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Personal Information:
Date of Birth: April 15, 1985
Place of Birth: Chicago, IL, USA

Undergraduate Studies:
Northwestern University, Departmental Honors in Economics, June 2007
B.A., Communication Studies, Additional Majors: Economics and Mathematics

Graduate Studies:
Harvard University, 2008 to present
Ph.D. Candidate in Business Economics
Thesis Title: "*Essays in Organizational Economics*"
Expected Completion Date: May 2014

London School of Economics, December 2008
M.Sc. Applicable Mathematics
Thesis Title: *"Common Knowledge and the Revenue Equivalence Theorem"*

References:

Professor Oliver Hart
Harvard University
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Professor Philippe Aghion
Harvard University
617-495-6675, paghion@fas.harvard.edu

Professor Eric Van den Steen
Harvard Business School
617-495-8019, evandensteen@hbs.edu

Teaching and Research Fields:
Research fields: Organizational Economics, Personnel Economics
Teaching fields: Microeconomics, Contract Theory, Game Theory

Teaching Experience:

Fall, 2011 Spring, 2012	Econ 985: Senior Thesis Tutorial, Microeconomics, Harvard University, Teaching Fellow for Professor John Miron

Spring, 2012 Spring, 2013	Econ 1060: Contracts and Organizations, Harvard University, Teaching Fellow for Professor Oliver Hart

Research Experience and Other Employment:

Sept. 2012- June 2013	Harvard Business School, Strategy Department, Research Assistant to Professor Eric Van den Steen
Nov. 2007- June 2008	London School of Economics, Center for Economic Performance, Research Assistant to Professor Luis Garicano
June 2007- Sept. 2007	Kellogg School of Management, Strategy Department, Research Assistant to Professor Scott Stern

Professional Activities:

Jan. 2011- May 2013	Harvard University, Economics Department, Coordinator for Contracts and Organizations weekly student research luncheon

Honors, Scholarships and Fellowships:

2013-2014	Harvard GSAS Dissertation Completion Fellowship
2008-2013	Doctoral Fellowship, Harvard Business School

Works in Progress:

"*Employment versus Contracting and the Timing of Hires: The Role of Urgency and Uncertainty*"
(Job Market Paper)
Abstract: The decision of whether a firm should hire an employee or a contractor is increasingly important as the role of agents in firms evolves. This paper introduces a theory of employment versus contracting focusing on the timing of hires and the tradeoff between uncertainty and urgency. Uncertainty creates a need for flexibility, which requires waiting for relevant information. This delay is costly due to urgency.

In this competitive labor market equilibrium, agents hired before the resolution of uncertainty look like employees, while agents hired after look like contractors. An ex-ante hire performs a subset of the tasks his firm receives; he is a generalist, working for a specific firm, and his job is a function of that firm. On the other hand, an ex-post hire is a specialist whose talent is spread across many firms; his particular firm assignment is a function of his specialization. The model also predicts that the fraction of agents working as employees decreases in economy-wide uncertainty and increases in urgency. Specialization of jobs is decreasing in urgency and decreasing in uncertainty.

"Job Design, Specialization and Uncertainty"
Abstract: As service industries become dominant in the economy, the ability to smooth production has decreased because services, unlike goods, cannot be stocked. This paper presents a model of organizational design, including the division of labor, team size, and general and specific skill use, under uncertain task load. Stochastic frequency of work weakly increases optimal team size by increasing the probability of excess tasks. However, increased team size implies decreased skill utilization under uncertain task load. The effects of uncertainty can be mitigated by combining different types of tasks into a single job, decreasing the division of labor. Thus, the inability to smooth production has both direct and indirect negative effects on general and specific skill use.

"Talent Allocation and the Inequality of Contingent Workers"
Abstract: Two types of contingent workers have emerged as a result of the growth of non-standard employment practices over the last half-century. One type is highly skilled, often a specialist who selects the projects he works on, is highly paid, and chooses contingent work over traditional employment. The other is low skill, low wage, and prefers the security of traditional employment to the uncertainty of temporary work. This paper presents a model of talent allocation that captures these phenomena.

Efficient talent allocation implies that unemployed agents are the lowest skill agents in the economy. Whether these agents cycle into employee or contingent positions when task volume increases depends on the measure of agents relative to the measure of firms and on the probability with which individual firms receive tasks.

Conversely, the highest skill agents in the economy become contingent workers, allowing them to be matched with the highest value tasks that no firm receives with certainty. An agent's skill level determines the opportunities open to him; thus, high skill agents choose contingent work over employment, while low skill contingent workers would prefer employee positions unavailable to them.

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Undergraduate Studies:
B.A., Applied Mathematics, Economics, University of California-Berkeley, Highest Honors, 2006

Graduate Studies:
Harvard University, 2007 to present
Ph.D. Candidate in Economics
Thesis Title: "*Essays in Applied Econometrics and Education*"
Expected Completion Date: June 2014

References:

Professor Gary Chamberlain
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Professor Edward Glaeser
Littauer Center 315A
617-494-2150, eglaeser@harvard.edu

Professor Guido Imbens
655 Knight Way, Stanford, CA
650-723-4315, imbens@stanford.edu

Professor Lawrence Katz
Littauer Center 224
617-495-5148, lkatz@harvard.edu

Teaching and Research Fields:
Primary fields: Labor Economics, Econometrics

Secondary fields: Behavioral Economics, Public Finance

Teaching Experience:

Fall, 2009	Graduate Probability and Statistics, Harvard, teaching fellow for Professor Rustam Ibraginov
Spring, 2010 and 2011	Graduate Introduction to Econometrics, Harvard, teaching fellow for Professor Gary Chamberlain
Fall, 2010	Undergraduate Introduction to Applied Econometrics, Harvard, head teaching fellow for Professor James Stock

Research Experience and Other Employment:

2008-2009	Harvard, Research Assistant for Guido Imbens

2008-2009	Harvard, Research Fellow, EdLabs, PI Roland Fryer

Professional Activities:
Referee: Quarterly Journal of Economics, Journal of the European Economics Association, Journal of Urban Economics

Grants:

2012	Ideas42 Research Grant $7,000
2011	Warburg Fund Research Grant $3,000
2011	NSF Doctoral Dissertation Improvement Grant $5,500
2010	Lab for Economic Applications and Policy (LEAP) Research Grant $3,600

Research

Published Paper:
Barrios, Thomas, Rebecca Diamond, Guido W. Imbens, and Michal Kolesar, (2012) ``Clustering, Spatial Correlation and Randomization Inference'' *The Journal of the American Statistical Association* 107:498, 578-591
It is a standard practice in regression analyses to allow for clustering in the error covariance matrix if the explanatory variable of interest varies at a more aggregate level (e.g., the state level) than the units of observation (e.g., individuals). Often, however, the structure of the error covariance matrix is more complex, with correlations not vanishing for units in different clusters. Here, we explore the implications of such correlations for the actual and estimated precision of least squares estimators. Our main theoretical result is that with equal-sized clusters, if the covariate of interest is randomly assigned at the cluster level, only accounting for nonzero covariances at the cluster level, and ignoring correlations between clusters as well as differences in within-cluster correlations, leads to valid confidence intervals. However, in the absence of random assignment of the covariates, ignoring general correlation structures may lead to biases in standard errors. We illustrate our findings using the 5% public-use census data. Based on these results, we recommend that researchers, as a matter of routine, explore the extent of spatial correlations in explanatory variables beyond state-level clustering.

Job Market Paper:
"Optimal Stratification in Randomized Experiments"
I show that stratifying on the conditional expectation of the outcome given baseline variables is optimal in matched-pair randomized experiments. The assignment is done to minimize the variance of the post-treatment difference in mean outcomes between treatment and controls. Optimal pairing depends only on predicted values of outcomes for experimental units, where the predicted values are the conditional expectations. After randomization frequentist inference and randomization inference depend only on the actual strata chosen and not on estimated predicted values. This gives a way to use big data (possibly more covariates than the number of experimental units) ex-ante while maintaining simple post-experiment inference techniques. Optimizing the randomization with respect to one outcome allows researchers to credibly signal the outcome of interest prior to the experiment. Inference can be conducted in the standard way by regressing the outcome on treatment and strata indicators. To illustrate the application of the methodology, I revisit a classic field experiment.

Research Paper(s) in Progress

"Peer Effects in Prison" with Ryan Sakoda
How do peer interactions in prison affect crime and work outcomes after inmates are released? We use Kansas Department of Corrections administrative data to determine whether the criminal records of an

inmate's prison peers (whether they are in the same cell, cell block, or facility) are related to that inmate's propensity to recidivate with a particular type of crime-- the type of crime of which his peers tended to be convicted.

"Course Availability, Delays, Degrees, and Grades" with Robert Fairley and Silvia Robles
Community colleges serve close to half of the undergraduate students in the United States and tuition at two-year public/non-profit colleges is mostly a public expenditure. We measure the effect of decreased course availability on grades, degree attainment, and transfer to four-year colleges using a regression discontinuity from course enrollment queues due to oversubscribed courses. Using a panel from a large California community college and the National Student Clearinghouse we find that in the short run students substitute unavailable courses with others. We find no significant effects on later outcomes, given the precision of our tests, however we cannot rule out economically significant effects.

