes in Abu Dhabi and Dubai? And how do they facilitated and accommodated the choreography of everyday life?
3. What urban design ideals and actions might alter the city in the future?

Preliminary results indicate that across human scale landscapes, people claim spaces for new uses, practices, expressions, and meanings because the landscape is adaptable enough to support residents’ activities. Unlike the landscape of bigness where human movement are controlled by rules and formalities, everyday urbanism in human scale landscapes is an outcome of a natural instinct and desire that doesn’t necessarily follow transcribed rules or formal programs. This indicates that spontaneity, naturalness, or informality in everyday life, “exceptions to the order of formal” everyday life, is not a sign of blight or disorder associated with deteriorated urban environments, it is now observed in modern emerging cities and designers must learn how to work with these exceptions (Roy, 2005, p.147).

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Key Words: Urban design , Informal urbanism, Everyday urbanism, urban form

USING EYE-TRACKING TO UNDERSTAND HUMAN RESPONSES TO THE BUILT ENVIRONMENT

Abstract ID: 34

Individual Paper Submission

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New research in brain and cognitive science is changing how we understand how people perceive and experience the built environment, offering key opportunities for urban planning and urban design (Sussman and Hollander 2015; Robinson and Pallasmaa 2015; Zeisel et al. 2003; Wells et al. 2007; Eberhard 2009; Eberhard 2007). Some of this literature offers explanations for why people intuitively are drawn to certain streetscapes over others, delineating how specific edges, patterns, shapes, and narrative sequencing fits the evolutionary history of the human brain.

Over the last several decades, designers and urban scholars have somewhat coalesced around a central idea about what it means to design great places, closely mirroring what brain and cognitive scientists have concluded. The list of books that express this idea are long, but include classics like *Image of the City* (1960) and *The Life and Death of Great American Cities* (1961), as well as the foundational books of the New Urbanist movement like *The New Urbanism: Toward an Architecture of Community* (1993) and *The Regional City* (2001), and the more recent expositions on what it takes to design the ideal urban environment: *Retrofitting Suburbia* (2008), *Redesigning Cities* (2003), and *Urban Code* (2011).

Each of these books is a variation on the recurrent themes that the built environment ought to be oriented explicitly towards pedestrians, transit, and other non-motorized transportation (like bicycles); that commercial and residential uses should be mixed together to create a dynamic urban space; and that access to green space and nature must be paramount. The New Urbanists have expressed this vision through an emulation of traditional urban spaces, while others have sought to create a new urban form based on the very traditional principles outlined above.

This study sought to test some of these urban design principles by recording the eye movements and fixations of volunteer subjects as they viewed different neighborhood environments. The images selected for this study were characterized by the presence or absence of design characteristics explored in the urban design and brain science literatures as pleasing or welcoming.

The primary hypothesis of this experiment was: pleasing or welcoming urban design characteristics would correlate with eye movements and focus. Our results found certain urban environments tended to also have eye movement activity with greater eye fixation on building fenestration and away from blank facades.

The implications for the successful use of biometrics are significant for planning and urban design. Buildings impact our bodies and brains and the better we're able to understand these complex interactions between buildings and people, between humanity and nature, the more likely we will be able to make places that enhance our mental health and well-being. This research allows us to pinpoint the visual features in urban environments that people focus on, as well as concluding that those features that draw the eye also help people feel more pleasant, comfortable, and less anxious.

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Key Words: urban design, eye-tracking, biometrics, welcoming, visually pleasing

PASSIVE SURVIVABILITY BY REDUNDANCY: AN URBAN DESIGN RESPONSE TO IMMEDIATE IMPACTS OF CLIMATE CHANGE.

Abstract ID: 43

Individual Paper Submission

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Climate change adaptations are often related to variability and extreme weather events (e.g., hurricanes) not just changed average conditions. Impacts during and immediate after disasters pose the greatest challenge to human survival especially in cities, that may lack basic urban amenities, such as power, heating, or water. In the context of climate change, passive survivability refers to a built environment's ability to offer critical life-support conditions for its users until rescues. For example, Chicago's 1995 heat wave killed more than 700 people who lacked air conditioning, and Eastern Canada's 1998 ice storm left 4 million people without power and forced over 600,000 from their homes. More recently, in New York City Winter Storm Jonas left 150,000 people without power. The Intergovernmental Panel on Climate Change confirms the chance of such occurrences with a high level of confidence, and urban areas, representing the complex intersection among bio-physical agents, human systems, and urban amenities, are particularly vulnerable. City dwellers depend on the resilience of their built environment and infrastructure supporting their survival last for an extended period-up to two to three days. Urban planning and design are often considered the key determinants to improving this resilience; however, planning interventions are still limited to increasing urban resilience as to ensure such critical life-support. The lack of precise information on extreme climatic impacts poses further challenges in determining appropriate urban design and planning actions to deal with passive survivability.

Addressing this shortcoming, this paper aims to answer how urban design and planning can facilitate climate change the resilience of built environments to promote passive survivability reactively and pre-emptively. What urban design tools can be used to measure and so enhance passive survivability? Accordingly, this paper investigates "redundancy"- a socio-ecological concept, analogous to superfluity, excessive, or too much -to develop an interdisciplinary framework that integrates adaptation, resilience, and urban design and planning for determining appropriate design variables of passive survivability. With regard to planning and design, redundancy, which is similar to diversity, asks for multiple systems that can serve the same functions, and thus facilitates spreading risk across geographical areas, across time, and across multiple systems. In general, an optimal level of redundancy and diversity is essential to balance enhancing urban resilience and promoting sustainability. More specifically, the study uses redundancy as an urban design tool to investigate how the design of urban form can influence redundancy and so enhance urban resilience and passive survivability in a sustainable way. The framework considers urban morphology, which encompasses street networks, blocks, building footprints, and land use patterns, to develop a theoretical framework. This framework is then operationalized in the context of Negril, a small coastal city of Jamaica, highly vulnerable to sea-level rise and its associated impacts. In-depth interviews are undertaken with planning and design professionals representing different agencies responsible for adaptation planning in Jamaica. Negril's street networks are found to be rigid with limited accessibility to different points of interest. The entire settlement depends on a single street-network and livelihood and thus exhibits minimal redundancy and indeed lacks passive survivability even though urban design could potentially increase redundancy. Accordingly, this study proposes a few urban design models to integrate the potential application of redundancy in supporting passive survivability and contemporary place making theories applicable to coastal areas.

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Key Words: Climate change adaptation, Urban form, Resilience

MEGAPROJECT RUMORS: THE POLITICO-ECONOMIC USES OF UNBUILT ECO-ISLAND PROPOSALS IN BAKU, AZERBAIJAN

Abstract ID: 73

Individual Paper Submission

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This paper examines the agency of unrealized urban design proposals in bolstering economic activity, legitimizing political regimes, and expanding design professional's portfolios. It argues that such proposals serve as a form of development rumor providing politico-economic agency despite ultimate project infeasibility. Specifically, the early stages of marketing and media circulation are examined for two such rumors, two island megaprojects in Baku, Azerbaijan. The first case study is the luxury net-zero resort and residential project, Zira Island, designed by the Danish firm, Bjarke Ingels Group (BIG) on a former military island five kilometers off the coast of Baku in the Caspian Sea. The second case study is the Khazar Islands development, an artificial archipelago of over fifty islands also located in the Caspian Sea, twenty-five kilometers south of Baku. The results are based on key informant interviews, field observations, and document analysis carried out in Baku, Azerbaijan over a three-month period in 2016.

Spectacular megaprojects have long served as catalysts for development, investment attraction, and real estate speculation around the world. As cities compete with one another to lure capital and boost their global status, many urban design proposals have become increasingly expensive, ostentatious and technologically sophisticated. The high-risk financial nature of grand urban design proposals and their frequent associations with displacement or environmental destruction suggests that the megaprojects model is becoming flawed. At the same time, there remain key advantages for clients and politicians to proposing designs that are more spectacular than feasible. The paper begins by unpacking the distinct forms of agency embedded within unrealized design proposals and then examines four key arenas through which they circulate globally in order to gain greater notoriety and legitimization. The results show that these four arenas are crucial for building the image of rumored megaprojects—both domestically and abroad. With specific regards to post-Soviet Azerbaijan, these two case studies reveal how design proposals are being used to promote a new identity of the capital city, Baku, simultaneously affording the ruling elite greater legitimacy.

Academic interest in image production in urban design has been primarily focused on examining the media surrounding realized projects—or comparing realized projects to their originally-designed forms—rather than on the politico-economic opportunities afforded by project proposals in their own right. Understanding how such image production and circulation works under today's global forms of capitalism—and more specifically in each of the phases of building construction under capitalism—is therefore an area of research with room for expansion. This paper looks at the commodification of architecture and urban design before its construction phases and shows how—distinct from building commodification and construction commodification, design phase commodification affords its own politico-economic agency. In drawing a distinction between the use of images of finished projects from that of design proposals in branding, this paper's analysis foregrounds the power of urban design rumors that remain suspended in a protracted state of "near-future" development.

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Key Words: Megaprojects, Waterfront Redevelopment, City Branding, Green Washing, Growth Machine

LEARNING FROM DESIGN IDEAS AT WORK: 21ST CENTURY DESIGN SENSIBILITIES AND SETTLEMENT PLANNING FOR URBAN ELEPHANTS AND MAHOUTS IN JAIPUR, INDIA

Abstract ID: 87

Individual Paper Submission

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What can scholars learn from planning efforts aiming to integrate design ideas into practice? This paper will explain how a professional firm used a variety of discursive concepts and scholarly propositions from diverse disciplines like urban design, physical planning, environmental studies and landscape architecture for planning a unique settlement for elephants and their care givers, called Hathi Gaon, or Elephant village, in the dry and arid city of Jaipur, India. Our purpose in doing so is to highlight lessons that scholars studying spatial planning and urban design efforts in similarly developing context may find useful.

Even as elephants naturally prefer tropical habitats, such as those found in the southern and eastern Indian states of Kerala and Assam, Jaipur Maharajas and courtiers regularly imported elephants for status and military purpose. The growing numbers eventually catalyzed the development of a specialized neighborhood for elephants and their caretakers in the planned city of Jaipur founded 1727. Following the cessation of cavalry duty with the advent of modern military practices, and the ending of royal patronage with the merger of princely states like Jaipur with independent India in 1947, the elephants found employment transporting visiting tourists to the nearby hilltop fort of Amer and local grooms in wedding processions. Importantly, the elephant and its care taker, or the Mahout, share an intimate and symbiotic relationship; with the mahout's entire family typically involved in elephant care while, in turn, depending upon the elephant's earnings. Due to the increasingly poor quality of city life in Jaipur's historic quarters, authorities sponsored the building of Hathi Gaon in the early 2000s. This process involved an invited competition organized by the government of Rajasthan state centered around a crucial question: How can 21st century design sensibilities inform the planning of such a distinctive settlement in the context of contemporary India?

The empirical evidence for this paper comes from two sources. First, a retrospective reading of the overall planning approach employed by the principal of the design firm that won the competition and designed the project (also a co-author of this paper). Second, an outsider analysis conducted using a case study approach by the presenting author. We find that ideological commitments and disciplinary fidelity offer little practical use for both conceiving and studying spatial planning and urban design efforts on the actual ground. On the other hand, focusing upon design ideas at play, which often stem from diverse disciplines, helps comprehend the innate complexity of such efforts from multiple perspectives. The presentation will illustrate how Hathi Gaon employs a diverse range of planning ideas and design concepts: Thinking across spatial scales (Lynch 1984), significance of the surrounding landscape and regional ecology (McHarg 1995), meaningful engagement with project users and stakeholders, paying attention to planning processes over envisaged outcomes (Inam 2013) and political savvy focused on changing context throughout the building of project (Forsyth 2013). The presentation will also highlight practical challenges such as the lack of broader institutional frameworks critical to support the long-term development and upkeep of inventive spatial planning and design projects like Hathi Gaon that state and national authorities are currently sponsoring across urban India.

