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Application to NBER Digitization Tutorial March 2017

Contact information:

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Current Year: Third

Main Fields: Industrial Organization and Microeconomic Theory

Other Interests: Market Design and Economics of Technology

Coursework:

Industrial Organization

Industrial Organization 1-3

Energy and Resource Economics

Microeconomic Theory – Market Design

Social and Economic Networks

Matching and Market Design

Contracts, Information, and Incentives

Theory of Auction Market Design

Other Courses:

Behavioral and Experimental Economics I

Machine Learning for Causal Inference

Institutions and Organizations

My research interests lie at the intersection between microeconomic theory and industrial organization, with a strong component of market design. I am mostly interested in concrete applications of economic theory with direct implications to real world markets, and on applying cutting edge empirical techniques, such as machine learning, to acquire a better understanding of markets.

The digital economy is a particularly good subject to analyze the kind of issues I would like to address. On the one hand, the fact that digital markets change at a fast pace means that there is little experience about how they work, so theoretical models are necessary to understand how agents will behave in them. On the other hand, the data it produces is so detailed that it allows very precise estimation to test theory. I also find the digital economy very interesting in itself, with its huge potential to transform society for good. Because of these reasons I am particularly interested in focusing my research on digital and online markets.

The work I've been doing clearly reflects these interests. One example is the project I started as an intern for Glen Weyl at Microsoft Research during this summer. We try to understand the welfare implications of surge pricing in ridesharing markets, like Lyft and Uber, and how well aligned are the interests of society and of the platform. We find that, both for profit and welfare maximization, the

main purpose of pricing should be to avoid hypercongestion, a Pareto inefficient equilibrium that happens with low prices. This implies that monopoly prices are close to socially optimal. We will soon get data from one ridesharing company to test our predictions.

Another example is a project I recently started jointly with Susan Athey. Our main research question is to quantify the welfare effect of Uber due to safety. We want to analyze the telematics data from the sensors in drivers' cell phones, which will allow us to determine which drivers are more cautious. We also want to understand whether the rating system used by Uber provides incentives for drivers to improve the way they drive.

I also worked last year as a research assistant for Matthew Gentzkow doing some empirically focused work. I was part of a project that uses machine learning techniques to analyze political speech data and measure how polarized it has been at different times. This allowed me to understand the potential of new statistical techniques and how it can lead to a better understanding of people and society.

Although I am still at an early stage in my PhD, two of my own projects also follow these lines. The first one is about dynamic spot auctions and determining how to design them in an efficient way. The two main applications I've thought about are cloud spot auctions, like the ones run by Amazon Web Services or Microsoft Azure, and the real-time electricity auctions by power grid operators. The second project is about ridesharing companies as well. I have thought about a model about their surge pricing that I can estimate empirically, so that I can determine what are the mechanisms that allow the market to balance, and so that I can measure the welfare benefit and see which submarkets (by location or time) benefit the most.

Given my interests, I would be able to profit a lot from attending the NBER Digitization Tutorial. It would be very useful to hear about the newest research on these topics by the best economists, and I would be glad to meet the people working on them.