"Using Geography as Instruments" with Edward Glaeser, Guido Imbens, and Michal Kolesar
We examine identification with many invalid instruments (Kolesar et al., 2011) in situations encountered when using geography variables for identification. The spatial distribution of resources, for example coal mines, rivers or archaic travel routes, are often used to identify important economic parameters. We provide data dependent methods for constructing instruments from geographic variables and relate the methods to the many invalid instruments model.

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Undergraduate Studies:
B.S. Physics, University of Washington, magna cum laude, 2005

Graduate Studies:
Harvard University, 2011 to present
Ph.D. Candidate in Economics
Thesis Title: "Essays in Economic Development"
Expected Completion Date: June 2014

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Professor Greg Lewis
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M.A. Economics, Stanford University, 2011
M. Public Policy, Harvard University, John. F. Kennedy School of Government, 2009

Teaching and Research Fields:
Fields: Development, Industrial Organization

Teaching Experience:

2008	"Reasoning from Evidence", Harvard Kennedy School Course assistant for Dan Levy and Julie Wilson
2005-2007	Teach for America, High School Teacher, Math and Science, Weslaco Texas
2004	"Introductory Physics", University of Washington Teaching assistant for Peter Shaffer

Other Employment:

2008-2009	Jameel Poverty Action Lab (J-PAL), Consultant
2000-2001	Microsoft Mobile Devices Division, Software Developer Intern

Honors, Scholarships, and Fellowships:

2013-2014	Oppenheimer Graduate Fellowship, Harvard University
2011-2013	Graduate Fellowship, Harvard Economics
2010-2011	George Shultz Fellowship, Stanford Institute for Economic Policy Research
2009-2010	Graduate Fellowship, Stanford Economics

Job Market Paper:

"The Adoption of Network Goods: Evidence from the Spread of Mobile Phones in Rwanda"

This paper uses transaction data from an African mobile phone system to estimate demand for mobile phones as a function of an agent's social network, prices, and coverage. I use this structural model of demand to simulate the impact of policies to encourage usage in rural areas.

Empirical work on network goods like mobile phones has historically been limited because of identification--demand is interlinked--and the cost of measuring the full network of users. This paper overcomes these limits using data on the adoption and subsequent usage of 88% of Rwandan mobile phone subscribers over 4.5 years of expansion. The utility of adoption is derived from usage. Each individual's set of contacts is revealed by who they call after adopting, the value of each contact is revealed by the calls placed, and the value of joining the network is derived from the value of the contacts on the network at a given time.

I use this model to quantify operator incentives to serve rural areas, finding that a government coverage obligation induced the building of rural towers that were unprofitable but improved welfare, with most benefits accruing beyond the directly affected areas. I also evaluate the impact of an adoption subsidy.

Research Papers:

"Do Hypothetical Choices and Non-Choice Ratings Reveal Preferences?"
with B. Douglas Bernheim, Jeffrey Naecker, and Antonio Rangel

We develop a method for determining likely responses to a change in some economic condition (e.g., a policy) for settings in which either similar changes have not been observed, or it is challenging to identify observable exogenous causes of past changes. The method involves estimating statistical relationships across decision problems between choice frequencies and variables measuring non-choice reactions, and using those relationships along with additional non-choice data to predict choice frequencies under the envisioned conditions. In an experimental setting, we demonstrate that this method yields accurate measures of behavioral responses, while more standard methods are either inapplicable or highly inaccurate. (NBER working paper 19269)

Research Papers in Progress

"The Spread of Profitable Technologies: Evidence from a Mobile Phone Discount"

Although the spread of new technologies is vital for economic development, it is difficult to study with traditional sources of data. Mobile phones present a promising setting: as individuals learn to use mobile phones, the network records nearly every experience of learning-by-doing, as well as nearly every remote interaction with peers who could share their own learning experiences. In 2006, a Rwandan mobile phone operator introduced a new plan that represented substantial savings for over 85% of subscribers. This project uses operator data to investigate how individuals learned about this new plan. I find that individuals learn from sales agents and from contacts that closely monitor their own usage, and most switch only after fully internalizing the new pricing structure.

"Hidden Quality"

Even simple goods have many dimensions of quality. For example, even a basic food like wheat has over 60 dimensions of nutritional quality tracked by the USDA. Since it is not feasible to communicate quality completely, in order to exchange goods over markets the dimensions of quality must be collapsed. As a result, real goods are partially credence goods, with dimensions of quality that consumers effectively never observe. These dimensions can have large economic significance–for example, though the standby power use of electronics is often not presented to consumers, electronics on standby mode represent up to 10% of residential electricity use. Under some conditions, innovation improves visible dimensions at the expense of hidden dimensions, and can lower welfare. Mandating that a subset of these dimensions be disclosed can increase the distortion of innovation away from dimensions that remain hidden, in some cases further lowering welfare.

"Credit Scoring using Behavioral Signatures from Mobile Phone Records"

Although unbanked households lack the formal records needed for traditional credit scores, many have maintained a rich history of interaction with a formal institution over an extended period of time, their mobile phone operator. Even with prepaid plans, operator records yield rich information about individual behavior and social networks. This project aims to identify and test key behavioral indicators associated with loan repayment and entrepreneurial success.

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Citizenship: France

Undergraduate Studies:
Ecole Normale Supérieure Ulm, Major in Economics, Paris, 2005-2009
M.A. in Economics, Paris School of Economics, with highest honours, 2006-2008
B.A. in Econometrics, University Paris-I Panthéon-Sorbonne, with highest honours, 2005-2006

Graduate Studies:
Harvard University, 2010 to present
Thesis Title: "*Essays on the Political Economy of Information and Taxation*"
Expected Completion Date: June 2014

References:

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Professor Richard Hornbeck
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Professor Andrei Shleifer
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Professor Alberto Alesina
Littauer Center 210
617-495-8388, aalesina@harvard.edu

Teaching and Research Fields:
Primary fields: Political Economy, Economic History
Secondary fields: International Trade, Development Economics, Industrial Organization

Teaching Experience:

Fall 2013	Economics of the Media (graduate), CELSA
Fall 2012	Development Economics (graduate), Telecom ParisTech
Spring 2010	Political Economy (graduate), Sciences Po
Summer 2009	Political Economy of Development, Advanced Graduate Workshop on Poverty, Development and Globalization
Fall 2009	Macroeconomics (graduate), Paris School of Economics
Spring 2009	Macroeconomics (undergraduate), Harvard
Fall 2008	Distribution and Development (undergraduate), Harvard

Research Experience and Other Employment:

2008-2009	World Bank, Consultant
2008-2009	French Agency for Development, Consultant
Summer 2007	French Ministry for the Foreign Affairs, Centre of Analysis and Forecast, Intern
2006-2007	OECD Development Centre, Research Assistant

Professional Activities:

Refereeing: *Economics of Transition; Journal of International Trade and Economic Development; Journal of Public Economics*; *Quarterly Journal of Economics*; *Review of Economics and Statistics.*

Academic Visits:

Fall 2009: Oxford University, Oxford Centre for the Analysis of Resource Rich Economies, Visiting research fellow.

Invited Seminars and Conferences:

2013: Fifth Tokyo International Conference on African Development (Yokohama).
2012: NYU, Department of Politics; IPD African Task Force (Columbia University).
2011: Foro de Biarritz (Santo Domingo); CAP/IDEAS (Madrid).
2010: World Bank Workshop on Economic Growth.
2009: Oxford University; Foro de Biarritz (Quito); African Task Force (Pretoria); French Agency for Economic Development.

Other Seminars and Conferences:

2013: TILEC Workshop; Working Group in African Political Economy (WGAPE); Harvard Economic History Tea; Harvard Industrial Organization Lunch; Harvard Research Workshop in Political Economy; Harvard Macro Lunch; MIT Political Economy Breakfast; Harvard Development Lunch; Harvard Organizational Economics Lunch; PSE Applied Economics Lunch Seminar.
2012: Harvard Macro Lunch; MIT Political Economy Breakfast; Harvard Economic History Tea; Harvard Industrial Organization Lunch.
2011: Media Economics Workshop (Moscow); IEA (Beijing); Harvard International Lunch; Harvard Development Lunch.
2010: PSE Applied Economics Lunch.
2009: AFSE Congress (Paris); EEA-ESEM Congress (Barcelona); PET (Galway); PSE Applied Economics Lunch; North American Meeting of the Econometric Society (Boston); MIT Political Economy Breakfast; Harvard Research Workshop in Political Economy; Harvard Labor-Public Finance Lunch.
2008: Advanced Graduate Workshop on Poverty, Development and Globalization (Manchester); PSE Macroeconomic Tea Break.