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Key Words: Learning from practice, Pragmatic planning, Designing in the developing context

THE IMAGE OF A HIGH-DENSITY CITY: KEVIN LYNCH'S THEORY IN CONSTRUCTING CHINESE URBANISM

Abstract ID: 103

Individual Paper Submission

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Kevin Lynch's seminal book *The Image of the City* (1960) established a unique and original framework in linking users' subjective perception and individualized behavior with a system of abstract thinking and normative methods that can be applied in urban design and planning.

Using Shanghai as a case study, this article introduces the utilization of location-based mobile data techniques and social media as a milieu for examining the effectiveness of Lynch's urban design framework as well as measuring the level of connection between users' behaviors and urban imageability. It aims to explore how recently developed technology can stimulate and be utilized to facilitate our understanding of the vitality of urban space and the design of its spatial quality. By using data mapping, spatial analytics and reviews on social media processed via natural language processing (NLP) algorithms, this article reexamines, reinterprets and thus better understands Lynch's contribution in combining the intellectual aspects of urban design with its empirical application in practice.

Toward this end, this article first explores major theoretical threads that have significantly influenced urban design practice in China since the beginning of its economic reform era in the early 1980s, including Lynch's schools of thought, and addresses the implication of these ideas in constructing an urbanism that is both unique and has shared commonalities with the rest of the world. The article then introduces the Chinese characteristics embodied in applying Lynch's methods in practice and the divergence from those reflected through *The Image of the City* and many interpretations already in existence in the Western literature.

Given that the empirical test of Lynch's framework has been constrained by the limitations of the technologies of the day, thereby curtailing otherwise potentially wider applications, this article illustrates how recent technological advancements can help expand the potentials of Lynch's efforts in decoding how users orient, use, and navigate the urban spaces, rendering influence on the spatial and imagery quality of a city (Lynch 1960; Raynsford 2011). Three case studies with varied physical scales, purposes and forms – a singular urban complex with a site area of seven acres located in the city center, a linear three-mile waterfront park along the Yangtze River, and a neighborhood of twelve urban blocks spanning nearly 500 acres in the Lujiazui area – are selected for detailed analyses through a comparative lens. Following the classification of discreet urban elements defined by Lynch – paths, nodes, edges, landmarks and districts – that have endured and influenced generations of urban designers and planners (Lynch 1960; Pearce and Fagence 1996), the daily usage of various urban spaces and functions of urban spatial elements of the above case studies categorized by the given time and space are analyzed and translated into both qualifiable and quantifiable measures with the facilitation of big data applications and social media that represent the functional and social perspectives of the formal quality of urban spaces.

In sum, through the empirical data analysis and reasoning, this article assesses and analyzes the design quality and effectiveness of the constructed urban forms selected in Shanghai via the interpretation of Lynch's conceptual framework. By focusing on the interrelationships between the users' behavior and the formative processes as well as the consequential spatial characteristics of spaces, this article articulates the wider adaptation of Lynch's theory "to digitally propelled shifts in contemporary urban life" (Kullmann, 2017, 124) and explores the potentials of the human-behavior-centered approach in establishing possible trajectories for the future of urban design, both in China and beyond.

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Key Words: Urban Design Theory, Urban Spatial Analysis, Kevin Lynch, Locational Data, High-Density Urbanism

PEDESTRIAN PATH NETWORKS IN RESIDENTIAL AREAS: EVALUATING THEIR CONTRIBUTIONS TO WALKABILITY

Abstract ID: 213

Individual Paper Submission

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The street networks found in suburban communities are typically of the “loops and lollipops” style; cul-de-sacs and dead end streets make it a challenge for residents and visitors to use any other transportation mode besides the automobile (Southworth & Owens, 1993). Fragmented street networks can reduce connectivity for pedestrians, one of the key attributes of walkability. Walkability is defined as the extent to which the built environment supports and encourages walking. (Southworth, 2005). Yet loops and cul-de-sacs remain extremely popular among homebuyers and homeowners living along them; they eliminate auto through traffic and provide a safe place for children to roam (Southworth & Ben-Joseph, 2004). Disconnected networks work well when the goal is to reduce traffic, though it makes every walking trip longer. This discourages walking.

Some residential areas have mitigated the negative aspects of cul-de-sacs and loops by building bicycle and pedestrian paths that connect streets within subdivisions and between subdivisions. The path connections, when used extensively, can mimic a well-connected grid pattern for pedestrians and cyclists while preserving the qualities that make cul-de-sacs and loops appealing to residents. Despite the obvious benefits of these path connections, they have not been deployed extensively, nor have they been systematically evaluated.

This research examines three areas with path connections in the Sacramento area and one walkable neighborhood without path connections as a control. This mixed-methods research project includes interviews with stakeholders in the development process, a pedestrian audit of the path networks, and surveys of path users. This research beings to answer these questions: who uses the paths? What do they use them for, recreation and exercise or trips they would otherwise make by car? Could path networks in residential areas reduce reliance on the automobile?

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Key Words: walkability, suburbs, streets, pedestrian audit

THE PERCEIVED AND OBJECTIVE MEASURES OF CAMPUS ENVIRONMENT IN CALIFORNIA STATE UNIVERSITIES AND THE ASSOCIATION WITH STUDENTS' SUCCESS AND SATISFACTION

Abstract ID: 221

Individual Paper Submission

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In recent years, many universities embraced the idea of physical planning to attract more prospective students, increase the quality of life of current students, and invest in surrounding communities (Chapman, 2006; Coulson et al., 2010; Coulson et al., 2014). However, the potential impact of these built environment interventions in students' academic performance is an understudied topic. More evidence-based research is needed to connect campus design qualities with students' satisfaction and academic performance.

This research investigates the relationship between the physical campus of California State Universities (objective and perceived dimensions), their student satisfaction with college life, and ultimately, academic performance. It has two phases. Phase 1 is the campus-level, Campus Score, analysis of all CSU campuses and Phase 2 is the individual-level analysis from students. In phase 1 the objective measures of campus form were the foci of research, and these measures were associated with retention and graduation rate measures. The physical campus form characteristics of 23 CSU campuses were measured, using the scale from Hajrasouliha (2017). Campus Score is a composite index that measures the degrees of urbanism (Urban Score), greenness (Green Score), and living on campus (Living Score) based on the standardized value of certain campus form dimensions. Pearson Bivariate Correlation and multiple regression modeling were used to explore the relationship of Campus Score with freshman and graduation rates, controlling the institutional characteristics.

In phase 2, the perceived environment was measured through an online survey from students of certain CSU campuses, and they were associated with their perceived satisfaction with their academic life and performance. These two phases allow for connecting the physical campus qualities to their perceived qualities and explore their relationship with students' perceptions and academic performance.

The results demonstrate that both objective and perceived measures were significantly associated with students' academic performance. This study found Campus Score explains 31.5 percent of the variance in the six-year graduation rate of CSU campuses. This is a fairly strong association, although it was found to be stronger in Hajrasouliha (2017), where the amount of variance in the six-year graduation rate of 103 research universities explained by Campus Score was 66 percent. The difference can be explained by the scope of research (national vs. state), and the type of institutions (research vs. teaching-oriented); research institutions generally have more diverse student bodies, are significantly larger and more complex than the CSU campuses. In addition, no significant association was found between Campus Score and freshman retention rate at CSU campuses, while the other study found strong association for research universities.

The most unanticipated result was the nature of the relationship between objective and perceived measures. It was expected that campuses with higher score of objective measures, earn higher perceived qualities, and that lead to higher students' satisfaction and academic performance in those campuses. For the first part of this hypothesis, contrary evidence tells us otherwise. Campuses with higher Campus Scores received lower scores for perceived campus quality and perceived restorativeness, and vice versa. One explanation for this perplexing mismatch is that students' expectations can be vastly different among different institutions. For instance, San Luis Obispo is one of the greenest cities of California with scenic landscapes and spectacular trails. In this context, Cal Poly SLO campus greenness may not be perceived as satisfactory by the greenness-saturated eyes of students, while a lower amount of campus greenness in the urbanized context of San Jose may be more valued. The observed mismatch between objective and perceived measures leads to additional questions and potential research. This research gives an insight to universities about the role of their physical campus in enhancing students' satisfaction and success.

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Key Words: Campus Planning, Campus Score, Restorative Environment, Graduation Rate, Freshman Retention Rate

“URBANISM IN THE ANTHROPOCENE”

Abstract ID: 226

Individual Paper Submission

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After the last ten millennia in the Holocene of near-perfect climatic conditions for our species to thrive and build a complex civilization, we are now entering the Anthropocene. Global warming is upon us. It's not just climate change that threatens, but also resource depletion, ecosystem destruction, pollution, drought, floods, sea-level rise, pandemics, invasive species and food shortages. Another mega-story lurking in developing countries is global population growth, that other hockey-stick curve of the last several centuries that exacerbates climate change. And we simply have less available geography, resources and time to negotiate crises as climatic tipping points arrive too quickly for flora and fauna to adapt to, but too slowly to change human behavior.

Long under-recognized are two positive, counter-intuitive urban paradoxes. The first is the environmental paradox of cities: urban dwellers consume less energy and produce less waste and carbon emissions than their counterparts in suburbs and countryside. Critical in developing countries is the population paradox of cities: migrants to cities voluntarily have smaller families than in rural areas, meaning the total number of people producing waste and greenhouse gases will peak sooner and then start to drop, while their lower urban footprints combat climate change. Rising female rights, education and employment are collateral benefits.

The central theme of my paper:

1. Climate change is an existential threat to civilization that is qualitatively and quantitatively unprecedented, and urgently needs to be addressed, including mitigation, adaptation and possibly geo-engineering. However, as a long-term and abstract threat, it fails to sufficiently rally society, in the face of more immediate and direct threats.
2. Cities that are mixed use, walkable, transit-served with compact, multi-unit buildings benefit from the environmental and population paradoxes of cities, the bigger and denser the better.
3. In developing countries the lower urban birth rate dampens or possibly decreases the nations' total carbon footprint. However, the net effect on household, city and national footprints is currently counter-productive in many, if not most developing countries, because of higher consumption and carbon footprints. It will get worse if their mushrooming cities continue to sprawl into energy-intensive patterns similar to suburbia in developed countries. The population paradox currently applies more in Africa, where birth rates sometimes drop from 8 to 4 children per family, than in Asia, where the rural-urban economic gap is typically more pronounced.
4. Urban Heat Islands, especially during heat waves, are the prime driver of extreme heat in cities, making them hotter faster than the surrounding suburbs and countryside, or the global average. Accordingly, UHIs can deter people from moving to or staying in cities.

5. Fortuitously, addressing UHIs simultaneously addresses CC, usually in equal degree. Architectural, urban design and planning strategies will be included.

6. Because UHIs are more immediate and palpable, as well as more manageable than climate change, they motivate people to act on CC with a greater sense of urgency, agency and progress. The scale of the challenge is aligned well with city and metro levels of government, which are less encumbered and nimbler than larger geopolitical units.

7. As a result, the environmental-socio-economic-political efficiencies and advantages of cities, as well as their synergies and potential for shared economies, are harnessed, along with their productivity, creativity, social tolerance and cultural richness. If well planned and built, cities may be our last, best hope in the war against CC and other emerging challenges.

The paper is based on a decade of teaching, writing and research on contemporary urbanism will help faculty, professionals and students better understand the interconnected complexities of climate change, urban heat islands, heat waves, and overpopulation. It will also develop an understanding of how architecture and urban design can be antidotes to these growing challenges in both developed and developing countries.

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Key Words: climate change, overpopulation, urban heat island, urban design, sustainability

PARK AND NEIGHBORHOOD ATTRIBUTES ASSOCIATED WITH PARK USE: AN OBSERVATIONAL STUDY USING UNMANNED AERIAL VEHICLES (UAVS)

Abstract ID: 252

Individual Paper Submission

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Urban parks are essential to the livability and sustainability of cities, providing various benefits, including health, environmental, social, and economic gains. Such benefits, however, can be enjoyed only if people use the parks. In spite of the popularity of studying park visitation or park-based physical activity, studies have not reached a consensus on what the roles that various factors, especially neighborhood conditions, play. For example, while the positive role that built environments play in promoting walking or physical activity is well documented in the literature (Ewing & Cervero, 2010; McCormack et al., 2010), urban form factors are rarely accounted for in studies of park use. The lack of a comprehensive understanding of park use may result in inappropriate interventions, inevitably followed by the underutilization of parks.

