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Background

I am a currently a rising fourth year PhD student in Economics at the University of Wisconsin-Madison. Last fall, I joined the Industrial Organization field after passing the field oral exam and field paper. In addition to completing the Industrial Organization sequence, during my second year in the program I took a two course sequence in Public Economics. I also took classes in Applied Econometrics, Computational Economics, and Environmental Economics (this last class in the Agricultural and Applied Economics department).

Prior to beginning my graduate studies, I worked as a Research Analyst in the Money and Payments function at the Federal Reserve Bank of New York. In this role, I assisted Adam Copeland with research related to repurchase agreement markets.

Research Interests

Broadly speaking, my interests lie within the intersection of industrial organization and urban economics. Most research questions that I have pursued prior to this point have been guided by a desire to understand the impacts of climate change on various markets. I have also had a long-standing interest in urbanism and how cities develop, as well as transportation systems.

More recently, I have started thinking about the ways in which modern transportation systems are shaped by digitization. Of particular interest to me is how online platforms and other emerging technologies have the power to reshape urban landscapes. This is true in some obvious ways, such as with the rise of the sharing economy (as in, ride share and short term rentals). This issue also shows up with the increased use of food delivery, and the impacts that this has on congestion and consumption patterns. I do not have any projects focused on this latter market, but it is something that I am looking to explore going forward. Overall, it has become clear to me that the digitization of markets has a profound impact on how people and firms interact with the urban environment, and not all of the externalities of these technologies are yet well understood. As such, this is an area towards which I would like to pivot my research.

My awareness of digitization as a field of study is relatively new. I would therefore appreciate the opportunity to learn more about the important topics and research approaches in this area.

Current Projects

In the primary project that I am currently working on, I aim to quantify the impact of search frictions on matching in docked bike share systems. This research came about from my recent interest in the impact of transportation innovations on urban structure. There

are a few challenges facing docked bike share systems, which make it an interesting setting for thinking about micro-mobility and role it plays in city's transit systems. In particular, capacity constraints in docking stations have necessitated bike re-balancing. I take the need for such re-balancing as evidence of matching frictions in docked bike share - some bikes sit idle at the same time as there is existing demand for rides. At this stage, I am adopting the framework of Frechette et al. (2019). My goal is to adapt their simulation of the geographic process of matching in the taxi market in NYC to the bike share setting. The simulation will allow me to obtain a mapping of the number of searching riders and idle bikes within each hour to the search time and idle time. Similarly to their setting, the number of searching riders and their search time are unobserved, while the number of idle bikes and their idle time can be constructed from the data. In my case, the roles of the consumer and transportation are flipped, as consumers must physically search for bikes. I am hoping that this simulation will allow me to think about how system expansion might impact system use.

With my colleague, Danny Edgel, I am also working on a project to understand the impact of a policy change regarding accessory dwelling units (ADUs) in Seattle. This project fits more so into my general interest in urban economics. The goal of this research is to quantifying the impact of an ADU reform in Seattle on housing prices. We also want to measure the heterogenous impact of the reform on where new ADUs get built. For example, we expect that the option value of building an ADU is higher in higher income neighborhoods. We are interesting in seeing whether these areas are the ones taking advantage of the reform to build (and possibly rent) additional structures on their properties. Given the short supply of housing in Seattle, we want to see whether this reform actually serves the purpose of increasing housing supply and driving down property prices.

Finally, for the past year I have been working as a Research Assistant to Chris Sullivan and Lorenzo Magnolfi. As part of this role, I am currently responsible for maintaining pyRVtest, a Python package developed to implement the Rivers and Vuong (2002) test statistic approach for identifying the model of firm conduct that best fits a certain market. Following this approach, I am assisting with a project related to understanding conduct in the market for marijuana in Washington State, and whether firms change their pricing strategies over time.

References

Frechette, Guillaume R, Alessandro Lizzeri, and Tobias Salz, "Frictions in a competitive, regulated market: Evidence from taxis," *American Economic Review*, 2019, *109* (8), 2954–92.

Rivers, Douglas and Quang Vuong, "Model selection tests for nonlinear dynamic models," *The Econometrics Journal*, 2002, *5* (1), 1–39.