Honors, Scholarships, and Fellowships:

2013-2014	Roger L. Martin Cornerstone Graduate Student Fellowship Fund, Harvard
2013	NET Institute research grant
2012-2013	Center for European Studies (Harvard University) Krupp Foundation Graduate Dissertation Research Fellowship
2011 & 2012	Warbung Funds research grant, Department of Economics, Harvard University
2011-present	LEAP research grant, Department of Economics, Harvard University
2010-2013	CEPREMAP research grant
2010 & 2012	Paris School of Economics research grant
2010-present	Harvard Grant
2008-2009	Herchel-Smith ENS-Harvard exchange fellowship

Research Papers:

"Media Competition, Information Provision and Political Participation" **[Job Market Paper]**

> This paper investigates the consequences of an increase in the number of newspapers on the quantity and quality of news provided and, ultimately, changes in political participation. Drawing from the literature on vertical product differentiation to model the production choices of newspapers, I show how an increase in the number of newspapers can decrease both the quantity and quality of information provided. I build a new county-level panel dataset of local newspaper presence and political turnout in France, from 1945 to 2012. I estimate the effect of newspaper entry by comparing counties that experience entry to similar counties in the same years that do not. These counties exhibit similar trends prior to newspaper entry, but newspaper entry then leads to substantial declines in the total number of journalists. More newspapers are also associated with fewer news articles and lower information provision. These effects are concentrated in counties with homogeneous populations, as predicted by the model, with little impact on counties with heterogeneous populations. Newspaper entry, and the associated decline in information provision, is ultimately found to decrease voter turnout.

"Improving "National Brands": Reputation for Quality and Export Promotion Policies" (with Dorothée Rouzet)

R&R at the *Journal of International Economics*.

> Why do "made in" labels matter? We study the effect of firm and country reputation on exports when buyers cannot observe quality prior to purchase. Firm-level demand is determined by expected quality, which depends on both past experience with the good and the country of origin's reputation for quality. Asymmetric information acts as a barrier to entry for high-quality firms but facilitates sales by " fly-by-night" low-quality firms. We derive two types of steady-state equilibria with endogenous reputation. In a high-quality equilibrium, imperfect information does not hinder entry into export markets, but there is a distortion in profits and in the quality composition of exports. In a low-quality equilibrium, we obtain a sorting of firms into exporting that is non-linear in quality. A range of relatively high-quality firms are permanently kept out of the market by the informational friction, so that countries with bad quality reputation can be locked into exporting low-quality, low-cost goods. Export subsidies then have a positive welfare effect on the exporting country, by improving the average quality of its exports and its terms of trade. However, a subsidy has the opposite long-run effects in a country that initially exports relatively high-quality products. The model is consistent with empirical patterns of export prices. Measuring national reputations by analyzing the content of US newspaper articles about foreign countries over 1988-2006, we find that more positive news coverage of foreign countries and companies is associated with higher unit values of their exports to the US, particularly in sectors with a larger scope for vertical differentiation.

"The Long-Term Effects of the Printing Press in sub-Saharan Africa" (with Valeria Rueda) (*submitted*)

> This article examines the long-term consequences of the introduction of the printing press in the 19th century on newspaper readership and other civic attitudes in sub-Saharan Africa. In sub-Saharan Africa, Protestant missionaries were the first both to import the printing press technology and to allow the indigenous population to use it. We build a new geocoded dataset locating Protestant missions in 1903. This dataset includes, for each mission station, the geographic location and its characteristics, as well as the educational and health related investments undertaken by the mission. We show that proximity to a historical missionary settlement endowed with a printing press significantly increases newspaper readership today within regions located close to historical mission settlements. We also find a positive impact on political participation at the community level. Results are robust to a variety of identification strategies that attempt to address the potential endogenous selection of missions into printing and externalities on education and literacy.

"Fiscal Capacity and the Unexpected Consequences of Trade Liberalization" (with Lucie Gadenne) (*submitted*)

> Trade taxes are an important source of revenue for developing countries. These revenues have fallen over the past decades as these countries liberalized trade. Many developing countries simultaneously experienced a decrease in their total tax revenues, suggesting trade liberalization may have come at a fiscal cost. Using a novel panel dataset of tax revenues and government expenditures in developing countries for the period 1945-2006 we identify 110 episodes of decreases in tariff revenues and consider whether countries are able to recover those lost revenues through other tax resources. We show that trade taxes fall by close to 4 GDP percentage points on average during those episodes. Less than half of the countries recover the lost tax revenues 5 years after the start of the episode. The picture is similar when we consider government expenditures. We use the intuition that pre-existing tax capacity is needed to levy domestic taxes to explain theoretically why some countries are unable to recover all tax revenues lost from lowering tariffs. We find that the fiscal cost of trade liberalization is a non-linear function of countries' incentives to invest in tax capacity, and that some will be stuck in a low tax capacity trap. Finally we provide some empirical evidence in line with the model's predictions.

"Asymmetric Information, Rent Extraction and Aid Efficiency" (2009)

> Official Development Aid flows are volatile, non-predictable and not delivered in a transparent way. All these features reinforce asymmetric information between the citizens and the recipient government about the amount of aid flows received by developing countries. This article uses a political economy model of rent extraction to show how this asymmetry (i) encourages rent extraction by kleptocratic regimes, thus reducing aid efficiency, and (ii) increases the negative impact of aid volatility. It identifies a new channel - the "asymmetric information" channel - through which aid volatility is costly for recipient countries. The empirical relevance of the model is confirmed on a panel data of developing countries. Using various specifications and econometric methods, and developing new yearly estimates of aid volatility, I show that (i) introducing more information increases aid efficiency, that (ii) the negative impact of aid volatility on aid efficiency vanishes once one controls for information, and that (iii) this positive impact of information does not come from the fact that more transparent countries tend to have better institutions.

Research in Progress

"Price Discrimination in Two-Sided Markets: Theory and Evidence from the Newspaper Industry" (with Charles Angelucci and Romain De Nijs).

"The Economics of the African Media" in preparation for the *Handbook of Africa and Economics* (Oxford University Press).

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Undergraduate Studies:
S.B., Mathematics, Massachusetts Institute of Technology, 2005

Graduate Studies:
Harvard University, 2008 to present
Ph.D. Candidate in Business Economics
Thesis Title: "Experiential and Social Learning in Firms: The Case of Hydraulic Fracturing in the Bakken Shale"
Expected Completion Date: June 2014

References:

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Professor Bharat Anand
Harvard Business School, Strategy Unit
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Professor Parag Pathak
MIT, Department of Economics
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Teaching and Research Fields:
Primary fields: Industrial Organization

Secondary fields: Finance, Energy and Environmental Economics, Applied Econometrics

Teaching Experience:

2012-2013	Advanced Graduate Industrial Organization, Harvard, teaching fellow for Professor Greg Lewis
2011	Undergraduate Industrial Organization, Harvard, teaching fellow for Professor Julie Mortimer

Research Experience and Other Employment:

2008	MIT Sloan School, Research assistant to Professors Paul Asquith and Parag Pathak
2005-2008	Cornerstone Research, Senior Analyst

Professional Activities
Referee, *International Journal of Industrial Organization*

Honors, Scholarships, and Fellowships:

2013-present	Sandra Ohrn Family Graduate Dissertation Fellowship, Harvard University
2008-2013	Doctoral fellowship, Harvard Business School

Publications and papers under review:
"The market for borrowing corporate bonds." (with Paul Asquith, Andrea Au and Parag Pathak), *Journal of Financial Economics*, 2013.

"The effects of mandatory transparency in financial market design: evidence from the corporate bond market." (with Paul Asquith and Parag Pathak), *NBER Working Paper*, 2013. Submitted.

Research Paper(s) in progress:
"Experiential and Social Learning in Firms: The Case of Hydraulic Fracturing in the Bakken Shale" (Job Market Paper)
Learning how to utilize new technologies is a key step in innovation, yet little is known about how firms actually learn. This paper examines firms' learning behavior using data on their operational choices, profits, and information sets. I study companies using hydraulic fracturing in North Dakota's Bakken Shale formation. To make profitable fracking decisions, firms must learn the relationship between fracking input use and oil production. Using a new dataset that covers every well since the introduction of fracking to this formation, I find that firms made more profitable input choices over time, but did so slowly and incompletely, only capturing 69% of possible profits from fracking at the end of 2011. To understand what factors may have limited learning, I estimate a model of fracking input use in the presence of technology uncertainty. Firms are more likely to choose input bundles with higher expected profits and lower standard deviation of profits, consistent with passive learning but not active experimentation. Most firms over-weight their own information relative to observable information generated by others. I use these model estimates to measure the impact of information availability regulations on learning.

"Transparent Financial Markets and Price Discovery" (with Paul Asquith and Parag Pathak)
This paper studies how post-trade transparency affects price discovery in the corporate bond market. In 2002, TRACE began requiring public dissemination of post-trade price and volume information for corporate bonds in Phases. The paper examines how transparency affects price discovery and the efficiency of the corporate bond market. First, we measure the speed and volatility of bond price changes during bankruptcies and credit downgrades during the opaque and transparent period. Second, we measure how bond prices react to macroeconomic movements across both regimes. Third, we examine the price impact of large trades when trades are publicly disseminated. Finally, using simple autocorrelation tests, we examine how transparency affects corporate bond price forecast errors.