To address these research needs, this paper raises the following question: Which factors have the strongest impact on promoting park use in light of both park attributes and neighborhood conditions? First, this paper establishes a conceptual framework of park use while claiming that studies have overlooked the importance of surrounding built environmental factors. Then, with park use data collected from an observational tool using unmanned aerial vehicles (Park and Ewing, 2017), this study develops multilevel negative binomial models that estimate the number of park users by gender, age group, and activity level.

This study selected 30 neighborhood parks in Salt Lake County, Utah, based on their diversity in park attributes (e.g., size, park type) and neighborhood characteristics. This study entailed the use of a systematic observation tool, SOPARC (System for Observing Play and Recreation in Communities), developed by McKenzie and his team (2006). To understand park-use patterns across during different times, each park was observed six times on various days of the week and times of a day.

Using multilevel modeling, this study shows that neighborhood park utilization is positively associated with park attributes (i.e., larger area, a playground, a creek/pond, quality maintenance, and organized activities), neighborhood attributes (i.e., lower minority/low-income population, higher population/employment density, more commercial and public uses, and a well-connected street network around the park), and temporal factors (i.e., the late afternoon). These factors vary according to diverse types of park users. An understanding of park-use dynamics with regard to park and neighborhood design attributes could prompt planners and government officials to collaborate to formulate more effective park plans, policies, and programs that promote park utilization and park-based physical activity.

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Key Words: park use, direct observation, Unmanned Aerial Vehicles, drone, physical activity

THE CITY AS A WORK OF ART, AUTHENTICITY, AND INSTAGRAM

Abstract ID: 254

Individual Paper Submission

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Today, 800 million people posted upwards of 500 million images to the mobile photo-sharing application Instagram. The social networking site sits at the nexus of three contemporary phenomena affecting our relationship with cities: smartphone-enabled social media engagement, the role of urban design and art in our public spaces, and society's increasing desire for authenticity. This paper analyzes Instagram posts to learn what people want to see in their cities based on how they frame, curate, and publish images of their cities' public spaces. The result is we are reminded that the posts extend technology's tendency to change the way we understand the urban world.

The world's third largest social networking site after Facebook and YouTube, Instagram is a useful analytical tool because its massive database provides a current glimpse into how people are choosing their view of the city. First, its wide usership posts imagery representing their normative hopes for their cities. Second, Instagram has a uniquely relevant relationship with public art in that its global immediacy has helped reshape street art practice, aesthetics, and consumption specifically (MacDowall and de Souza, 2018), and our daily interactions with urban spaces in the age of the mediated city generally. Third, Instagram's in situ and real-time publication process "resonate[s] with personal, 'authentic' experiences" (Hochman and Manovich, 2013, para 19), as well as with society's desire for authentic urban spaces (Tate and Shannon, in press).

Using tourism studies' three notions of authenticity—objective, constructive, and existential (Wang, 1999)—as a lens, this paper comprises a constant-comparative visual, content, and discourse analysis of 800 randomly selected

Instagram posts hashtagged #urbandesign, #diseñourbano, #publicart, and #artepublico to discern how people in the Global North and Global South capture and share examples of urban design and public art. I coded all images, hashtags, and captions for markers of the three notions of authenticity, as well as references to urban planning issues, such as community, social practice, and mobility. Compositional interpretation was used to record an image's content: its object (e.g., built environment or art?); its physical placement, size, formality, interactivity; and featured Lynchian element. Also, a contemporary visual discourse analysis was applied, which privileges the viewer's interpretation to assign a mood to an image rather than guessing at a photographer's unknowable intent. Examples of recorded moods include "comical, parodic," "grand, imposing," insurgent, political," "serene, sublime," and "workaday." From these data, I sought to learn what Instagram users deem to be urban design and public art and see what implications users' online behavior might have for urban design.

In many ways, this research reaffirms for us a lot of what we already know. Our experience within the urban realm is an existential one, and our human impulse is to make sense of our urban spaces with whatever tools at our disposal. At the conclusion of the collecting, sorting through, and analyzing the images, I found three salient themes. First, Instagram is useful for studying urban design and imagery evokes Hester's (1975) humanistic design principles, but images addressing safety concerns or homelessness are almost nonexistent. However, and second, informal artwork posted does address social issues more than formal, permanent urban design, suggesting the former can better provide opportunities for place- and object-initiated dialogue about social concerns. Finally, the project provides empirical support to the existing theoretical connection between the built environment and existential authenticity. Instagrammers often post phenomenological imagery and write captions asserting the featured urban spaces are theirs. Urban designers and planners, then, can work to create spaces of activity and being for their city's urban spaces.

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Key Words: urban design, public art, authenticity, Instagram, visual and content analysis

HIGH-DENSITY PARENTING: URBAN DESIGN AND RAISING CHILDREN IN THE DENSIFYING NORTH AMERICAN CITY

Abstract ID: 266

Individual Paper Submission

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Much academic and popular writing of late has declared a North American urban renaissance. Generally these new urbanites are presented as the childless educated young or retired empty nesters eager to reap the economic, social, and cultural benefits of city living. On the ground, this has manifested itself in re-densification: urban neighborhoods full of new units in mid-to-high rise mixed-use apartment and condominium buildings; a stark change after a roughly half-century of general urban-core population loss. This has been promoted by policy makers, who often adopt Placemaking strategies to achieve vibrant public spaces to further revitalize and incentivize private development in these areas (Madden, 2011). Largely missing from this discussion are children and, more importantly, the parents from all classes choosing to live in the city. Given the emerging mainstream urban ideal, this dissertation research centers around two interdependent questions: 1) how are city policy makers and development partners envisioning the relationship between urban revitalization, placemaking, and childrearing in North American cities? And 2) How do parents perceive urban design, including new development

and placemaking, as positively or negatively influencing the quality of life and locational decisions involved in childrearing in North American cities?

My overriding hypothesis is that the built environment is an important factor in parents' decisions to live in the city, and that urban design impacts parents' quality of life. My findings suggest that contrary to the prevailing narrative of the revitalized center city serving the childless, many urban parents view dense close-in neighborhoods as desired places to raise a family, and that well designed and programmed high-density areas can be ideal spaces for childrearing. Furthermore, I highlight the potentials and pitfalls of using the child-friendly frame towards the goal of a more equitable and inclusive city. I theoretically situate the research in four bodies of literature: 1) the back-to-the-city literature (Hyra, 2015), 2) the right to the city literature (Harvey, 2003), 3) the everyday city literature (Chase, Crawford, & Kaliski, 2008), and 4) urban policy matters literature (Punter, 2010).

I conduct a comparative case study between two mid-sized densifying cities: Vancouver, BC and Washington, DC. In 1992 Vancouver adopted the High-Density Housing for Families with Children Guidelines, an explicit policy promoting families in high-density central neighborhoods, whereas DC had comparatively weak policies on the matter. While both cities are experiencing population increases for children under five, only in Vancouver's high-density neighborhoods does this increase continue for older dependent children. This research aims to understand how much of that difference is due to a difference in policy, in urban design, or in other factors. I analyze the design of the built environment in select densifying neighborhoods through three categories relevant to urban parenting: street and building typologies; access to and use of public and private publicly accessible spaces (parks, plazas, sidewalks); and access to and use of amenities (schools, community centers, libraries, stores, public transit, etc.). Two central components conducted in tandem constitute this mixed-methods research. One component focuses on the relationships, attitudes, and conceptualizations that the case cities' urban public and private sectors have towards childrearing, analyzed through interviews, document and archival analysis. The other component consists of spatial ethnographies of parents and their everyday relationships to the urban environment. By focusing on the understudied role of parents in the dense city, this research fills a critical gap in both urban design and public policy literature. As more North American cities revive and densify, planners struggle to balance social and economic forces. Reconceptualizing urban design and policy's role in shaping high-density center cities as ideal family neighborhoods can play an increasing role in this urban age.

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Key Words: urban design, density, parenting, Washington, DC , Vancouver, BC

THE DESIGN POLITICS OF URBAN FLOOD INFRASTRUCTURE IN THE AGE OF RESILIENT URBANISM

Abstract ID: 299

Individual Paper Submission

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There is broad agreement that climate change is placing ever-greater populations and assets at risk of flooding in cities around the world (Hallegatte et al. 2013). Both the impacts of these changes and efforts to adapt to them threaten to exacerbate existing socio-economic inequalities (Anguelovski et al. 2016). Through most of the 20th century, flood infrastructure projects were driven by a narrow technical problem solving orientation. Flood control mega-projects from this earlier era have been criticized for encouraging unwise development patterns and

causing widespread social and environmental damage (White, Kates, and Burton 2001). Many of the efforts currently underway to address the challenges of climate change-linked urban flooding aim to correct the failings of previous generations by including a broader range disciplinary expertise, including an increased role for designers and spatial planners. These new projects are frequently rooted in emerging concepts of ‘resilient urbanism,’ which prize flexibility and adaptation. Drawing on Ian McHarg’s ‘ecological planning’ principles (McHarg 1969) and more recent practices from Dutch water planning (Dammers et al. 2014), these projects use the spatial and visual tools of design in pursuit of strategies labeled as ‘living with water’ and ‘design with nature.’

This paper asks: what opportunities and challenges come with the increasing involvement of design and spatial planning methods in flood infrastructure planning? Where might these tools enable new cross-disciplinary insights or contribute to improved public deliberation? On the hand, what are the dangers of the increasing use of the tools of urban design in these processes?

The paper presents analysis of recent design and planning proposals from two flood prone and climate vulnerable cities, New Orleans and Dhaka. It supports this analysis with insights from semi-structured interviews with participants, experts, and critics involved in these projects. The analysis is informed by archival research into the history of flood infrastructure and planning in Dhaka and New Orleans.

The paper finds that there is broad agreement that the tools and methods of design and spatial planning hold significant promise for improving both the process and communication of complex urban adaptation projects. In the cases analyzed, the spatial and visual methodologies of urban design have been prized for revealing new possibilities and in bridging between frequently isolated disciplines. These visual methods have also been celebrated for enabling clearer communication of the dynamic impacts and tradeoffs of shifting flood mitigation strategies. However, the research also revealed that there are considerable challenges to using design and spatial planning tools in flood adaptation. The power of design visualization is deeply tied to the specific values and expectations of both image producers and consumers, limiting how readily such methods may be transferred between geographic or professional settings. The research also indicated that design visualization can, in some circumstances, hinder political contestation and debate that is necessary for inclusive and equitable adaptation. By ignoring, obscuring, or invoking urgency to bypass conflict, design visualizations can depoliticize adaptation, evacuate dissent and silence non-dominant voices (Swyngedouw 2010).

This research has critical implications for an emerging area of urban design practice and scholarship. To realize the great potential value of urban design’s spatial and visual tools in flood adaptation projects, it will be necessary to develop a clearer understanding of both how these tools can both enrich and obscure public deliberations and debates. By illuminating some of the opportunities and challenges faced by participants in flood adaptation projects in two cities on the “front lines” of climate adaptation in the Global North and South, this paper provides insights regarding the role of urban design in urban adaptation more broadly.

