Research Statement

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I am an applied microeconomist specialized in urban economics, industrial organization, and applications of big-data and machine learning in economics. My research is focused on agents' decision making and welfare distribution in peer-to-peer markets. Unlike traditional markets, these are highly dynamic markets where small heterogeneous players with limited capacities interact directly with each other. Studying these emerging markets requires both novel structural models and estimation methodologies. I will summarize my three working papers on welfare distribution and peer-to-peer markets.

"Welfare Estimation in Peer-to-Peer Markets with Heterogeneous Agents: The Case of Airbnb" (Job Market Paper)

In this paper, I explore distribution of welfare in the highly dynamic market of Airbnb with agent-level heterogeneity. I show that even though agents in less advantaged areas have lower opportunity cost of providing accommodation services, they cannot benefit from having access to the Airbnb market as much as those in more advantaged areas. This disproportionate distribution of welfare is demand driven and is because people are willing to pay more for accommodations in upper-class neighborhoods. The lower demand for disadvantaged neighborhoods shifts the potential surplus away from these areas. This is a source of inequality in income for those who live in lower income areas. On the other hand, I show evidences for higher benefit of low-income suppliers within the same neighborhoods and suggest better local distribution of welfare toward more disadvantaged suppliers.

Studying distribution of welfare among differentiated agents in Airbnb, in specific, and in peer-to-peer markets, in general, is challenging because these markets are highly dynamic, size of the market changes frequently, and agents are small with limited capacities. For instance in the Airbnb market, homeowners offer differentiated properties with diffident observable and unobservable characteristics and in various locations. Also, the market is highly dynamic and prices change almost every day in response to demand shocks. Aggregate methods of demand estimation in peer-to-peer markets does not take into account the important differences among suppliers in the market. In this paper I build on the estimation method of Bayer, Ferreira, and McMillen (2007) and extend the existing methods to estimate agent-level and time varying consumer and property-owner surplus in the Airbnb market. This is the first paper that studies welfare distribution in a peer-to-peer market and considers the existing heterogeneity among agents in the market.

I apply a multinomial logit model to estimate a time varying individual-level demand for each listing in the Airbnb market. In my model, I allow for repeated sales and a

panel-data estimation of supply and demand. Supplier have limited capacities (only one renter can book a property in at a time), so I also allow for variations in the choice sets of guests. A big portion of properties are not rented in a day, so I add the possibility of having vacant units to the model. Moreover, to estimate the producer surplus, I include a producer side with strategic pricing in my estimations. These extensions are essential for an agent-level estimation of surplus in the Airbnb market. More broadly, my estimation method provides a framework for demand estimation in highly dynamic markets with small and differentiated agents that have limited capacities. My estimation method is applicable for studying housing sales and rental market or with some modifications for other peer-to-peer markets.

"Introducing a Micro-Founded Index of Consumption Welfare: A Big-Data Approach"

In this paper, I explore the heterogeneity in welfare from consumption based on a novel micro-founded index of welfare. I use Albania's 2012 Living Standard Measurement Survey to estimate the index in two steps. In the first step, I apply machine learning to find a non-parametric relation between households' consumption, and a large set of living conditions and characteristics indicators. In the second step, using the first step estimations, I find the distribution of households' marginal willingness to pay for each living condition indicator, and estimate an index of welfare based on the model of Bajari and Benkard (2005). I show that the index is highly correlated with households' consumption expenditures, but unlike consumption as a naive measure of welfare, it accounts for the existing heterogeneity among their living conditions and preferences. Finally, this paper studies the geographical, cross gender, and age distributions of the welfare index and compares the estimations with the distribution of consumption expenditure.

"Evaluating Regulations in Peer-to-Peer Markets: A Synthetic Control Approach to Study Santa Monica Ban on Airbnb"

Together with Peter Christensen, I focus on the effect of a ban on Airbnb in Santa Monica as a natural experiment. I apply "elastic net synthetic control" as a recently developed causal machine learning method. Synthetic control method provides a framework to generate a treatment group for each potential outcome using a pool of control groups, and study multiple outcomes in the market. I study the effect of the ban that targets entire-home, Airbnb rentals on incumbent listings' revenue, pricing behavior, and local competition in the market. I show that the ban significantly dropped the number of entry and increases the market power of those who remained in the market. Studying welfare effect of the ban is the next step in this paper.