Andrey Fradkin

Contact Information

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Education

Stanford University, Stanford, California — September, 2008 - June, 2014
Ph.D. in Economics

Duke University, Durham, North Carolina — August, 2004 - May, 2008
B.S. with High Distinction in Economics and Mathematics w/ minor in Political Science

Dissertation Committee

Prof. Jon Levin (Primary Advisor)
Prof. Liran Einav
Prof. Caroline Hoxby
Prof. Luigi Pistaferri

Research and Teaching Fields

Primary fields: Industrial Organization, Labor Economics
Secondary fields: Economics of Digitization, Public Economics

Relevant Positions

2014 - ongoing: Post-Doctoral Researcher in the Economics of Digitization, National Bureau of Economic Research.
2012 - ongoing: Part-time Data Scientist, Airbnb Inc.
2009 - 2011: Research Assistant for Douglas Bernheim, Stanford University
2009: Research Assistant for Matthew Harding and Giacamo DeGiorgi, Stanford University

Teaching Experience

Stanford University:
2011 - 2012: Advanced Topics in Econometrics (Prof. DeGiorgi), Introduction to Econometrics (Prof. Harding and Prof. Mahajan), Market Design (Prof. Levin).
Duke University:
2007 - 2008: Intermediate Microeconomics (Prof. Yildirim and Prof. Taylor), Financial Markets and Investment (Prof. Eraker), Junior Honors Thesis Seminar (Prof. Tauchen and Prof. Bollerslev).

Scholarships, Honors and Awards

Scholarships: NET Institute Fellowship, Shultz Fellowship Award, George P. Shultz Scholar, Haley-Shaw Fellowship Scholar
Awards: Allen Starling Johnson, Jr. Best Undergraduate Thesis in Economics Prize

Working Papers

Search Frictions and the Design of Online Marketplaces (Job Market Paper).

Online marketplaces increasingly act as intermediaries in labor, housing, dating, and other matching markets. These marketplaces collect novel data generated by users' search and communications activity. I study how this data can be used to inform marketplace design and to diagnose inefficiencies on Airbnb, a prominent online marketplace for short-term housing rentals. I show that potential guests engage in limited search, are frequently rejected by hosts, and match at lower rates as a result. I then estimate a micro-founded model of search and matching and use it to show that if frictions were removed, there would be 102% more matches in the marketplace. I propose and evaluate several search ranking algorithms and show that a personalized algorithm would increase the matching rate by 10% over the status quo. However, due to equilibrium effects, an A/B experiment of the type commonly used by internet companies can overstate the true treatment effect of an algorithm by over 100% in some cases.

The Welfare Economics of Default Options in 401(k) Plans (with Douglas Bernheim and Igor Popov) *Revise and Resubmit at the American Economic Review*

Default contribution rates for 401(k) pension plans powerfully influence workers choices. Potential causes include opt-out costs, procrastination, inattention, and psychological anchoring. We examine the welfare implications of defaults under each of these theories. We show how the optimal default, the magnitude of the welfare effects, and the degree of normative ambiguity depend on the behavioral model, the scope of the choice domain deemed welfare-relevant, the use of penalties for passive choice, and other 401(k) plan features. Depending on which theory and welfare perspective one adopts, virtually any default contribution rate may be optimal. Still, our analysis provides reasonably robust justifications for setting the default either at the highest contribution rate matched by the employer or – contrary to common wisdom – at zero. We also identify the types of empirical evidence needed to determine which case is applicable.

Bias and Reciprocity in Online Reviews: Evidence from Experiments on Airbnb (with Elena Grewal, Dave Holtz, and Matthew Pearson)

User-generated online reviews and reputation ratings help consumers choose what goods to buy and whom to trade with. However, potential reviewers are not compensated for submitting reviews or making reviews accurate. Therefore, the distribution of submitted reviews may differ from the true distribution of experiences had by market participants. We study the determinants and size of bias in online reviews by using field experiments on Airbnb. We show that reviews are indeed biased. In the first experiment, we pay consumers to leave reviews if they had not done so already. We find that the rate of positive reviews falls by 5.6% in the treatment group. In our second experiment, we remove the possibility of retaliation in reviews by changing the rules of the review system. We find that bias due to strategic reasons is small but that retaliation against negative reviews and reciprocity of positive reviews both occur. Lastly, we document a new type of bias in online reviews, *socially induced reciprocity*, which occurs when buyers and sellers interact socially and consequently omit negative information from reviews out of politeness. This form of bias is at least as large as bias due to strategic motivations, and therefore represents a major challenge for online marketplaces that intermediate real world transactions.