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Key Words: resilient urbanism, climate change, flooding, visualization, urban design

OPENING NEIGHBOURHOOD STREETS FOR CHILDREN'S PLAY: EXAMINING COMMUNITY BENEFITS OF PLAY STREET PROGRAMMING IN TORONTO, CANADA

Abstract ID: 358

Individual Paper Submission

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Benefits of outdoor and unstructured play to a child's physical, developmental and social wellbeing has been well-documented (Faulkner et al., 2015). Historically common places for children to play and for the community to socialize, neighbourhood streets have increasingly been taken over by vehicles, and children have been engineered out of them (Read, 2011). In most North American municipalities, regulatory measures and popular culture identify playing on streets as dangerous to children and to private properties (including cars). In the context of declined support for spontaneous play, re-introducing outdoor play on neighbourhood streets can potentially provide a multitude of health and social benefits. Community-organized programmed interventions, such as Cyclovias or Open Streets, have previously been successful in reclaiming urban streets as public spaces (Lydon and Garcia, 2014). Programming focused on children, such as Play Streets, are also emerging, but remain understudied (Hart, 2002).

This study examines the benefits of StreetPLAY pilot in Toronto, which was the first-of-its-kind community-organized programming in Canada. Seven street sections in an inner-urban neighbourhood were closed to vehicular traffic on multiple afternoons per week, from June through October in 2017. Using data from participant surveys (n= 105), field observations, and a community survey conducted after completion (n=105), two research questions were explored: (1) to what extent has StreetPLAY contributed to creating opportunities for outdoor and unstructured play among participating children? and (2) what are the perceived community benefits of this programming?

The exploratory analysis indicated that 66.2% of participating children attended more than one StreetPLAY event since the program started and 28.6% attended all of the events on their street. Children and youth would most commonly spend more than 1 hour at StreetPLAY (61.5%), engaging in a wide range of activities. A large proportion of participating parents reported that their children would either play indoors (61.1%) and/or use the internet (34%) if they were not at a StreetPLAY event.

Most community members (91.4%) felt that the StreetPLAY events offered a safe play environment for children. The majority (75.3%) also felt more connected to their community as a result of the StreetPLAY programming. A regression analysis indicated that parents of children (versus those who did not have children) and households with higher income had more positive perceptions of the programming.

As children's needs continue to be overlooked in neighbourhood planning practice (Wood, 2017), urban planners must take on a greater responsibility. The StreetPLAY is a quick and inexpensive programming that follows the Tactical Urbanism principles, and can be replicated in other inner-urban neighbourhoods to create opportunities for children to use and play on neighbourhood streets. In Toronto, a collaboration between local leaders and the City made the intervention possible; findings from this research confirm the community benefits of such programming. The implications of these findings in informing policy, and challenges to implementation, will be discussed.

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Key Words: Outdoor play, Streets as public spaces, Tactical urbanism, Community building, Health and wellbeing

THE NARRATIVE OF RETENTION: REANIMATING THE HISTORICAL EVENT SPACE IN BRISBANE AND SYDNEY

Abstract ID: 365

Individual Paper Submission

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Mega-events, such as expos and the Olympics, leave lasting physical imprints on host cities that evolve over time (Roche, 2017). Historical scholarship on these events, often focuses on a relatively narrow temporal window tightly bound to the origins of expositions and their immediate after effects. Mega-projects literature is replete with critiques of the social and economic costs of mega-events (Flyvbjerg, 2017). Much of this literature, however does not directly address the evolution of these sites over the longer term. Some planning and design scholarship does address the evolution of expo sites, e.g. Ganis (2015) and Ganis, Minnery, and Mateo-Babiano (2015). However, the retention and interpretation of remaining sites, buildings, landscapes, spaces and objects are understudied and under-theorized aspects of mega-event sites. Furthermore, there is little, if any literature, on how individuals and coalitions become attached to mega-event sites over time and how or why they advocate for their retention. Finally, there has been little scholarship on how artists can reanimate and reinterpret history in the wake of mega-events.

This paper presents two cases studies of heritage conservation and collective memory at the site of former Australian exposition sites. The first case study tracks the conservation of public space and the retention of buildings and artwork at South Bank in Brisbane, Queensland. In 1988, Brisbane hosted a universal expo that represented to its political and business leaders the beginnings of an ascent into the status of international, "new world city" (Beanland, 2016). The Expo '88 site was later redeveloped into the South Bank Parklands. Over time, South Bank Parklands evolved through redevelopment and master planning (Ganis, 2015; Ganis, Minnery, and Mateo-Babiano, 2015) and, as is argued in this paper, heritage conservation as well as informal acts of retention and interpretation, have had an important, but largely unacknowledged influence on the evolution of South Bank's public space.

A second case study consists of a high profile, public arts project in Sydney, New South Wales. Funded by Kaldor Public Art Projects, *barrangal dyara* (skin and bones), was an impressive installation by the artist Jonathan Jones to resurrect a largely forgotten history of the (mis)representations of Aboriginal culture in displays at the 1879 Sydney International Exhibition (Jones, 2017). The Garden Palace, built to house the exposition, was destroyed in 1882 along with sacred Aboriginal cultural objects. In 2016, using Aboriginal shields, Jones created a massive, ghostly outline of a long gone Garden Palace. This public art installation retold the tragic loss of aboriginal sacred objects, but also recast the landscape as an expression of the regeneration and resilience of Aboriginal culture and language. This instance of ephemeral, but well-documented historical interpretation, contrasts with traditional forms of heritage interpretation, such as plaques and historical monuments. In an era of rethinking traditional memorialization and monuments, this public art project provides a potent model of social practice art as means of reinterpreting history in a public space.

In both case studies, heritage and art, retention and remembrance of objects and events can be seen as a dynamic reanimation of memory in time and space. These contrasting narratives of retention have implications for understanding the longer-term legacies of former mega-event sites and the importance of collective memory as

represented in the landscape.

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Key Words: Memory, Mega-events, Heritage Conservation, Art, Public Space

PURSUING RESILIENT URBAN DESIGN: EQUITABLY MERGING GREEN AND GRAY STRATEGIES

Abstract ID: 366

Individual Paper Submission

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The terms urban design and resilience each gained traction in the mid-twentieth century, and initially inhabited almost entirely separate realms of both theory and practices. Resilience emerged from the fields of psychology, engineering and ecology and focused on traumatized individuals, weakened infrastructure, and threatened ecosystems. Urban design grew out of ambitious modernist projects for urban renewal and new city design, but the practice has frequently remained centered on the aesthetic experience of the public space between buildings. In more recent decades, however, the expansion of urban settlements into more hazard prone territories, and the amplification of risk through environmental and technological change have made risk and resilience increasingly central concerns for practitioners and scholars of urban design. This paper addresses two related questions: Can urban design provide a domain for concrete projects, processes, and practices that ground resilience, engaging the spatial politics of cities to create more just and environmentally sound places? And similarly, can a refined focus on resilience allow scholars and practitioners of urban design to synthesize social, ecological, and aesthetic analysis to create disciplinary practices that are more flexible and more attuned to the concerns of the most vulnerable members of urban societies?

In addressing these questions, the paper outlines parallel 'green' and 'gray' traditions of both 'resilience' and 'urban design.' These trajectories describe alternate orientations towards landscape processes, which underlie urban settlements and shape environmental vulnerability. We argue that, while new paradigms of resilient urban design offer promising potential, too often projects and programs aimed at addressing urban environmental vulnerability are insufficiently attentive to the social equity implications of interventions, including the threat of opportunistic 'disaster capitalism' and the potential for displacement--both by direct project impacts and through so-called green gentrification.

To illustrate these opportunities and challenges of resilient urban design, we provide a brief discussion of emblematic projects in cities of the Global North and South, focusing on three river delta cities: New Orleans, Rotterdam, and Dhaka.

Promoters of the much-celebrated Hatirjheel project in central Dhaka sought to simultaneously address several critical infrastructural deficits in the city: providing for stormwater retention, much-needed public space and improved road connectivity. However, the project displaced thousands of low-income residents of informal settlements even as the illegally-located headquarters of the powerful Bangladesh Garment Manufacturers and Exporters Association (BGMEA) was permitted to remain at the center of the redeveloped area. Because of such inequities, this project thereby falls short of achieving resilient urban design. We also discuss more promising projects, such as the Benthemplein Water Square in Rotterdam, which delivered enhanced water retention and

high-quality public space without displacing low-income residents. And, in New Orleans, we highlight "blue streets" proposals for accessible water retention infrastructure in the Greater New Orleans Water Plan.

In each case, these studies of projects are based on field observation and interviews with project participants, stakeholders, and experts. Based on these observations, we outline a series of principles intended to simultaneously ground resilience and refocus urban design on the creation of just and environmentally progressive places. Resilient urban design, we conclude, entails 1) pursuing geophysical and social resilience simultaneously; 2) integrating protective infrastructure with the public space and built fabric of cities; 3) recognizing the varied and shifting positions of state and non-state actors in different settlements; and 4) balancing the need for control and flexibility in urban environments.

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Key Words: resilience, urban design, equity, green infrastructure

AI-AIDED DESIGN (AAD): SMART DESIGN FOR SUSTAINABLE CITY DEVELOPMENT

Abstract ID: 418

Individual Paper Submission

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Cities are getting more and more attention in the new era of climate change and technology advances. On the one hand, cities are facing pressing environmental challenges. On the other hand, advanced computational technologies (e.g. artificial intelligence) open new opportunities for better tackling those problems. Scholars have been working on applying those technologies to better understand the environmental performance of urban form as "Science for Design" [1]. But building good city forms also requires normative ideas and procedural discussions on "Design in Science" [2].

Design and planning support systems have been developed to integrate science and design with the increasing power of computation. But the integration is mostly loose because of the nature of design. Similar to planning, design is a "wicked problem" that requires recursive problem defining processes, and the limitation of human's short-term memory prevents designers from the comprehensive understanding of complex objectives, variables, rules and constraints [3]. The popular rational and sequential linear structure in those systems is hard to implement in practice [4], which takes the post-design evaluation approach by generating designs first and evaluating their performances after. Since urban design often involves huge amounts of variables and rules, the design space can be nearly infinite [3], and design schemes directly proposed often represent only a tiny fraction. In such post-design approach, the suboptimal designs limit the effectiveness of performance evaluation. The role of computation is missing in design exploration in the Computer Aided Design (CAD) methods.

This research aims to develop a Smart Design framework to enhance our design decision-making process by the AAD to replace the CAD. It takes the view of urban design as an emergent pattern formation process with contextualized goals in urban systems, and integrates design and evaluation through the process. It has three parts: the pilot design exploration, the conceptual design evolution, and the detailed design refinement. In the first part, design problems and objectives are defined through iterations of sketches, and the design scheme patterns are parameterized. In the second part, the design scheme pattern evolves through AI algorithms to approach objectives. In the third part, the identified optimal solutions are examined and refined recursively through human judgment to deal with social and cultural aspects. Through three parts, the Smart Design approach integrates the scientific evaluation modeling and generative design to allow designs emerge with human knowledge and judgment. Its results could well outperform the traditional design methods, as evident in similar engineering design approaches [5].

The Smart Design framework is applied to a hypothetical case of the Gangnam superblock in Seoul to explore the energy efficient urban form in a high-density, super-complex, and hyper-consumptive urban environment in Asian contexts. The objective is defined as maximizing building energy efficiency. And the AI-based genetic algorithms (GA) are used as the optimization method. In the evolutionary design, the superblock design is organized as a series of episodes across scales from superblock, block group, block, parcel to building. And an urban scale building energy modeling system is used to simulate each design's energy performance. The best 10 solutions found by the GA are further evaluated based on the expertise and judgment of the designers for their social and cultural aspects.

The Smart Design approach provides a new framework to integrate generative design and scientific simulation with AI techniques in the situated urban design process. It can address a wide range of sustainable development issues such as energy use, human comfort, economic output and environment pollutions in different contexts. It could help urban designers and planners to propose design schemes more efficiently and effectively, and make better design decisions for sustainable city development.

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Key Words: Smart Design, AI-aided Design (AAD), Generative Design, Evolutionary Computation, Sustainable City Development

A COMPARATIVE STUDY OF MURAL ART POLICIES AND REGULATION

Abstract ID: 425

Individual Paper Submission

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Public murals have been around throughout mankind's history, communicating stories and artistic expressions to a wide audience, and helping form the cultural identity and aesthetic values of outdoor places. In recent decades, murals have become a common phenomenon in urban landscapes around the world. Some murals have been placed sporadically in urban spaces, while others have been carefully promoted by the establishment.

