Contact

Name	Pearl Z. Li
Email	pearlzli@stanford.edu
Phone	302-290-5595
Address	1 Henry Adams St, Unit S503, San Francisco, CA 94103

Education

2018–	Ph.D. Student in Economics, Stanford University Fields: Industrial Organization, Market Design, Urban Economics Primary Advisors: Paulo Somaini, Paul Milgrom
2015–2016	M.A. in Mathematics, University of Pennsylvania
2012–2016	B.A. in Mathematics and Economics, University of Pennsylvania Minor in Computer Science

Research Overview

My research is on the design of fair and equitable markets. In online marketplaces, the number of market participants can be huge and interactions are often impersonal (if not completely anonymous) and mediated by algorithms. For these reasons, equity can be a particularly important desideratum in online markets, which are also more often purposefully designed than offline ones. In my research, I combine applied theory and model-driven empirical analysis to evaluate the efficiency and equity of existing market mechanisms and propose new designs.

Research in Progress

“Value Pricing or Lexus Lanes? Winners and Losers from Dynamic Toll Pricing” (with Cody Cook)

In the United States, toll lanes—some dynamically priced in response to demand—are the primary means of implementing congestion pricing in practice. These dynamically priced lanes have been disparaged as “Lexus lanes” by detractors who believe that they hurt lower-income drivers who are unable to pay. On the other hand, proponents emphasize providing choice to drivers and argue that “value pricing” offers users the option of paying for speed when they really need it. Our goal is to empirically distinguish between these stories by understanding *who*

benefits from dynamically priced toll lanes and *how* they benefit. We use high-frequency data on toll transactions, traffic volumes, and travel patterns to estimate a model of driver demand for Express Lanes in the Seattle metropolitan area. We use the model to evaluate the welfare and distributional consequences of the Express Lanes, and to compare the current pricing regime to counterfactual pricing policies.

The Provision of Affordable Housing (with Cody Cook)

The majority of affordable housing in the U.S. is privately built with government subsidies. We identify and quantify two distortions in the provision of affordable housing to households in need: (1) developers' profit motives in choosing where to build and (2) tenants' private information about their levels of need. Developers' profit motives lead them to build in areas that generate fewer positive externalities on both the neighborhood and on future tenants. Tenants' private information creates a screening problem, whereby building in higher-quality neighborhoods leads to worse targeting of those in need of assistance. We build a structural model of the government, developer, and tenant decision-making processes to evaluate the effects of alternative policies for providing affordable housing on outcomes including income segregation, neighborhood revitalization, economic opportunity for tenants, and targeting of tenants most in need of assistance.

"Designing Against Market-Induced Discrimination in Online Advertising Auctions"

Empirical research suggests that women see fewer employment ads than men online, at least in part because they're actually more attractive to many advertisers. Perversely, greater competition for women's attention may cause them to see fewer of the ads that they may value more. In this paper, I propose an alternative ad allocation mechanism that is robust to this phenomenon, which I call market-induced discrimination. First, I solve for the mechanism which maximizes producer (advertiser and platform) surplus subject to a fairness constraint. The optimal fair mechanism is a second-score auction in which job advertisers' bids on men (women) are effectively taxed (subsidized). Next, I extend the model to include consumer preferences and surplus. I show that under certain realistic conditions, the fair mechanism achieves a greater total social surplus than the (producer surplus-maximizing) VCG mechanism. I use this result to argue that the fair mechanism is a tractable alternative to the socially optimal mechanism.

"On the General Structure of Revealed Preference Identification Arguments" (with Nikhil Agarwal and Paulo Somaini)

Revealed preference arguments are commonly used when identifying models involving both single-agent decisions and non-cooperative games. In this paper, we develop general identification results for a large class of models that share a linearly separable payoff structure. Our model allows for both discrete and continuous choice sets, incorporating widely studied models such as discrete and hedonic choice models, auctions, school choice mechanisms,

oligopoly pricing, and trading games. Point identification can be achieved either if the choice set is sufficiently rich or if a variable that shifts preferences is available. More generally, we characterize the identified set, and provide assumptions under which the model is identified. Our characterization result also suggests an estimation approach, which we implement to estimate firm values in a combinatorial procurement auction for school lunches in Chile.