The Impact of Unemployment Insurance on Job Search: Evidence from Google Search Data (with Scott Baker) *Submitted*

We develop and validate a measure of job search based on Google search data and use it to study the effects of unemployment insurance (UI). We show that individuals on UI search 30% less than the unemployed not on UI and that claimants close to UI exhaustion search twice as much as claimants with over 30 weeks left. We use our estimates to calibrate a model of job finding and find that the decrease in job search due to UI expansions was responsible for an increase in the unemployment rate of less than 0.1% in Texas between 2008 and 2009.

The Effect of Family Insurance on Early Career Outcomes (with Frederic Panier and Ilan Tojerow)

Young adults entering the labor force typically have little access to unemployment insurance or other formal insurance mechanisms. Instead, they rely on family insurance in the form of parental support to smooth consumption. We study the labor market response of Belgian young adults to decreases in available parental support caused by parental job-loss. We find that children whose parent loses a job prior to the childs labor market entry are induced to work 6% more in the 3 years following labor market entry than children whose parents lose their jobs after the child's entry. This effect takes place primarily on the extensive margin for male entrants who do not complete college and whose parental income is in the bottom third of the income distribution. We find no evidence that parental support affects the quality of the initial job that entrants find.

In Progress:

Market Structure with the Entry of Peer-to-Peer Platforms: The Case of Hotels and Airbnb (with Chiara Farronato)
Online marketplaces have reduced entry costs across a variety of industries. These marketplaces allow small and part-time service providers (peers) to participate in economic exchange. For example, Airbnb allows anyone to become a hotelier and Uber allows anyone to become a cab driver. The entry of peer-to-peer competitors has two effects: market expansion and business stealing. The first effect occurs when the peer-to-peer sector supplies price sensitive or niche consumers who were previously underserved. The second effect occurs when the peer-to-peer sector attracts consumers away from conventional suppliers. We study these two effects using data from the hotel industry and Airbnb. We show that the market expansion and business stealing effects differ by location, and attribute this heterogeneity to supply constraints - legal and geographic - relative to the level of demand. We then derive a simple model of competition between a peer-to-peer marketplace and hotels to explain these findings. In the model, hotels and peer-to-peer suppliers differ in their fixed (higher for hotels) and marginal costs (higher for peer-to-peer suppliers). The model allows us to study how the efficient market structure depends on the level and variability of demand, and to quantify the welfare gains from peer-to-peer entry in the accommodation industry.

How Do People Form Consideration Sets On The Internet? Evidence from Large Scale Field Experiments in Search Engine Design

Invited Presentations

2014: Harvard Business School, Columbia Business School, National Bureau of Economic Research (Summer Meetings), University of Illinois - Urbana Champaign, Microsoft Research, Airbnb Tech Talk, Square Inc., Conference on Digital Experimentation at MIT
2013: NET Institute Conference, Annual Meeting of the AEA (San Diego)
2011: Google Economics Group

Data Science / Other

A National Survey of the Peer-to-Peer Economy (with Chiara Farronato and Rover.com)
Designed a quarterly national survey to measure the current and expected size of the peer-to-peer economy. The survey also quantifies the importance of barriers to the consumption of peer-to-peer services in the labor, hospitality, transportation, and pets markets.
Ranking Algorithm Design:
Co-designed a proprietary algorithm that uses discrete choice models to rank the listings displayed to Airbnb searchers. The algorithm creates an ordering according to a listing's perceived quality and probability of converting to a booking after communication.
Search Experimentation Framework:
Co-designed a system that tracks the actions of searchers and evaluates search experiments.
Operations Experiments:
Designed experiments to evaluate the effectiveness of customer support and platform pricing.
Media:
Co-created the Airbnb Hospitality Index and the Airbnb Global Citizenship Index. This work was covered in Le Monde, El Pais, the Telegraph, and other media outlets.
Consulting:
Advised on the design of Airbnb's reputation system and pricing recommendations.