The broader shift towards cultural means of addressing urban problems or goals has generated a new set of justifications for the promotion of art and culture, grounded on instrumental and intrinsic arguments. Existing literature brims with researches concerning the role murals have in urban places. In this regard, murals are

perceived as: place-makers; objects of beautification; community builders; reactions to informal activities; and as a catalytic tool for urban regeneration and growth. In addition, in recent decades, influenced by the desire of cities to shift towards a knowledge-based economy and the growing popularity of the global economic theories (see e.g. Charles Landry and Richard Florida), many cities have adopted a 'creative' approach, seeking to promote their competitive advantage in the global market by branding their cultural attributes and promoting themselves (or specific areas) as attractive 'creative locations'.

Given the adoption (or cooptation) of mural art as an acceptable (and even desired) element in the municipal toolkit, many local governments around the world have made considerable efforts to establish their own mural related policies and regulations in order to stimulate the creation of murals in their territory while balancing a variety of interests, such as maintaining public order and protecting individual rights and liberties. These policies include laws, ordinances, guidelines, design control instruments, and funding tools. They vary from one city to the next, and their differences highlight a variety of motivations, approaches and attitudes towards public art, order, city planning, public spaces, and individual rights and freedoms.

Although murals are seen by many scholars as an important element in urban environments, the policies and practices that administer them have not been given enough attention in public policy studies. This paper intends to close this gap and to contribute in the fields of municipal governance of public spaces. By performing a systematic analysis of mural policies this paper enables researchers, practitioners and policy-makers to better understand the policies they work with and to develop best practices.

This paper will analyse how cities are adapting and integrating mural art regulations and policies in order to promote urban resurgence. Using a preliminary evaluation, the paper will measure different aspects of mural policies, focusing on motivations, facilitation methods, the ability and limitations of the policies to address different issues, and the policies orientations. The comparative assessment also ascertains the level of involvement of municipalities in the creation of murals, and reveals the way in which they cater for public and private interests.

To enable a broad view of the subject, two cities were chosen with different approaches towards murals. The city of Philadelphia, Pennsylvania, which is known for its murals and mural art program; and the city of Portland, which is known for its progressive reviews and practices but addresses its murals as one of many urban revival tools.

In the main, the analysis shows that Philadelphia has a more defined policy and actively promotes the creation of public murals as part of predefined planning agendas, however lacks in its ability to control or influence the creation of privately owned murals. Portland on the other hand has a more passive approach towards murals, mainly responding to request from property owners and NGO's but has a high level of design control, funding and maintenance abilities.

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Key Words: murals, public art, policy, regulation

ECOLOGICAL PLANNING AND DIRECT DEMOCRACY: THE CASE OF TEMPELHOF AIRFIELD

Abstract ID: 502

Individual Paper Submission

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While planning has long been concerned with how to balance human and non-human demands on the environment, in recent decades there has been a renewed attention toward holistic understandings of socio-ecological dynamics, including exploration of concepts such as ecosystem services, nature-based solutions, and biophilia, while a complimentary line of thought has noted that any truly holistic solutions will attend address matters of inclusion, equity, and environmental justice. But even calls for “a deepening of [the] ecological turn in spatial planning” acknowledge that this has been achieved more in theory than in practice (Scott and Lennon, 2014, p.267). How might the “ecological turn” in planning theory actually manifest in land use decisions in urban settings? If the “natural” is always caught up with the political, is it possible that this can be a constructive dynamic for decision making with respect to urban green space? Does truly holistic planning beg novel forms of participation and decision making?

To address these questions, I use the case of Tempelhof Airfield, a former airport in Berlin, Germany, which was preserved via a citizen referendum as public open space. Looking diachronically, I trace the social movement that became a referendum campaign and exercise in direct democracy, examine the techniques and discourses of the campaign, analyze the policies enacted through the referendum -- an example of citizens wresting control of the planning process back from the professional bureaucracy -- and synthesize recent research that assesses the post-occupancy performance of the space on social and environmental grounds.

The Tempelhof case reveals several astounding findings about how urban green space preservation can be conceived in holistic terms and how such efforts might encourage grassroots participation in planning. The movement to preserve the empty airfield was launched in response to the city’s unveiling of several uninspired redevelopment proposals; many people thought the space functioned better as a massive park, which is how it had been used, on occasional weekends when the city unlocked the gates, since being decommissioned. Claims were also made that only such a large park, centrally located, could equitably serve all of the city’s residents. And while a former airport would be considered brown field by most ecologists, the campaign ultimately marshalled evidence that the site was in fact important habitat for certain bird and spider species, while also arguing for the capacity of the field to combat the urban heat island effect. In other words, the campaign united an ecological argument, an equity and anti-gentrification argument, and quasi-NIMBY argument.

While surveys have shown proportionally less use of the space by immigrants and older age groups (Kabisch & Haase, 2014), challenging the equity arguments made in the campaign, the continued debates about management and possible development on parts of the field show how urban green space can in fact encourage participation, repoliticize supposedly post-political planning processes, and “foster moments of conflict” (Hilbrandt, 2017).

These findings should prove compelling for scholars and activists interested in direct democracy as well as for planners interested in how ecological planning can be pursued in an urban context.

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Key Words: participation, ecological planning, Berlin, brownfield redevelopment, direct democracy

SUSTAINABLE DESIGN PRINCIPLES AND THE CREATIVE CLASS: INSIGHTS FROM THE DOWNTOWNS OF SOUTHERN CALIFORNIA

Abstract ID: 637

Individual Paper Submission

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Richard Florida's creative class theory suggests that creative class workers are a key driver of economic growth of metropolitan regions. Till date, city planners and public officials have been trying to attract the creative class, primarily for economic growth. Simultaneously, the concept of sustainable urban form, developed in response to the negative consequences associated with the built environment characterized as "sprawl," continues to draw considerable attention from local government officials, planners, academicians, and researchers.

Design principles aligned with sustainable urban form promote walkable and well-connected streets, compact building forms, well designed public spaces, diverse type of land uses and a mix of housing types. These principles also promote the provision of green spaces and passive building design features – such as orientation, siting and landscape to reduce energy consumption. In general, there is a growing agreement that these design principles are most likely to lower carbon emissions and promote quality of place by encouraging social interaction.

Florida argues that members of the creative class are attracted to "quality of place", of which the built environment is a key component. In an attempt to promote economic growth and the concept of sustainable cities, it is possible that city planners and public officials are promoting certain sustainable design principles in the design of buildings and neighborhoods through development regulations, to attract the creative class to their cities and regions

Given this, the main objective of my study is to examine the extent to which sustainability-related development regulations are promoted in downtowns in cities that have a higher (or lower) percent of the creative class. Focusing on the downtowns in Southern California, my study uses a multiple case study approach, to examine which sustainability-related design principles are promoted (or not) and the extent to which they are promoted in downtowns of these cities. In this study, I will develop a sustainability-related analytical framework to examine the extent to which certain sustainable design principles are reflected in the latest downtown specific plans.

City planners and policy makers can benefit from the findings of this study as can cities that are currently updating their downtown specific plans. They can learn from best practices and shortcomings in the existing development regulations. Planners can use these findings and encourage urban form characteristics and development regulations that they deem best fit for their city. In addition, they can evaluate their current downtown plans using the tools developed in this study to assess the strengths and weaknesses of their plans and amend them based on their findings in order to promote sustainable design principles. Overall, the findings of this study will significantly contribute towards the future development of cities—one that will most likely promote urban form that are more walkable, compact, well-connected, provides diverse uses and a variety of housing types

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Key Words: Sustainable Design Principles, Downtown, Specific plan regulations

FREE-PLAY OPPORTUNITIES FOR CHILDREN IN EXISTING URBAN PARKS OF WEST CINCINNATI

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Free-play is defined as the voluntary activity of a child and their freedom of play without any compulsion. This study aims at finding a methodological framework to investigate the opportunities and types of free-play in urban play areas. Existing literature especially Piaget's (1962) work affirms the value of free play on the cognitive development of children. Children require a diverse set of physical environments to interact and play freely with peers (Hart, 2002). Since 1970s, over-emphasis was made on standardization and safety of play equipment. However, contemporary studies point out the detrimental physiological and psychological impacts of creating risk-free play environment for children (Frost, 1992).

The study focuses on seven neighborhoods in west Cincinnati that contain 30% of the city's children population (ACS 2015). About 39% of households in these neighborhoods have no access to cars and the average median income is significantly below the city median. Owing to these financial and mobility constraints, the children in this area depend on the play areas near their residences. This paper identifies the free-play opportunities and typologies along with a walkability analysis. The typologies of play being investigated include nature play, creative play, explorative play, and object play. Nature-play is identified as one of the primary types of play that fosters child's psychological development and is defined as an unstructured play environment where children can engage in free-play within nature.

The analysis of the seven neighborhoods finds 65 spaces owned publicly or by non-profits that support different kinds of play environment. These spaces include but are not limited to urban parks, church grounds, cemeteries, recreation areas, and nature preserves. The methods of investigation for the typologies include visual observations, behavioral mapping and use of national land cover database. The study uses GIS to map the nature cover, existing play opportunities, their typologies from field observations and walkability for each of the typologies. The findings suggest that less than half of the play areas support nature-play and explorative play opportunities. Some play areas are found not to support any kind of free-play owing to limited availability of open green or nature and superfluous presence of standardized play equipment. Opportunities for creative play and object play are rarely found to have been given any importance. The only spaces they exist are in nature, not owing to any special design consideration, but merely due to existence of natural diversity. The study concludes with an insightful observation that introducing diverse nature in play environments can provide not only nature-play opportunities but also other types of play like creative play, explorative play and object play without requiring any artificial and cost-oriented design interventions. The argument here is to introduce accessible diverse nature, especially in the low-income neighborhoods where the community lacks in financial and mobility resources for their children to experience multifarious play opportunities required for their healthy development.

The study also provides recommendations by delineating inaccessible nature that exist in these neighborhoods. These vast resources of unused nature can provide with low-cost solutions to free-play needs of the children in the region. Case studies from around the world are discussed showing such initiatives at neighborhood scale. Children have been excluded for a long time in planning literature from the urban planning policies (Chawla, 2002 and Moore, 2017). The paper ends with an argument for a considerable effort from the planners' perspective to recognize these needs for children's development in an otherwise sterile outdoor environment and thus, adopting city policies for incorporating diverse nature in urban play areas.

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Key Words: Children , Free-play , Nature play, Urban Parks , Cincinnati

DEVELOPING A PLACE-KEEPING TOOLKIT FOR WALKABILITY GOVERNANCE: MAKING SIDEWALK MANAGEMENT A PART OF URBAN DESIGN PROCESS

Abstract ID: 808

Individual Paper Submission

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Walking is gaining attention everywhere as an essential mode of travel for livable communities. Urban designers have been formulating innovative strategies to design and build walkable communities (Ameli, et al. n.d.). But good quality street networks, the very basic infrastructure to improve walkability, still lack resources and lack planning strategies for their long term maintenance and management; making them the most neglected elements of public space.

In the majority of cases communities have not been able to create a well-maintained local street network due to difficulty of figuring out who is responsible for the construction and maintenance of the built environment that forms the sidewalk infrastructure (Allssa 2018). While everyday users could be important contributors to facilitate upkeep of street infrastructure, they deal with the confusion of who is in charge; the city, Downtown Corporations, private developers, or all of them? The disconnect between users, practitioners and policymakers makes it unsustainable to manage and maintain existing street network as usable lively public spaces over a long-term. In other words, place-keeping strategies for street infrastructure are missing.