"Wind Power Investment" (with Allan Collard-Wexler and Ariel Pakes)
Due to the issue of climate change, there has been increased interest in producing energy from wind. In the last decade, wind power capacity has grown tenfold, reaching 42% of newly installed electric capacity in 2008, yet accounts for less than 2% of electric generation. We study the determinants of investment choices in wind generated electricity. First we look at the permitting process for electric power by gathering information from the interconnection queues from ISO's across the country. Second, we collect extensive data on the revenues of wind farms to evaluate the entire economic costs of these

wind farms to the utilities that purchase power from them, and find large dispersion in the price of wind power. The estimated cost of wind farms is used to investigate the effect of several policies, such as increasing the production tax credit, increasing investment tax credits and introducing a European style feed-in tariff, on the long-run supply curve of wind power. production tax credit, increasing investment tax credits and introducing a European style feed-in tariff, on the long-run supply curve of wind power.

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Undergraduate Studies:

BA, Economics (2nd cycle), Universitat Pompeu Fabra, Ranked 1st, 2008
BA, Economics (1st cycle), Universidad de Las Palmas de Gran Canaria, Ranked 1st, 2006

Graduate Studies:

Harvard University, 2008 to present
Ph.D. Candidate in Economics
Thesis Title: *"Essays on Normative Macro-Finance"*
Expected Completion Date: May 2014

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Teaching and Research Fields:

Primary fields: Financial Economics, Macroeconomics

Secondary fields: International Economics, Public Finance

Teaching Experience:

Spring 2012/13	Ec2728, (Graduate) Corporate Finance, Harvard University, teaching fellow for Professors Robin Greenwood and David S. Scharfstein
Fall 2010/11	Ec2723, (Graduate) Asset Pricing, Harvard University, teaching fellow for Professor John Y. Campbell
Year 2005/06	Introduction to Economics, ULPGC, teaching fellow for Professor Ginés de Rus

Research Experience and Other Employment:

2010-2011	Harvard University, Research assistant for Professor Jeremy C. Stein
2010	Harvard University, Research assistant for Professor John Y. Campbell
2010	Harvard University, Research assistant for Professor Efraim Benmelech,
2009-2010	Harvard University, Graduate Macroeconomics Tutoring
2007-2008	UPF, Research assistant for Professors Doh-Shin Jeon and Joel Shapiro
2004-2006	ULPGC, Research assistant for Professor Ginés de Rus

Honors, Scholarships, and Fellowships:

2012-2013	Harvard Dissertation Completion Fellowship
2012	AFA Student Travel Grant
2012	Harvard International Economics Research Grant
2010-2012	Foundation Rafael del Pino Graduate Fellowship
2011	Invited participant at 4th Lindau Meeting of Nobel Laureates in Economics
2010-2011	Bank of Spain Graduate Fellowship (declined)
2008-2010	"la Caixa" Graduate Fellowship
2008	National Undergraduate Prize in Economics (Best undergraduate in Economics in Spain), Class of 2008

Professional Activities:

Referee for: Quarterly Journal of Economics, Review of Economic Studies, Journal of the European Economic Association

Research Papers:

"Optimal Financial Transaction Taxes" **(Job Market Paper)**

Abstract: This paper characterizes the optimal linear financial transaction tax in an equilibrium model of competitive financial markets. When belief disagreement induces excess trading on assets in fixed supply, two main results arise. First, the optimal tax is positive: although a (small) transaction tax discourages all trades equally, the reduction in fundamental trading creates a second-order welfare loss, while the reduction in non-fundamental trading creates a first-order gain. Second, the cross-sectional covariance between investors' beliefs and investors' equilibrium portfolio tax sensitivities becomes the relevant sufficient statistic for the optimal tax, which does not depend on the actual payoff distribution. I find additional results. First, in dynamic environments, controlling for the level of static disagreement, the optimal tax is lower when investors alternate between being buyers and sellers over time. Second, when financial markets determine production in a Walrasian sense, as in a q-theory environment, a marginal tax increase creates an additional first-order distortion (positive or negative). Third, when financial markets determine production by diffusing information, a marginal tax increase creates an additional first-order loss, due to a learning externality.

"(Using Elasticities to Derive) Optimal Bankruptcy Policies"

Abstract: This paper characterizes the optimal bankruptcy policy for risk averse borrowers who use arbitrary contracts but have the possibility of default. It provides a simple formula for the optimal amount of income that a borrower should be allowed to keep in case of default as a function of observable sufficient statistics. The elasticity of the credit spread with respect to the marginal policy intervention and the probability of default turn out to be the two key determinants of the optimal bankruptcy policy, independently of many features of the environment. I discuss reasonable calibrations for the optimal formula in US data.

"Dissecting Fire Sales Externalities"

Abstract: This paper analyzes the sources of fire sales externalities in a canonical Walrasian borrower-lender problem. Two distinct externalities arise: terms-of-trade and collateral externalities. Terms-of-trade externalities may create over or underinvestment, collateral externalities always create overinvestment. Unless transfers are allowed, there are no feasible constrained Pareto improvements. When transfers are allowed, constrained Pareto improvements are generally feasible. This paper recognizes that government interventions are time inconsistent in this environment and shows how the welfare implications of fire sales must be decoupled from amplification mechanisms.

"Does Size Matter? Bailouts with Large and Small Banks"

Abstract: This paper models the strategic interaction between banks and the government when bailouts are possible. I analyze how imperfect common knowledge about the government's bailout policy affects the ex-ante leverage choice for each bank. Large banks, by internalizing the effect of their size on the likelihood of being bailed out, are willing to take more leverage. In equilibrium, the existence of these large entities induces small banks to also increase their leverage. Therefore, the probability of bailout and the economy-wide leverage is larger when large banks are present. This paper provides support for regulation that explicitly targets bank size.

"A Ricardian Analysis of Small Business Lending", with Lucia Tian

Abstract: We study bank competition in the US market for small business loans through the lens of an economic geography model supplemented by a model of loan demand. Estimating the model using market-level data from all US banking markets allows us to tease apart the effects of costs, bank size, distance, and market opacity on bank performance in the small business loans space. In the cross-section, we find that under normal conditions, small banks make relatively more loans in opaque markets, even after controlling for the effects of costs and distance. This suggests that small/local banks may have an informational advantage when facing opaque borrowers. From the data in years 2002-2010, we also uncover patterns in the time series which suggest that as the cost of capital went down for large banks, they made relatively more (potentially faulty) loans in opaque markets. Finally, we examine the effect on small business lending in two counterfactual scenarios – a shock to capital costs arising from stricter capital requirements and the exit of a small bank from a market.

"Myopic Portfolio Choice with Higher Cumulants"

Abstract: This paper provides novel analytical solutions for the myopic optimal portfolio problem of an expected utility investor when higher order moments of the distribution of returns matter. Using cumulant generating functions and entropy is crucial to find tractable solutions. Constant absolute risk aversion utility allows for closed form solutions of the optimal amount of the risky asset for many distributions. Constant relative risk aversion utility does not yield closed forms, but the paper still provides new insights about optimal portfolios. As expected, tail events matter for portfolio choice when departures from normality are large.

Research Papers in Progress:

"Optimal Eurobond Design", with Charles-Henri Weymuller

"Monetary Policy and the Pricing of Credit Risk"

"Inefficient Occupational Choice over the Business Cycle"

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Undergraduate Studies:
BA, Economics and Mathematics, St. Lawrence University, *Summa Cum Laude*, *Phi Beta Kappa*, Honors in Economics and Mathematics, May 2006

Graduate Studies:
Harvard University, 2008 to present
M.A in Economics, Harvard University, May 2011
Ph.D. Candidate in Business Economics
Thesis Title: "Essays in International Trade and Development"
Expected Completion Date: May 2014

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Research and Teaching Fields
Research fields: International Trade, Development
Teaching fields (oral exams): International Trade, Development, Econometrics

Research Experience and Other Employment

Summer 2013	Federal Reserve Bank of New York, Dissertation Intern
2011-2013	World Bank, Finance and Private Sector Research, Consultant, Insolvency Reform Program Evaluation in Romania
Summer 2011	Harvard University, Research Assistant for Prof. Nathan Nunn
Aug-Dec 2010	Jameel Poverty Action Lab (J-PAL) Governance Initiative, Research Assistant
Jun-Aug 2009	Institute for Financial Management Research, Randomized Control Trial Project Manager, Mysore, India

2006-2008	Goldman Sachs, US and Global Economics Research, Research Analyst, New York
Jun-Aug 2005	Goldman Sachs, Equity and Fixed Income Sales and Trading, Intern, New York

Affiliations and Professional Activities:

Affiliations: Special Sworn Status Researcher, US Census Bureau

Referee: Review of Economics and Statistics, Journal of Development Economics

Honors, Scholarships, and Fellowships:

2013	Harvard GSAS Dissertation Completion Fellowship
2012	Harvard Weatherhead Center Research Grant (with Nathan Nunn)
2011	International Economics Research Grant, Harvard University
2008-2013	Doctoral Fellowship, Harvard Business School
2006	John W. Hannon Jr. Economics Award, St. Lawrence University
2006	Dr. O. Kenneth Bates Mathematics Award, St. Lawrence University
2005	Charbern Scholarship Award, St. Lawrence University
2004, 2005	Freeman Award for Study in Asia (field research in Thailand and Hong Kong)

Research Papers:

"Firm-to-Firm Matching Along the Global Supply Chain" (Job Market Paper)

Abstract: Firms play an increasingly important role in mediating aggregate trade flows between countries, as falling trade costs have led firms in developed countries to outsource parts of their production chain to developing countries. Despite its importance for international trade, our understanding of the matching process between importers and exporters remains very limited. To shed light on this question, this paper constructs a novel dataset containing detailed information on firms on both sides of the trade transaction, and establishes new stylized facts regarding the matching between buyers and suppliers at different stages of the global supply chain. I use the confidential US customs data to match firm-level information on Indian manufacturing exporters with firm-level information on their US importers from the Census Longitudinal Business Database. Focusing on firm size as a proxy for productivity, I establish two new stylized facts. First, there is positive assortative matching between US buyers and their Indian suppliers. The elasticity of buyer size with respect to Indian firm size is around 0.2. Second, I find that the strength of the positive matching varies systematically with the downstreamness (proximity to final use) of the product traded. The magnitude of the buyer size elasticity is close to 0.6, when Indian firms supply final products, and around zero when they supply indirect intermediate products. I illustrate the mechanisms driving the matching in a model of sequential production with endogenous investment in supplier search at every production stage. The model shows that the marginal benefit of search for high-productivity suppliers increases with the stage of production, and relatively more for products in which demand elasticity faced by the buyer is high. This empirical prediction finds support in the data.

"The Impact of Fair Trade Certification on Coffee Producers in Costa Rica" (with Nathan Nunn)

Abstract: We estimate the effects of Fair Trade (FT) certification on coffee producers in Costa Rica. We begin by examining a panel of all coffee producers in Costa Rica between 1999 and 2010. We find that FT certification is associated with higher export prices (approx. 5 cents per pound). We find no evidence that certification is associated with more sales (either domestic or for export) or with higher domestic prices. Linking the mill-level information on FT certification to individual-level survey data, we find that FT certification does increase incomes, but only for a small group of skilled coffee growers and farm owners. There is no evidence that the majority of workers, including unskilled seasonal coffee pickers, benefit from certification. Turning to education, we find that FT certification is associated with increased school attendance in the area, most likely due to educational support and scholarships that are given by FT certified producers. But we also find evidence that FT certification is associated with lower school attendance amongst some children of coffee workers.

Research in Progress:

"The Economics of Fair Trade," (with Nathan Nunn and Daniele Giovannucci), in preparation for the *Journal of Economic Perspectives*

"Importer Heterogeneity and Export Performance. Evidence from India"

"The Gender Effects of Market Access: Evidence from US-Cambodia MFN Agreement"

Other publications:

Social Finance, Inc." Harvard Business School Case 212-055, with Cole, Shawn A., Rawia Sami Abdel Samad, Matthew John Berner

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Teaching and Research Fields:

Primary fields: Macroeconomics, Labor Economics
Secondary field: Real Estate Economics

Teaching Experience:

Fall 2009, 2010, 2011, 2012	Graduate Microeconomic Theory, Teaching Fellow for Edward Glaeser
Spring 2010	Undergraduate Psychology and Economics, Teaching Fellow for David Laibson and Andrei Shleifer

Research Experience and Other Employment:

Summer 2009	National Economic Council, Summer Research Intern

Honors, Scholarships, and Fellowships:

2008-Present	Harvard University Presidential Scholar
2012-2013	John R. Meyer Dissertation Fellowship
2013	CoreLogic Academic Research Council Excellence Award
Fall 2009, 2010	Harvard University Certificate of Distinction in Teaching

Publications:

"Does Indivisible Labor Explain the Difference between Micro and Macro Elasticities? A Meta-Analysis of Extensive Margin Elasticities" (with Raj Chetty, Day Manoli, and Andrea Weber). In *NBER Macroeconomics Annual 2012*. Daron Acemoglu, Jonathan Parker, and Michael Woodford (Editors). University of Chicago Press, 2013: 1-56.

"Are Micro and Macro Labor Supply Elasticities Consistent? A Review of Evidence on the Intensive and Extensive Margins" (with Raj Chetty, Day Manoli, and Andrea Weber). *American Economic Review Papers and Proceedings*, May 2011: 471-5.

Research Papers:

"The Causes and Consequences of House Price Momentum" (Job Market Paper)

House price changes are positively autocorrelated over two to three years, a phenomenon known as momentum. This paper introduces, empirically grounds, and quantitatively analyzes an amplification mechanism that can generate substantial momentum from small frictions and demonstrates that the resulting momentum helps explain the short-run dynamics of housing markets. The amplification is due to a concave demand curve in relative price, which implies that increasing the quality-adjusted list price of a house priced above the market average rapidly reduces its probability of sale, but cutting the price of a below-average priced home only slightly improves its chance of selling. This creates a strategic complementarity that incentivizes sellers to set their list price close to others'. Consequently, frictions that cause slight insensitivities to changes in fundamentals lead to prolonged adjustments because sellers gradually adjust their price to stay near the average. I provide new micro empirical evidence for the concavity of demand—which is often used in macro models with strategic complementarities—by instrumenting a house's relative list price with a proxy for the seller's equity. I find significant concavity, which I embed in an equilibrium housing search model in which buyers avoid visiting houses that appear overpriced. I demonstrate and quantitatively evaluate the model's ability to amplify two frictions: staggered pricing and a fraction of backwards-looking rule-of-thumb sellers. Both frictions are amplified substantially, and the model explains the momentum observed empirically with a small fraction of rule-of-thumb sellers. Strong house price momentum leads households to re-time their purchase or sale, thereby explaining several features of the dynamic relationships between price, volume, inventory, and buyer and seller entry.

"How Do Foreclosures Exacerbate Housing Downturns?" (with Tim McQuade)

The recent housing bust precipitated a wave of mortgage defaults, with over seven percent of the owner-occupied housing stock experiencing a foreclosure. This paper presents a model that shows how foreclosures can exacerbate a housing bust and delay the housing market's recovery. By raising the ratio of sellers to buyers, by making buyers more selective, and by changing the composition of houses that sell, foreclosures freeze the market for retail (non-foreclosure) sales and reduce both price and volume. Because negative equity is necessary for default, these general equilibrium effects on prices can create price-default spirals that amplify an initial shock. To assess the magnitude of these channels, the model is calibrated to simulate the downturn. The amplification channel is significant. The model successfully explains aggregate and retail price declines, the foreclosure share of volume, and the number of foreclosures both nationwide and across metropolitan areas. While the model can explain variation in sales across MSAs, it cannot account for the aggregate level of the volume decline, suggesting that other forces have reduced sales nationwide. The quantitative analysis implies that from 2007 to 2011 foreclosures exacerbated aggregate price declines by approximately 50 percent and declines in the prices of retail homes by approximately 30 percent.

"Trade Dynamics With Sector-Specific Human Capital" (with David Hemous and Morten Olsen)

Revise and Resubmit, *Journal of International Economics.*

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Undergraduate Studies:
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Graduate Studies:
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Expected Completion Date: May, 2014

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Teaching and Research Fields:
Primary fields: Game Theory, Economic Theory
Secondary fields: Market Design

Teaching Experience:

Fall, 2010	Economics 1010a: Intermediate Microeconomics, Harvard University, teaching fellow for Professor Jeffrey Borland
Spring, 2011	Economics 2052: Game Theory I: Equilibrium Theory, Harvard University, teaching fellow for Professor Drew Fudenberg
Fall, 2012	Economics 1052: Game Theory and Economic Applications, Harvard University, teaching fellow for Professor Drew Fudenberg

Research Experience and Other Employment:

June 2009 – Jan. 2010 Harvard University, Research Assistant for Professor Attila Ambrus

Sep. 2011- June 2012 Harvard University, Research Assistant for Professor Drew Fudenberg

Professional Activities:

Referee Activities: *Theoretical Economics*

Seminars and Presentations:

July 2011 International Conference on Game Theory, Stony Brook, NY.

Honors, Scholarships, and Fellowships:

2008 – 2009 Robert F. Naka Fellowship

2009 – present Harvard University Graduate Fellowship

Publications:

Fudenberg D., Y. Ishii, S.D. Kominers. *"Delayed-Response Strategies in Repeated Games with Observation Lags."* Journal of Economic Theory, Forthcoming.

Research Papers:

"Innovation adoption by forward-looking social learners" (Job Market Paper) (with Mira Frick)

A large population of long-lived consumers faces stochastic opportunities to adopt an innovation of uncertain quality. Consumers are social learners: Over time, news about the product's quality is generated endogenously, based on the experiences of past adopters. We analyze how the potential for social learning in an economy affects consumers' informational incentives and how these in turn shape the aggregate adoption dynamics of an innovation. Our main results highlight the importance of two features of the economy: The extent to which consumers are forward-looking and the nature of news events through which social learning occurs. When consumers are forward-looking social learners, the trade-off between the benefit of adopting the innovation at any given time and the option value of waiting for endogenous news can generate rich aggregate adoption dynamics, even in the absence of any consumer heterogeneity. The dynamics of this trade-off and the extent to which it is affected by increased opportunities for social learning interact in interesting ways with the news process of the economy. For a class of Poisson learning processes, we establish the existence of unique equilibria, with adoption patterns that either are S-shaped or feature successions of concave bursts. Finally our analysis also predicts a novel saturation effect when consumers are sufficiently patient: Due to informational free-riding, increased opportunities for social learning necessarily lead to temporary slow-downs in learning and need not produce welfare gains.

"Gradual bidding in eBay-like auctions" (with Attila Ambrus and James Burns), Submitted.

This paper shows that in online auctions like eBay, if bidders can only place bids at random times, then many different equilibria arise besides truthful bidding, despite the option to leave proxy bids. These equilibria can involve gradual bidding, periods of inactivity, and waiting to start bidding towards the end of the auction - bidding behaviors common on eBay. Bidders in such equilibria implicitly collude to keep the increase of the winning price slow over the duration of the auction. In a common value environment, we characterize a class of equilibria that include the one in which bidding at any price is maximally delayed, and all bids minimally increment the price. The seller's revenue can be a small fraction of what could be obtained at a sealed-bid second-price auction, and in the worst equilibrium it is decreasing in the value of the object. With many bidders, we show that this equilibrium has the feature that bidders are passive until near the end of the auction, and then they start bidding incrementally.

"Contagious commitment via unknown patience"

This paper demonstrates how uncertainty over patience can generate strong reputation effects that are unavailable when the long-run player's level of patience is common knowledge. With uncertainty over patience, these strong reputation effects are the result of contagion initiated by very patient types: the most patient types have a strict incentive to play the beneficial action in all equilibria which in turn incentivizes those with smaller levels of patience to also play this action. Our main result shows that even when very patient types are extremely small in probability, these contagion effects are very strong so that types with intermediate levels of patience obtain high payoffs in all equilibria.

"Folk theorem with a continuum of public signals"

This paper extends Fudenberg and Levine's (1994) characterization of the limit set of perfect public equilibrium payoffs of repeated games with imperfect public monitoring as the discount factor approaches one to that of repeated games in which the set of public signals is a continuum. Using this characterization, we provide folk theorems requiring full rank conditions that imply the conditions of Fudenberg et al. (1994) in an associated game with a finite set of public signals. We finally apply a folk theorem to the analysis of collusion among firms in an oligopoly considered by Green and Porter (1984).

"Asynchronous choice in battle of sexes games: unique equilibrium selection for intermediate levels of patience" (with Attila Ambrus)

This paper shows that in infinite-horizon asynchronous-move battle of the sexes games, for a full-dimensional set of payoff specifications, there is an intermediate range of discount rates for which every subgame perfect Nash equilibrium induces the same unique limit outcome. The latter is one of the pure Nash equilibria of the stage game, and play is absorbed in finite time with probability 1. We fully characterize the set of game specifications for which there is a unique limit outcome in any Markov perfect equilibrium, but show by example that these conditions are not sufficient for unique selection in the limit in all subgame perfect Nash equilibria. We also provide sufficient conditions for the existence of a unique limit outcome in any subgame perfect Nash equilibrium. Our results complement the findings of Lagunoff and Matsui (1997) and others, who show that in a class of coordination games asynchronicity of moves leads to unique equilibrium selection for high enough (as opposed to intermediate) levels of patience.

Work in Progress:

"The effect of correlated inertia on coordination" (with Yuichiro Kamada)

We study how the structure of moves influences equilibrium predictions in the context of revision games, as termed by Kamada and Kandori (2009). In our variant of revision games, two players prepare their actions at times that arrive stochastically before playing a coordination game at a predetermined deadline, at which time the finally revised actions are implemented. The revisions are either synchronous or asynchronous. The coordination game we study is a 2x2 game with two strict Pareto-ranked Nash equilibria. We identify the condition under which the Pareto-superior payoff profile is the unique outcome of the dynamic game. Specifically, we find that uniqueness of this outcome is more easily obtained when the degree of asynchronicity is sufficiently high relative to the risk of taking the action corresponding to the Pareto-superior profile. We further show that when this degree is low the set of payoffs attainable in equilibria expands considerably.

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Previous Degrees

Ph.D., Mathematics, University of Rochester, 2010
M.A., Mathematics, University of Rochester, 2005
M.S., Probability and Statistics, Peking University, 2003
B.A., Economics & B.S., Mathematics, Wuhan University, Highest distinction, 2000

Doctoral Studies

Harvard University, 2008 to present
Ph.D. Candidate in Economics
Thesis Title: "Essays on Asset Pricing and Econometrics"
Expected Completion Date: January 2014

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Teaching and Research Fields

Asset Pricing, Macro Finance, Financial Econometrics, Time Series Econometrics

Teaching Experience

Fall 2010/11	Introduction to Econometrics (Econ 1123, undergraduate), Harvard University, Teaching Fellow for Professor James Stock
Spring 2010	Macroeconomic Policy in the Global Economy (Econ 1435, undergraduate), Harvard University, Teaching Fellow for Professor Emmanuel Farhi
Spring 2010/11	Quantitative Methods in Economics (Econ 1126, undergraduate), Harvard University, Teaching Fellow for Professor Gary Chamberlain

2003–2008	Calculus II/III (Math 142/143), Calculus IA/IIA (accelerated sequence) (Math 161/162), Linear Algebra with Differential Equations (Math 165), Linear Algebra (Math 235), Honors Calculus I/III/IV (Math 171Q/173Q/174Q), Fractals & Computer Graphics (Math 215), Theory of Numbers (Math 230), Point Set Topology (Math 240), (undergraduate), University of Rochester, Teaching Assistant
12/2009, 06–08/2006	Topics in Macroeconomics (graduate mini-course), Principles of Mathematical Analysis, Probability Theory, (undergraduate), Central University of Finance & Economics, Lecturer

Research Experience

2009–2012	Harvard University, Research Assistant for Professor Robert J. Barro
12/2008	Harvard University, Research Assistant for Professor Drew Fudenberg

Professional Activities

Referee	*Econometrica*, *Quarterly Journal of Economics*, *Journal of Applied Econometrics*
Presentations	MIT Department of Economics, 10/2013; MIT Sloan School of Management, 10/2013, 12/2012; China Economics & Management Academy, Central University of Finance & Economics, 07/2012; School of Economics, Peking University, 07/2012; School of Economics and Finance, The University of Hong Kong, 06/2012
Invited Participant	Conference in Econometrics: Partial Identification, Weak Identification, & Related Econometric Problems, Cowles Foundation for Research in Economics, Yale University, 06/2013; Mathematical Science Research Institute (MSRI) Summer Program in CR-Geometry: Complex Analysis Meets Real Geometry and Number Theory, MSRI, Berkeley, CA, 07/2005; MSRI Summer Program in Hyperplane Arrangements and Applications, University of Oregon, 08/2004

Honors, Scholarships, and Fellowships

2008–2013	Harvard University GSAS Fellowship
2009–2012	Bradley Fellowship
2003–2008	University of Rochester Teaching Fellowship
2000–2003	University Scholarship at Peking University

Publications

“On the Size Distribution of Macroeconomic Disasters” (with Robert J. Barro)
Econometrica, Vol. 79, No. 5 (September, 2011), 1567–1589.

Abstract. The coefficient of relative risk aversion is a key parameter for analyses of behavior toward risk, but good estimates of this parameter do not exist. A promising place for reliable estimation is rare macroeconomic disasters, which have a major influence on the equity premium. The premium depends on the probability and size distribution of disasters, gauged by proportionate declines in per capita consumption or GDP. Long-term national-accounts data for 36 countries provide a large sample of disasters of magnitude 10% or more. A power-law density provides a good fit to the size distribution, and the upper-tail exponent, α, is estimated to be around 4. A higher α signifies a thinner tail and, therefore, a lower equity premium, whereas a higher coefficient of relative risk aversion, γ, implies a higher premium. The premium is finite if $\alpha > \gamma$. The observed premium of 5% generates an estimated γ close to 3, with a 95% confidence interval of 2 to 4. The results are robust to uncertainty about the values of the disaster probability and the equity premium and can accommodate seemingly paradoxical situations in which the equity premium may appear to be infinite.

"Dual Step-size Explicit Numerical Integration Method and Applications" (with Dan Yang, et al.)
Proceedings of 2008 IEEE Power Engineering Society General Meeting—Conversion and Delivery of Electrical Energy in the 21st Century, Pittsburgh, PA, July 2008 (doi: 10.1109/PES.2008.4596126).