This paper addresses this disconnect between the stakeholders by analyzing different models of sidewalk maintenance, practiced in the city of Los Angeles, Ca. Los Angeles has the most extensive sidewalks network in the country and has more than ten agencies overlooking their maintenance, making it an important case study for this research. We first develop a checklist of all the elements that are essential to create walkable sidewalks. We then deconstruct their maintenance process into seven place-keeping dimensions – design, governance, partnership, policy, monitoring, funding and evaluation (Dempsey and Burton 2012). Focusing on physical and non-physical aspects of place, these seven dimensions provide a holistic, process driven management of public space. We use a mixed methods approach to study these elements. Three neighborhoods of Los Angeles which use three different models of maintenance for their sidewalks are chosen as the research sites. We conduct ten interviews with community leaders, government officials, private stakeholders and other local experts to understand their experience of being a part of the construction and long-term maintenance of street networks. Content analysis of city website and other maintenance and governance based documents is done to study the complexity of the process. We also gather data on sidewalk condition, previous maintenance efforts, budgets and expenditures.

By studying walkability governance through place-keeping lens, we seek to make long-term maintenance a sustainable and collaborative process for the community. This research becomes the first step to develop a toolkit for urban designers to make place-keeping strategies an integral part of the design process. Good walking networks are not just about innovation in the design process but it also requires innovation in their maintenance and management to keep them livable for a longer period of time.

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Key Words: place-keeping, sidewalks, walkability, maintenance, urban design process

SOCIAL ISOLATION IN THE HIGH-RISE: IS IT DENSITY, IS IT DESIGN, OR IS IT AS BIG AS WE THINK?

Abstract ID: 836

Individual Paper Submission

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The image of high-rise life as anonymous and unfriendly has changed surprisingly little since the post-war residential tower boom of the 1950s (Hannay, 1981; Proshansky, 1978; Wandersman & Nation, 1998). Also largely unchanged is the inseparability of the high-rise from the imagery of the modern city, such that criticism of the architectural form of the tower became tightly interwoven with a larger fear of the supposed dangers of urban life --physical, psychological and indeed moral -- for which the high-rise provided a convenient galvanizing symbol. This was particularly true in North America where high-rise living did not gain the relatively broad social acceptability that it did in Europe, Asia and beyond (Glendinning, 2010; Yuen & Yeh, 2011). Instead, beginning in the 1970s these fears crystallized into a popular North American association of the high-rise with the utilitarian aesthetics of public housing, drugs, crime, and neighbourhood neglect. This social disintegration was pinned on the 'pathological' built form of the high-rise itself with little consideration of the larger web of social, economic and physical influences at play.

Today, the higher residential density made possible by the high-rise and other denser housing formats is a valuable tool in urban planning practice, and can reduce sprawl, preserve urban green space and enable the higher-density, mixed-use development central to transit-oriented design. And while the perception of high-rise life as vibrant, convenient and affordable is gaining ground among some groups – particularly young professionals and empty nesters – it still cannot compete with the draw of the single-family home for families and suburban residents. The lingering negative image of the impersonal high-rise underpins much of this, especially as evidence mounts of the health benefits of socially connected neighbourhoods (Echeverría, Diez-Roux, Shea, Borrell, & Jackson, 2008; Jabareen & Zilberman, 2017; Wood, Frank, & Giles-Corti, 2010).

This work seeks to challenge negative perceptions of the high-rise by objectively probing whether social cohesion is indeed less in high-rises, and importantly, for whom. It also goes further to attend to context in new detail. For example, while some recent work (for example, Kearns, Whitley, Mason, & Bond, 2012; Nethercote & Horne, 2016; Verhaeghe, Coenen, & Van de Putte, 2016) has brought new objectivity to the 1970s literature in this area, consideration of confounding by the idiosyncratic urban form of many North American high-rise sites is largely absent. This urban form includes long block lengths, low walkability, and a homogenous land use mix, all characteristics that deter interactions with neighbours and reduce social cohesion. Without such analytical considerations, it is difficult to confidently associate differences in social cohesion with the high-rise itself.

Using data from Statistics Canada's 2012 and 2013 General Social Survey, this study compares a measure of social cohesion (reciprocity, defined as doing favours for neighbours) between house and high-rise dwellers for 6638 residents of the Greater Toronto and Hamilton area, while modelling an array of sociodemographic covariates. Unlike past studies, this effort employs GIS tools to capture land use and urban form characteristics including walkability. In this way, the analysis probes neighbourhood conditions known to influence social cohesion and compares these to the influence of the high-rise format itself. While results generally indicate lower reciprocity in high-rise formats versus other formats, a number of groups (larger families, long-time residents) show surprising resilience to this influence. Meanwhile, the overall lack of influence of land use mix and walkability on reciprocity appears to challenge current urban planning views on the positive effect of these features, an observation that should be considered by both planning practitioners and policymakers.

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Key Words: density, social capital and reciprocity, health , housing, walkability

THE IMPACT OF NEIGHBORHOOD BUILT ENVIRONMENTS ON WALKING SHOPPING ACTIVITIES IN SHANGHAI, CHINA

Abstract ID: 917

Individual Paper Submission

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Walking is the one of most common and widely used transportation mode. Previous studies showed neighborhood built environments have direct influences not only on individuals’ daily commuting but also on our shopping travel activities (Clifton 2004, Jiao, Moudon et al. 2011). Building a walkable neighborhood which is suitable for residents’ shopping activities bring transportation, environment, and public health benefits to our society.

However, most of the previous studies mainly focused low density urban environments which are common in western countries, very few had investigated the impact of neighborhood built environments on people’s walking travel activities in high or super high density cities (Cerin, Lee et al. 2013). To fill this research gap, this study investigated how neighborhood built environments would affect residents’ walking shopping travel activities in Shanghai, China.

The research data was collected from 21 randomly selected neighborhoods in Shanghai in 2011. The survey included three different sections as 1. Social economic status, 2 Daily shopping activities, 3. Perceived neighborhood environment. In total, 2,838 samples were collected. These samples were also geocoded in a GIS database and built environments around each individuals’ homes were also measured in GIS. The GIS data was provided by the Shanghai Planning Bureau.

Multinomial logistic regression was used to investigate how neighborhood built environments would affect residents shopping mode choices (the likelihood of taking transit, driving, biking vs. walking). Three types of neighborhood environment variables were included in the model. They were environment preferences and perceived environment characteristics collected from survey and objectively-measured built environment variables through GIS. In detail, they included six domains of variables such as road networks, land use patterns, density, transit services, sidewalks, and street interfaces.

Model results showed that nearly half of samples (43.3%) used walking as their primary shopping mode. Neighborhood characteristics like residential density, intersection density, proportion of sidewalks wider than 10 meters, and residential entrance density were positively correlated with the likelihood of using walking as the primary shopping mode. Gender, age, car ownership, and household income were also significant in model. Compared to previous studies taken in the US (Frank, Sallis et al. 2006), variables related to land use mix were not significantly correlated to walking shopping activities.

Understanding the relationship between neighborhoods built environments and residents' walking shopping activities will help urban planners and designers to plan neighborhoods that better meet residents' walking travel needs and promote healthy living environment in high density cities. Some of the new findings such the insignificance of land use mix on walking can be attributed to the existing urban forms in high density cities, which already had a well-balanced land use mix across the city (Yang and Gakenheimer 2007). The findings of this study will provide guidance for future walkable neighborhood plan and design in high density cities in China and across the world.

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Key Words: neighborhood built environments, walking, shopping travel modes, Shanghai

SOLITARY SOUNDSCAPES: DESIGNING URBAN EXPERIENCE THROUGH HEADPHONE USE

Abstract ID: 946

Individual Paper Submission

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Headphone use by urban pedestrians is presently a widespread behaviour that allows music to move along with a listener, carried between destinations and connected to their thoughts. With the use of our devices that merge virtual and real space, the relationship between people and their surroundings is being interpreted in new ways with multiple "micro-narratives" (Barns, 2014). During the movie-like mobile listening experience, headphones close a listener to the urban soundscape and cause space to be navigated absent of the city's unaltered sonic and visual cues (Koeck, 2013). Headphone users are therefore able to design their own soundscapes, which can add a custom overlay to the urban sound environment - or override it completely. On top of the public, collective soundscape of a city now exists multiple personal soundscapes privately experiencing by individuals. This control is what Bull (2013) refers to as "sensory filtering" that allows people to take control of what they hear. The city has less power to draw people into shared experiences and is instead a character in multiple private narratives. This paper presents an exploratory study of the mobile audio phenomenon, aiming to answer: how does headphone use contribute to emotional geographies? The purpose is to provide insight into the emotional layers of spatial experiences that are constructed through personal audio. To investigate this creative listening process, eight participants were asked to walk a route outlined by the researcher in Uptown Waterloo, Ontario followed by a detailed journal entry describing their experiences. Participants walked the route on their own time and were instructed to listen to music as they normally would through headphones, making sure to note the music they chose and any outside sound events they were able to notice. In March and June/July of 2016, listeners completed their journeys and submitted a written account of their music choices, their mood before and after the walk, and the signals they were able to hear through their headphones. It was found that mobile audio altered/enhanced mood, provided mental escape from stressful thoughts, and even altered how participants moved their bodies based on listening choice. Some of the public urban soundscape leaked through personal audio, and in spaces such as busy intersections, there was mention of removing headphones to hear more clearly. This study builds on the growing field of soundscape research and sensory ethnographic approaches, which can inform urban planners and designers on urban sensory experience. Urban planners are not required to assess a population's interpretation or attachment to soundscape features, and without a clear process to obtain this information, quantitative

investigations have been heavily relied upon (Hall et al., 2013). Researchers such as Prior (2014) have explored how mobile listeners perceive space and use music in their daily routine through user descriptions of their personal patterns. This study builds on this work and provides future directions for urban planners to consider. Urban spaces are often designed primarily from a visual focus, but there are many other sensory experiences that shape perception and well being in cities.

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Key Words: urban soundscapes, sensory experiences, emotional geography, environmental perception

VISUAL GAZE WHILE CYCLING: ANALYZING EYE TRACKING AT CONTROLLED INTERSECTIONS ON URBAN CYCLING PATHS

Abstract ID: 965

Individual Paper Submission

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As cycling use increase worldwide, there is an emerging need to better understand how bicyclists navigate features of the built environment. Most of the research to date has examined rates of bicycling relative to various urban form features such as intersection design, nearby land uses or types of cycling facilities. Available findings are context specific and usually pertain to practices and customs in a particular culture. Largely untouched and poorly understood, however, are inquiries to understand how cyclists process psychological dimensions. In particular, in-traffic visual information, while cycling, is poorly analyzed by researchers and is theorized to strongly influence bicycle crashes and accidents.

Every day travelers process a deluge of visual information, either by looking at other travelers, signs or features of the built environment. One means to understand these phenomena focuses on how cyclists visually perceive different city features by examining eye movements. Research opportunities to make in-roads on this are only recently made available owing to more detailed measurement equipment that can reliably record eye movements in real time settings.

Owing to the availability of detailed eye movement measurements, this paper examines how travelers process such features, providing an experimentation directly on reality without considering virtual scenarios. Emerging technology allows researchers to access imagery which has the potential to observe viewing behavior—in this case eye movements—in detail, which can in turn help process how cyclists better react to features of the built environment. Furthermore, the focus herein lies in controlled intersections, taking into account cyclist's gaze characteristics, traffic lights and design features of intersections.

Cyclist's visual fixations were recorded using mobile-eye glasses in real outdoor environments. A total of 16 field tests were performed along a defined route of three kilometers in the urban center of Bologna, Italy. We present cyclists' gaze behavior in two different contexts (separate cycling track and in the street mixed with motorized traffic), and for different users (experience cyclists and inexperienced cyclists) and relative to geometrical, operational and functional characteristics of the intersections.

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Key Words: eye glaze behavior, cycling path, intersections

SHOULD THE NEIGHBORHOOD DICTATE URBAN CHARACTER? EVIDENCE FROM SEATTLE'S DESIGN REVIEW PROGRAM

Abstract ID: 999

Individual Paper Submission

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Design review remains at the core of the implementation toolset used to advance the cause of urban design at the neighborhood-level (Carmona, 2017). While discretionary review affords a primary role for elected boards composed of experts and concerned citizens, most progressive jurisdictions also make allowances for community input. These 'contact' requirements both refine and challenge the neighborhood contract whose terms are set in the local plans. With evidence from community input on recent building projects in the city of Seattle, this study analyzes the design concerns that aggrieved citizens raise about development proposals, with attention to the following questions: what are the property rights claims that the 'city' and the 'neighborhood' makes on the developers? What, if any role, do different degrees of proximity to said developments play in determining the nature of these claims? Framed in this way, design review can be conceived as an institutional framework through which concerned parties enhance positive externalities by exercising rights to be co-residual claimants on each others' properties (Webster, 2003). While some neighbors may be 'die-hard NIMBYs' (Pendall, 1999) and unwilling to accept the contract negotiated through the local plans, the majority's use of the process to negotiate various classes of design impacts offers insights on how urban design is valued at the local level, and how the boundaries between design review, by-right entitlements set in zoning, and incentive provisions can be better defined.

The study proceeds through a consideration of projects processed for review in 2017. Public comments on these projects were coded for eight classes of externalities, and tagged for other information including project type, neighborhood character, and distance separating project from commenter's residence. A preliminary analysis shows that the most significant neighborhood claims concern parking and character compatibility (in facades, height, materials), followed by visual impacts (in privacy, views, and shadows), safety, services, open space, and street life. Predictably, city-wide residents (who live further away) are less concerned with visual impacts, safety, and services. Interestingly, they register a reduced, but quite significant interest in character compatibility, and an even stronger interest street life issues. While the work reinforces perceptions on the central role of bulk considerations at the core of any local development control framework, it challenges the idea that character considerations are best exclusively negotiated through neighborhood-level planning. While local stewardship speaks to our collective sense of engaged planning (Sirianni, 2007), the idea that urban character 'is felt' beyond the neighborhood offers warrant for recommendations of more balanced approaches to plan-making. The research, otherwise, also offers very practical lessons on procedural aspects of design review, including how to better manage protocols on how parties are singled out for notification and public meetings.

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Key Words: design review, urban character , Seattle, design governance

WALKABILITY IN THE SEATTLE URBAN CORE: ENABLERS, BARRIERS, AND WALKING SATISFACTION IN COMPACT NEIGHBORHOODS

Abstract ID: 1012

Individual Paper Submission

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Walkability is a major goal of urban planning practice and is a guiding principle of a sustainable transportation system. Planning research and practice has dedicated numerous resources to understanding how the built environment influences walkability. Two decades of research has shown how various physical features of the built environment influence travel behavior – the often discussed 5 Ds: density, design of the street network, diversity of uses, the distance to destinations and to transit. While these variables have been shown to have a significant impact on the levels of walking in any given neighborhood, they do not reflect the way in which people actually interact with the urban environment, which is through the street. As such, this paper explores a more subjective approach to measuring and understanding walkability. In this paper, I explore the following questions: What are the enablers and barriers to walking in compact urban neighborhoods? What physical elements of the urban environment contribute to walking satisfaction? And lastly, is there a way to objectively measure the urban environment that more closely reflects the way that urban residents experience and talk about walking and walkability and what might the impact of this be on broader walkability planning practices?

This paper will present findings from my dissertation, which I completed in January 2018. My findings on the subjective aspects of walking and walkability come from travel behavior surveys conducted with Seattle residents from August to November 2016 and in-depth interviews of Seattle residents conducted in November and December 2016. The geographic focus of this paper is the urban core of Seattle, a 3.75 square mile area designated by the city in 1994 as the city's primary urban growth area. Since that time, this area, comprised of eight distinct neighborhoods, has seen dramatic redevelopment, population growth, gentrification, and investment in transportation infrastructure. The agglomeration of neighborhoods are characterized by their compact urban form – they have high population and job densities, are mixed-use neighborhoods, have a well-connected street network, and high destination and transit accessibility.

This research finds that the qualities of the urban environment people most often talk about when talking about walking are most often associated with different types of street infrastructure – in other words, the types of infrastructure present on any given street that encourage either walking, transit use, or driving. In the quantitative component of my dissertation, I objectively measured street infrastructure and its impact on walking activity and found positive correlations between pedestrian and transit infrastructure with pedestrian activity, while automobile infrastructure is associated with less pedestrian activity. What is interesting is that residents and frequent visitors to these same compact neighborhoods describe the enablers and barriers to walking in much the same way – through street infrastructure. Walking satisfaction is even more strongly associated with these infrastructure variables, with spaces that are predominantly automobile oriented being the least satisfying areas for walking.

It is important for urban planners to equally emphasize the macro-scale elements of urban neighborhoods represented by the D-variables, and the micro-scale elements represented by street infrastructure. Furthermore, street infrastructure can be objectively measured, which is important since this is what more accurately reflects the way that residents experience and talk about compact urban environments. Planners must recognize the important ways in which streets themselves influence how people travel on them. The macro-scale

approach to walkability does a lot to understand the difference between different types of neighborhoods, but the micro-scale street infrastructure approach can help identify variations in walkability in highly walkable neighborhoods and work to help target investment in ways that better prioritizes walking.

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Key Words: Walkability, Pedestrian environments, Enablers and barriers to walking, Neighborhood satisfaction, Seattle

THE FRAGMENTATION OF PARK PROVISION: IMPLICATIONS FOR PLANNING

Abstract ID: 1152

Individual Paper Submission

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Most urban parks are owned and managed by local governments. A typical parks plan examines the holdings of a single governmental agency. A typical spatial equity analysis does the same. Yet other arrangements are increasingly common. Business improvement districts, development authorities, and nonprofit park conservancies all manage public parks today (Harnik and Martin 2015). In many cities, corporations also provide “privately owned public spaces” (Loukaitou-Sideris 1993; Kayden 2000). While these arrangements have been the subject of prior study, no study has established the prevalence of these different arrangements for providing urban parks. Nor has any study examined the implications of competing governance models for planning citywide networks of parkland.

In this paper, I examine the provision of urban parks in the city of Detroit from the 1960s to the 2010s. First I examine how the provision of parks has changed in that time period. For evidence, I draw upon hundreds of reports, plans, maps, and newspaper articles, which I use to reconstruct how all of Detroit’s public spaces were financed and managed over the past fifty years. I find that while forms of private and public-private provision are indeed more common today than in the 1970s, the overall picture is not one of privatization so much as fragmentation or dispersion of authority, with community-based organizations, nonprofit organizations, foundations, corporations, and park agencies at the regional, state, and national level all taking new roles and responsibilities for urban park provision compared to the past. Of these, intergovernmental changes are the most significant.

After examining how the structure of park provision has changed, I compare how different types of providers approach park provision and planning. In addition to archival evidence, I also draw upon interviews and notes from several dozen park-related public meetings and hearings since 2014. I examine the types of spaces and facilities that different providers prioritize for investment, which geographic areas they target, how much money they raise and how, whether they have any paid staff, how they solicit public input, whether and how they engage in master planning, and the degree to which they cooperate with other park providers.

I find that different providers operate in distinct geographies and pursue distinct agendas with different levels of funding. The municipal parks system operates the largest network of parkland, with approximately 300 properties located throughout Detroit, but other organizations independently engage in parks planning. Three community-based nonprofits have developed their own master plans for city-owned parks. Other public spaces are planned separately from the parks system. The Downtown Detroit Partnership plans all public parks in the central business district. The Detroit Riverfront Conservancy plans all public parks along the riverfront with two

exceptions, Tri-Centennial State Park and Belle Isle State Park, which are planned by the Michigan Department of Natural Resources. All of these organizations approach planning independently.

In general, municipal parks are under-resourced. The parks department depends on private and intergovernmental grants for capital improvements, yet most supplemental resources—both private and intergovernmental—are invested in the public spaces managed by the Downtown Detroit Partnership and the Detroit Riverfront Conservancy. While public-private partnerships can be credited for invigorating the riverfront and downtown, most neighborhood parks remain in disrepair. I argue that planning has a critical role to play in coordinating this fragmented and unequal system. Planning can reduce spatial inequalities by ensuring that parks and recreational facilities are designed in relation to one another, not just in relation to the agendas of individual providers, and that residents have a say in planning all the city's public spaces through a coordinated, transparent process.

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Key Words: Parks, Spatial equity, Park access, Public space, Governance

WALKABILITY IN THE AGE OF AUTONOMOUS VEHICLES

Abstract ID: 1153

Individual Paper Submission

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The early 20th century is associated with a radical restructuring of travel, urban form, and street design to accommodate mass automobility. Indeed, in fundamental ways this was a key concern of professional planning. In the current era, planners have, instead, become deeply engaged with reversing the negative impacts of these decisions on sustainability, health, and livability. However, with estimates that the majority of new car sales will be for automated vehicles (AVs) by the year 2030, we are rapidly entering a second wave of automobility with unknown consequences for cities (Bloomberg, 2018).

This paper examines one of these potential consequences by focusing on the positive and negative impacts of AVs on walkability and street design. There are clearly many unknown aspects of AV adoption, including ownership models, trip making, parking requirements, and land use impacts. For example, while increasing pedestrian safety (Milakis et al., 2017), and reducing the size of the vehicle fleet and parking requirements, AV adaption may also significantly increase auto-trip making and traffic (Ticoll, 2015). To address current thinking on these impacts with respect to walkability, this research uses three methods: (1) a scoping review of academic literature; (2) a scan of the large grey and professional literature; and (3) a series of interviews with professionals engaged in thinking about AVs in terms of policy.

The scoping review identified English-language articles in peer-reviewed journals. Out of 1000's of articles, a mere 66 articles that directly refer to pedestrians or walkability were reviewed in detail. Addressing themes such as pedestrian detection, ethical decision making principles related to AVs reacting to unavoidable collisions with pedestrians, and approaches to how vehicles should interact with pedestrians in normal urban conditions, most of the literature is technical in nature. The grey and professional literature review consists of reports published by organizations such as National Association of City Transportation Officials (NACTO, 2017), and transportation

consulting firms such as WSP and Alta Planning. This literature is large, and diffuse, examining larger issues directly related to walkability including potential impacts of AVS on land use, road space reallocation, public space provisions, and street design. Finally, public and private sector stakeholders in Toronto were interviewed to understand how current professionals are thinking about autonomous vehicles and pedestrians. Interviews included people working on AV issues in large engineering and consulting firms, in regional and municipal level transportation and planning agencies, and with active transportation advocates in local NGOs. Interviews may be expanded beyond the Toronto area. In accordance with Guerra (2016), public officials felt there was too much uncertainty to develop specific policies, while private sector participants identified the need for scenario building and design testing, but have not yet commenced to do so.

The paper concludes with a discussion of the ways AV impacts on walkability and street design are and are not assessed across the literatures and interviews, including the impacts of land use, road space reallocation, and how AVs will interact with pedestrians on streets. Although how these issues will play out is currently unknown, it is possible to compare possible trajectories against pedestrian design needs. AVs present a tremendous opportunity for planners to improve cities and urban streets to improve walkability, but only if they proactively engage in managing their potential positive and negative impacts. Otherwise, engineering, liability, and commercial concerns may create rationales that simply produce more automobility, rather than more livable cities that work for pedestrians and other modes.

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Key Words: Autonomous Vehicles, Walkability, Pedestrians, Street Design

EMPOWERMENT BY DESIGN: BROWNSVILLE WEST RAIL TRAIL CORRIDOR STUDY

Abstract ID: 1209

Individual Paper Submission

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Latinos comprised 16 percent of the total U.S population in 2010, approximately 27 million people (U.S. Census, 2010), and it is estimated that this number will rise to close to 29 percent by the year 2050 (Rios, Vazquez, & Miranda, 2012). Parallel to the changing demographics is a geographic marginalization of Latinos, a shift that will have notable impacts on American cities.

In recognizing these trends, the role that civic infrastructure has in redefining the 21st century landscape of Latino communities in the American cities is explored. The study subject matter is a live project for an economically deprived area on the U.S.-Mexico border; its context includes the dysfunctional interaction of the Rio Grande River, the U.S.-Mexico border wall, vacant sites, historic fabric, transit, and green infrastructure.