"A Decoupled Dynamical Simulation Method via Modal Partition" (with Dan Yang)
Proceedings of 2007 IEEE Power Engineering Society General Meeting, Tampa, FL, June 2007 (doi: 10.1109/PES.2007.385854).

Research Papers

"Rare Events and Long-Run Risks for Asset Prices: Empirical Identification and Evaluation"
(Job Market Paper)

Abstract. Rare events and long-run risks are two types of risks that have important effects on asset markets. There is a vast literature investigating them separately. In this study, I identify them simultaneously and evaluate their contributions in a unified framework. The proposed model is estimated using annual national-accounts data for 42 economies over 160 years (the Barro-Ursua macroeconomic data set), and employs a Bayesian Markov-Chain Monte-Carlo method incorporating conditional prior beliefs about the model's parameters. Empirical estimates disentangle discrete jumps in the levels of consumption and output and persistent smooth fluctuations in growth rates. Compared with previous rare-event models, the estimates for the disaster process (including disaster probability, size, and duration) are closer to the data. Using parameter values that match the risk-free rate and the market return, I calculate asset pricing statistics for the models of (a) rare events and long-run risks, (b) rare events, and (c) long-run risks. Major evaluation results include (1) for the unleveraged annual equity premium, the predicted values are 4.8%, 4.2%, and 1.0%, respectively; (2) for the Sharpe ratio, the values are 0.72, 0.66, and 0.15, respectively.

"Inference on Root Cancellation in ARMA Models through Weak Identification"

Abstract. This paper studies the estimation and testing of ARMA models with root cancellation using a new method called "global approach." To illustrate this approach, for the ARMA(1,1) case, we use it to propose a novel statistic for conducting joint tests on the AR (autoregressive) and MA (moving average) parameters. The statistic is straightforward to calculate and has a standard normal limiting distribution, which is asymptotically pivotal, and the test is robust to the full range of identification strengths. More generally, the global approach shows how the strength of identification of the parameters change with the sample size and the sum of the AR and MA parameters.

"Hierarchies of Beliefs for Possibility Models on any Topological Space of Basic Uncertainty" (with Paulo Barelli)

Abstract. In this paper, we address the question "Is it possible to represent interactive uncertainty with hierarchies of beliefs about beliefs, for any space of basic uncertainty?" We show that a positive answer can be obtained for certain choices of topologies on the hyperspace of closed or compact subsets. Furthermore, we characterize the general conditions for hierarchies of beliefs that allow the construction of "(co)universal beliefs space."

Research Papers in Progress

"International Comovement in Macroeconomic Aggregates" (with Andrea Stella)

"Rare Events with International Portfolio Diversification"

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Masters and Undergraduate Studies:

MBA, The University of Chicago Booth School of Business, *high honors*, 2007
AM, Statistics, Harvard University, 2002
AB, Applied Mathematics, Harvard University, *cum laude*, *Phi Beta Kappa*, 2002

Graduate Studies:

Harvard University, 2009 to present
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Thesis Title: "Essays in Financial Economics"
Expected Completion Date: June 2014

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Research and Teaching Fields:

Asset Pricing and Corporate Finance

Teaching Experience:

Fall, 2011	Capital Markets, Harvard College, Teaching Fellow for Professor Alp Simsek
Fall, 2007	Entrepreneurial Finance and Private Equity, The University of Chicago Booth School of Business, Teaching Assistant for Professor Scott Meadow
Fall, 2000	Linear Algebra, Harvard College, Course Assistant for Robert Winters

Research and Professional Experience:

2012-Present	Federal Reserve Bank of Atlanta, Visiting Scholar
2007-2009	Bain & Company, Consultant
2002-2005	Bain & Company, Associate Consultant and Senior Associate Consultant

Presentations:

2013	Federal Reserve Bank of Atlanta
2007	AQR Capital Management

Honors, Scholarships, and Fellowships:

2013	Martin Doctoral Research Award, Harvard Business School
2012	Bradley Fellowship, Harvard University
2005-2007	Merton H. Miller Distinguished Fellowship, The University of Chicago Booth School of Business

Research Papers:

"The Effect of Mortgage Securitization on Foreclosure and Modification" (Job Market Paper, 2013)

Abstract: Did securitization exacerbate the foreclosure crisis? I exploit the third quarter 2007 freeze of private mortgage securitization as an exogenous change in the probability of securitization for jumbo mortgages. The unanticipated freeze left banks holding mortgages that were intended for securitization at the time they were originated. Loans originated shortly before the freeze are similar to loans originated earlier in the year but were significantly less likely to be securitized. Using origination month as an instrument for securitization, I find that private securitization substantially increases foreclosure probability and decreases modification probability for delinquent loans. My estimates imply that over 500,000 of the 4.4 million foreclosures experienced since the start of the financial crisis were caused by securitization.

"Disagreement and Liquidity" (2013)

Abstract: Heavy, liquid trade of informationally sensitive securities is a puzzle for traditional models, which predict that asymmetric information should decrease trade and destroy liquidity. My empirical work deepens this puzzle by showing that trading of stocks, bonds, and options increases with asymmetric information. Additionally, trading and liquidity increase following high past returns. To resolve this puzzle, I propose a model in which trading is entirely generated by disagreement stemming from overconfident interpretation of private signals. The model predicts that overconfidence increases trading and enhances liquidity and that asymmetric information increases trading and can enhance liquidity. I also propose a more general model incorporating both disagreement and exogenous liquidity trading. The general model relates traditional intuition about asymmetric information destroying liquidity and trade to my new disagreement forces. Asymmetric information and overconfidence can at first destroy liquidity and then enhance it, potentially explaining why asymmetric information seems to destroy liquidity in money markets but not in informationally sensitive markets.

"Persistence in Mutual Fund Performance: Analysis of Holdings Returns" (2007)

Research in Progress:

"Is Real Interest Rate Risk Priced? Theory and Empirical Evidence" (with Alexander Chernyakov, 2013)

Abstract: We propose a model in which real interest rates respond to both expected consumption growth and time preferences. Exposures to future consumption growth and time preference interest rate shocks are both priced relative to the Capital Asset Pricing Model (CAPM) and the Consumption Capital Asset Pricing Model (CCAPM). However, the two types of interest rate risk have different prices, and when the elasticity of intertemporal substitution (EIS) is greater than one, the prices have opposite signs. Moreover, the premia for time preference risk are arbitrarily large when the EIS is close to 1. Empirically, real interest rate risk does not appear to be priced in the cross-section of stocks or across asset classes.

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Teaching and Research Fields:
Primary fields: Public Finance and Development Economics
Secondary fields: Political Economy and Applied Microeconomics

Teaching Experience:

Spring, 2011	Advanced Microeconomic Policy Analysis II, Harvard Kennedy School of Government, Teaching Fellow for Professor Asim Khwaja
Fall, 2010 and 2011	Culture Economics, Harvard University, Teaching Fellow for Professor Alberto Alesina
Fall, 2006	Microeconomics II, Catholic University of Rio de Janeiro, teaching assistant for Professor Vinicius Carrasco

Research Experience and Other Employment:

July 2007 – May 2008	World Bank *Office of the Chief Economist for Latin America and the Caribbean Region* Extended-term Consultant (Washington, DC)
April 2007 – June 2007	World Bank *Development Research Group* Short-term Consultant (Washington, DC)

Professional Activities

Referee activities: *Review of Economics and Statistics, The Journal of Economic History*, *Economia* (Brazil), *Economia Aplicada* (Brazil)

Seminars: *The Northeast Universities Development Consortium* (NEUDC) 2013, *The Political Economy Group* (PEG) – *Latin America and Caribbean Economic Association* (LACEA) 2007

Honors, Scholarships, and Fellowships:

Fellowships and research grants:

2013 – 2014	Pascucci Disseration Completion Fellowship, Harvard University
2012 – 2013	Lemann Fellowship, Harvard University
2011 – 2013	LEAP research grant, Harvard University
Fall, 2012	Taubman Fellowship, Harvard Kennedy School of Government
Summer, 2012	Travel Grant, David Rockefeller Center for Latin American Studies, Harvard University
2005 – 2006	M.A. Fellowship, National Research Council (CNPq), Brazil

Prizes:

September, 2012	PUC-Rio/BBM Prize (prize given for students that publish M.A. thesis in top academic journals)
November, 2009	BNDES Award (Brazil) – 3rd Prize (annual prize awarded to the best MA thesis in economics in Brazil)
November, 2007	IPEA- Caixa Award (Brazil) – 3rd Prize (annual prize awarded to the best research papers in economics in Brazil)

Publications:

"Institutional Development and Colonial Heritage within Brazil," with Rodrigo R. Soares and Juliano Assunção. *The Journal of Economic History*, 72 (2), pp 393-422, 2012.

"Understanding High Crime Rates in Latin America: The Role of Social and Policy Factors", with Rodrigo R. Soares. In: Rafael Di Tella, Sebastian Edwards, and Ernesto Schargrodsky (editors). *NBER Inter-American Seminar on Economics 2007*, NBER and University of Chicago Press.