Brownsville, Texas, on the U.S.-Mexico border, has a majority Latino population (97%) that is traditionally undereducated and economically disadvantaged with the average income for residents being less than half of the national average at the county level (U.S. Census, 2018). In additional to economic marginalization, south Texas

is geographically disconnected from the greater U.S. region. In addressing these issues, the region has seen a growing number of grassroots movements advocating justice in the city by increase access to social goods, fair housing, and higher education.

This paper presents the results of a research partnership between the University of Texas and Texas Southmost College, the local community college in Brownsville, as they explore the potential transformation of an eight-mile abandoned railroad corridor into a new city place. The corridor, located on the southern edge of the city, runs parallel to the Rio Grande River and the U.S.-Border Wall, and links to both economically deprived and affluent neighborhoods directly to the historic downtown with a potential crossing to Mexico.

The core purpose of the research was to address social justice while exploring the significant impact that access to hike and bike infrastructure have in addressing mobility, health, and economic development in the wider city context. The project, underwritten by a research grant from the city of Brownsville, Texas, moved beyond the traditional teaching and research techniques and took public engagement and partnerships into the framework of teaching.

The project partnered an R1 university with a community college in a border town to jointly address urban design issues for an economically deprived area. Students from central Texas, the Rio-Grande Valley, and Matamoros, Mexico have convened in Brownsville, Texas to work directly with the community through engagement sessions that are informing the future development of the site through comprehensive design visioning. This was a bottom-up approach to design intervention taking the voices and concerns of community stakeholders into the assessment, and is bridging the discourse through a partnership with Texas Southmost College, the local community college, to integrate second year architecture students as collaborators in design with my UTSOA students as local exports. Furthermore, the study contributed to South Texas' current effort to implement the Lower Rio Grande Valley (LRGV) Active Plan, a blueprint for a 428-mile trail network that will link natural, cultural and historical resources, which would create a unified regional identity for outdoor tourism, promote healthier lifestyles, and generate a new sense of community pride (Becker, 2017).

Informed by a series of community input sessions, the study explored comprehensive design visioning that address human oriented mobility strategies, environmental protection strategies, opportunities for affordable housing infill, proposed social program, and economic development strategies.

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Key Words: Latino urbanism, public space, participatory planning, urban design, trail

DESIGN CONTROL AND THE CREATIVITY CONUNDRUM: BALANCING URBAN DESIGN COLLABORATION AND INNOVATION IN VANCOUVER AND LOS ANGELES

Abstract ID: 1289

Individual Paper Submission

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At its heart, design is a creative process which sets up a particular challenge and conundrum for design governance. How can public sector actors engage and regulate urban design to shape and coordinate beneficial outcomes while allowing for, and enabling, creative solutions and innovation in the built environment? Often, design review and control (a subset of design governance) is seen as a counter to individual creativity and a potent

critique holds that design review reinforces conservative tendencies and frustrates creative expression. This critique, to the degree that it is accurate, poses a challenge for cities seeking to develop complex built environments but also with regard to the need for innovation in addressing wicked problems including affordability and sustainability. In response, many public agencies seek to allow for creative solutions through flexible design governance frameworks (often through the use of variance) or by curtailing design control to minimize interference with creative solutions. In both cases, the solution is to have the capacity to ‘stay out of the way’ of creativity.

This paper seeks to challenge this critique and the typical construction of solutions by exploring the potential of public sector to be an active player, and partner, in the design and development process. It builds on an in-depth exploration of the design review and regulatory frameworks of Vancouver and Los Angeles and the interaction of creative designers and public sector regulators. The primary methods used are semi-structured interviews of key actors, document review, and analysis of representative projects that illustrate the tension between regulation and innovation. Vancouver and Los Angeles are useful cases as both cities support exemplary design while Vancouver is a city with a high degree of public intervention (and discretion) in design and development and Los Angeles is a city with a highly varied approach to public intervention in design and development. Both cities illustrate the challenges and opportunities for creative solutions to navigate the design review and control systems and have lessons for the active engagement of the public sector to redirect creative design efforts towards public goals and objectives.

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Key Words: Design Governance, Urban Design, Creativity

ARE SMARTER NEIGHBORHOODS MORE WALKABLE?

Abstract ID: 1291

Individual Paper Submission

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While in recent years, residents of walkable neighborhoods show higher satisfaction of their quality of life, cities are taking advantage of developments in technology for increasing citizen involvements, recognizing demands and providing services in faster and more reliable ways. Walkable communities have been recognized as dynamic engines of economic growth, social interaction, health and safety in recent years (Florida, 2012). Smart neighborhoods have become hubs for start-up firms and their employers because walkability and pedestrian amenities make them attractive for young techies who are willing to live, work and play in those settings. Furthermore, in today's digital era, cities have applied technology-based solutions to improve the quality of life for their citizens. However, the relationship between smart characteristics of the neighborhood and walkability emerges as the gap in the walkability literature.

The gross built environment characteristics and design features of neighborhoods have been extensively studied in recent years and results show that characteristics such as proximity to parks and imageability promote walkability (Cohen, McKenzie, Sehgal, Williamson, Golinelli, & Lurie, 2007; Ewing & Handy, 2009; Ameli,

Hamidi, Garfinkel-Castro, & Ewing, 2015). Furthermore, Information and Communication Technologies (ICT) generate an interconnected network of citizens, businesses, transportation options, and services. Although, utilizing technology in every aspect of urban life has facilitate data collection and providing services for cities, but not all programs for improving quality of life in smart cities are digital-based. Digital-based programs and solutions along with non-digital smart components, create Smart Communities and Smart Cities (Cocchia, 2014; Dameri, 2014; Neirotti , De Marco, Cagliano, Mangano, & Scorrano , 2014). Neirotti et al. (2014) provide a comprehensive definition for smart city initiatives. Collecting data from 70 cities around the world, they characterized these initiatives based on six main domains: natural resources and energy, transport and mobility, buildings, living, government, and economy and people.

For the purpose of this study, three street sections were selected in City of Fort Worth based on the site selection survey. Meanwhile, a neighborhood walkability checklist was created to study the relationship between smart characteristics of neighborhood on walkability. This checklist consists of 3 sections: neighborhood smartness, neighborhood design, and control variables. The neighborhood smartness section includes digital-based components and non-digital smart components based on aforementioned domains defined by Neirotti et al. (2014). Also, the urban design features related to walkability were measured using Ewing and Handy (2009) walkability index. And gross built environment characteristics were used as control variable in this study. The qualitative and quantitative data were achieved using surveys, interviews, field observation, some secondary data attained from Census. The number of pedestrians was counted in each street section as the dependent variable. Mix method data analysis, for the qualitative and quantitative data, was used to study the relationship between neighborhood smartness and walkability. Qualitative data was coded and interpreted for this study while the quantitative method includes multivariate regression method to compare the effect or smart characteristics and urban design on walkability between these three neighborhoods.

The results of the study show that intelligent characteristics of neighborhoods such as number of video surveillance cameras, and push-to-walk buttons as digital-based solution increase walkability. In addition, bike sharing programs, education attainment of neighborhood, mix of offices, residential and retails as non-digital components along with urban design and built environment characteristics enhance walkability. Using the results of this research, the aim is to recognize effective components of smart and introduce a framework to facilitate adaption of intelligent technologies and solution for smarter communities which enhance quality of life and promote walkable environment.

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Key Words: Smart City, Urban Design, Walkability, Quality of Life

THE IMPACT OF DRIVERLESS VEHICLES ON URBAN DESIGN: A CASE STUDY OF THE TEST FIELDS OF DRIVERLESS TECHNOLOGY

Abstract ID: 449

Poster

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As an important part of mobile traffic, cars have a great impact on urban design. With the development of driverless technology and the phased achievement of road test for driverless vehicles, this invention will undoubtedly change the way how people travel in the future. At present, many national governments, universities and research institutions have built the test field for driverless cars through the "simulated city" projects. However, the structure of road system and urban infrastructure in most of the test sites are very similar to those of the existing cities. Since the driverless car has a great impact on the urban public space, such as parking space, it cannot properly evaluate and test the changes in urban design under new technology without a forward-looking design.

M-city in Michigan is the world's first simulation town built with environmental variable control for vehicle networking technology. It's the first real-scene test yield in the United States, and its layout is close to the existing city. Similarly, the K-City under construction in Korea is 256 thousand square meters. And its bus lane, expressway and automatic parking lot are similar to the real city scenes. Also, the "City-level Social Laboratory of Driverless Car" in Zhangzhou, China, is also based on the existing urban model with three progressively interrelated test scenarios.

This article will use the future scenario method to simulate the impact of future scenarios on the current situation. Based on what may happen, we will construct a future block model under the influence of driverless technology, and explore appropriate block sizes, road width, and forms of urban public space. It is hoped that the possibilities of the research will guide the design of future test sites in order to explore reasonable future urban design strategies.

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Key Words: Driverless vehicle, Urban design, Strategy, Test

SHOPPING CENTERS AS PUBLIC PLACES: THE CASE OF KOLKATA, INDIA

Abstract ID: 1304

Poster

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INTRODUCTION

Public spaces serve a multitude of functions, especially in dense cities like Kolkata, India. With economic liberalization and the growth of the middle-class, there has been a proliferation of "US" style shopping malls in India, including Kolkata. How are these shopping or new consumption spaces (Paul, 2017) impacting public place in Indian cities? In this exploratory study, we begin to investigate this question by first understanding the use of such new consumption spaces through observational case studies of two malls in Kolkata, India (Quest Mall/QM near Park Circus, and City Center 1/CC1 in Salt Lake).

METHODS

A team of students from Amity School of Architecture and Planning were trained in observing the malls using a modified version of the Public Space Index developed by Mehta (2014). Pilot testing, and reliability was established before data collection at the case study sites. In both malls, three distinct locations were observed: Entrance, Atrium and Food Court, at three points during the day: morning, afternoon, and evening; and during weekdays/weekends. The data was analyzed to understand the use of these spaces through the day (morning, afternoon, evening) and on weekdays versus weekend.

PRELIMINARY FINDINGS

Of the three areas observed (Entrance, Atrium and Food Court) the Food Court was found to be more inclusive

(or accessible to varying individuals) at both sites. This can be attributed to the fact that the food court in both shopping centers are not heavily regulated and there is a wide variety of food stalls in terms of cost and the type of food available. Variability in gender, age, and SES was evident in all three locations at the two sites, but there was a stark absence of people with disabilities at both shopping centers. Similarly, the Food Court scored high on meaningfulness since by its very function, the food courts operated as “third places” (Oldenburg, 1997) and meaningfulness as defined by the PSI relies heavily on the qualities of third places. Some differences were noted between the two shopping centers in terms of the other three factors: comfort, safety and pleasurability. QM scored higher on safety than CC1. This can be attributed to two factors: a) QM is an enclosed internal mall, and b) all entries to QM are well-guarded. The pleasurability factor in PSI privileges aesthetics and the presence of memorable architectural/landscape elements; as a result, the Atrium at Quest Mall which houses a spectacular sculpture scored high on pleasurability.

This exploratory observational study illustrates that these new consumption spaces provides the opportunity of “presence” for a wide cross-section of society in terms of age, gender and SES. Even though people of low SES might not be engaged in shopping – they use such space as onlookers (Sassen, in *City Life: Sao Paulo Video*). The food courts especially, are used as a meeting ground by a large cross section of people. Thus, even though such spaces would be considered as over managed privately owned public spaces or POPS (Carmona, 2010; Nemeth, 2009) and many would argue that they lead to declining quality of public places, they do provide the opportunity for meeting and socialization for a large cross-section of society. In doing so they provide the setting where people of different classes can be in close proximity to one another. This is significant in India’s hierarchical class-based society. We plan to extend this study by engaging in fieldwork that utilizes interviews and surveys to develop a nuanced understanding of the ways in which different groups in society use such new consumption spaces. By doing so we will contribute to theorization on public places in the 21st century city.

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Key Words: Shopping malls, Public Space Index, Public places in developing countries

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