Research Papers:

"Consumers as tax auditors" (Job Market Paper)

This paper uses quasi-experimental evidence to shed light on whether consumers can help governments monitor firms and collect taxes. I construct administrative datasets on monthly tax returns for over 1 million establishments, 40 million people, and 2.7 billion receipts from an anti-tax evasion program in the state of Sao Paulo, Brazil - *Nota Fiscal Paulista* (NFP) -- that gives monetary incentives to final consumers to ask for receipts. I exploit variation in treatment intensity across sectors to evaluate the effects of using consumers to monitor firms. I estimate that the NFP program increased the revenue reported in retail by at least 23% over four years. I find no effects on exit rates or formal employment decisions as a result of the rise in enforcement. The estimated effect of the program is stronger for sectors with a high volume of transactions and small receipt values, consistent with a model in which there are fixed costs to negotiate collusive deals to avoid issuing receipts. Furthermore, the effect of the program has an inverted-U shape with respect to establishment size. This result is consistent with a model of higher baseline compliance among larger firms, and in which shifts in audit probability from consumer-monitoring increase in firm size. Additionally, I exploit lottery rewards to show that consumers condition their participation on past lottery wins, and respond to increases in the expected rewards of the program. The evidence is consistent with the possibility that lotteries amplify consumer responses due to behavioral biases. Finally, I discuss the cost effectiveness of the rewards program and implications for tax policy.

Work in Progress:

"Tax enforcement, Liquidity Constraints and Firm Size Distribution: Evidence from Brazil", with Gabriel Ulyssea

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Teaching and Research Fields:
Finance, Public Economics, Urban Economics

Teaching Experience:

Fall 2012	Intermediate Microeconomics (undergraduate), Head TA for Professor Edward Glaeser

Honors, Fellowships and Grants:

2012-2013	Bradley Fellowship
2011	Price Theory Scholar, Becker-Friedman Institute at University of Chicago
2010-2011	Graduate Fellow, Federal Reserve Bank of Boston
2010	Alfred P. Sloan Foundation Research Grant (with E. Glen Weyl)
2010-2013	NSF Graduate Research Fellowship

Working Papers:

"Arrested Development: Theory and Evidence of Supply-Side Speculation in the Housing Market", with Eric Zwick **[JOB MARKET PAPER]**

Abstract: This paper incorporates speculation into the standard supply-and-demand framework used to analyze housing booms and busts. Speculation reverses the common intuition that elastic housing supply attenuates housing booms. Frictions in the housing market make land a more attractive speculative investment than housing. Land availability both facilitates house construction and intensifies speculation that causes booms and busts in house prices. This insight allows us to explain the frequent and puzzling housing booms and busts that coincide with high construction activity (e.g. Las Vegas, 2000-2010). We show that these episodes are most likely to occur when a housing market is near but not yet at a long-run development constraint. Consistent with the recent U.S. housing experience, our model predicts higher price volatility in neighborhoods where housing can be rented more easily. We discuss which conclusions from the asset pricing literature on speculation fail to hold in the housing market due to its unique frictions.

"Housing Dynamics", with Edward L. Glaeser, Joseph Gyourko, and Eduardo Morales. R&R, *Journal of Urban Economics*.

Abstract: The volatility of housing prices and construction levels is high. Both price changes and permits exhibit strong positive serial correlations at one year frequencies. Prices, but not permits, show strong mean reversion over five year periods. Can these facts be reconciled with a dynamic housing model, where in the tradition of Rosen and Roback, prices reflect the value of access to an area's income and amenities? We calibrate a dynamic spatial equilibrium model and find that it can fit some, but far from all, of the key empirical features of America's housing markets. Long-run mean reversion is compatible with the model, but short-term positive price change persistence is not. Highly volatile prices and construction are compatible with the model if local wage levels follow close to a random walk, but not if there is more mean reversion in wages. Using HMDA income data allows our model to match most observed housing market volatility, but using BEA income data does not.

"Taxation and the Allocation of Talent", with Benjamin Lockwood and E. Glen Weyl. *Under Review.*

Abstract: Taxation affects the allocation of talented individuals by blunting material incentives and thus relatively magnifying the non-pecuniary benefits of pursuing a "calling." If higher-paying professions (e.g. finance and management) generate less positive net externalities than lower-paying professions (e.g. public service and education) income taxation may enhance efficiency. We develop a theory of optimal non-linear income taxation as implicit Pigouvian taxation of these externalities and calibrate it using data on the distribution of income and talent across industries. Even without any redistributive motive, tax rates are highly sensitive to the externalities assumed within a spectrum many would consider reasonable: they range from negative and moderately regressive to extremely high and progressive. Our theory thus offers an alternative, pure efficiency rationale for non-linear income taxation, challenging the connection between high long-run labor supply elasticities and low optimal tax rates and motivating further study of the externalities generated by professions.

Publications:

"Calculating Evolutionary Dynamics in Structured Populations", with Corina E. Tarnita and Martin A. Nowak. *PLOS Computational Biology* 5(12), 2009

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Master in Public Administration in International Development (MPA-ID), Harvard University, 2008

Doctoral Studies
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Teaching and Research Fields
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Teaching fields: Public Economics, Labor Economics, Political Economy, Microeconomic Theory

Teaching Experience (Harvard University)

Spring 2011, 2012	Sophomore Tutorial (Ec970), "Inequality, Justice and Economics"
Fall 2010, 2011	(Graduate) Public Economics (Ec2450A), Teaching Fellow for Raj Chetty and Jeffrey Liebman
Fall 2010	Microeconomic Theory (Ec1011a), Teaching Fellow for Edward Glaeser
Spring 2008	(Graduate) The Economics of Health and Development (Ec1389), Teaching Fellow for Amitabh Chandra and Erica Field

Teaching Experience (Non-Harvard University)

Spring 2005	Lecturer of "Introduction to Econometrics", Kabul University
Fall 2003	"Applied Statistics", Teaching Fellow, University Paris 1-Sorbonne

Research Experience and Other Employment

Summer 2007	NBER, Research Assistant for Ben Olken and Monica Singhal
2004-6	Altai Consulting, Afghanistan, Project Manager/Manager of Data Department
Summer 2003	National Institute for Statistics and Economic Studies (INSEE)

Professional Activities

Referee: Quarterly Journal of Economics, Economica

Honors, Scholarships, and Fellowships

2013	Lab for Economic Applications and Policy (LEAP) Research Grant
2012-13	Harvard Dissertation Completion Fellowship
2011	Bradley Foundation Award
2006-8	Merit scholarship of Harvard Kennedy School
2000	Third prize in the International Mathematics Competition
1999	Silver medal in the National Mathematics Olympiad, Iran

Publications

"Immigrants' Labor Supply and Exchange Rate Volatility", *American Economic Journal: Applied Economics* 5(4): 144-64, 2013.

Are an immigrant's decisions affected in real time by her home country's economy? I examine this question by exploiting exchange rate variations as exogenous price shocks to immigrants' budget constraints. I find that in response to a 10 percent dollar appreciation, an immigrant decreases her earnings by 0.92 percent, mainly by reducing hours worked. The exchange rate effect is greater for recent immigrants, married immigrants with absent spouses, Mexicans close to the border, and immigrants from countries with higher remittance flows. A neoclassical interpretation of these findings suggests that the income effect exceeds the cross-substitution effect. Remittance targets offer an alternative explanation.

Job Market Paper

"Does Extending Unemployment Benefits Improve Job Quality?" (with Andrea Weber)

Contrary to the predictions of standard reservation-wage search models, empirical studies consistently find that an extension of unemployment insurance (UI) increases unemployment duration without improving subsequent wages. Our paper addresses this puzzle in two steps. First, using administrative data from Austria and an age-based regression discontinuity design, we show that an extension of UI eligibility by nine weeks increases the average reemployment wage by a statistically significant 0.5%. The magnitude of this effect is consistent with the behavior of an optimizing agent since higher wages in the new job tend to persist for a long time. We find that the impact of UI extension on both durations and reemployment wages is much larger for individuals with a high ex-ante likelihood of benefit exhaustion. The effects are also larger during local industry-specific downturns. Second, we show both theoretically and empirically that the impact of UI extensions on expected wage rates may be small because of two off-setting forces: an increase in reservation wages, which raises wage rates, and a decline in job opportunity over the unemployment spell, which lowers wage rates as individuals spend more time searching. Together, these results show that UI does have an economically significant impact on job quality consistent with standard theoretical predictions. Connecting these results to a normative model of optimal UI, we show that this effect raises the welfare gains from UI through a fiscal externality: more generous UI increases future tax revenue through higher wages. This positive fiscal externality is of the same order of magnitude as the traditional negative moral-hazard externality emphasized in prior work. These results suggest that taking gains in job match quality into account could significantly increase the optimal generosity of UI.

Research in Progress

"Unemployment, Temporary Layoffs, and Firms" (with Andrea Weber)

"Gains from Optimal Non-linear Income Taxation"

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Born in Argentina on December 22, 1983. Married. Children: Alma (2007) and Nicolas (2012).

Education:

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M.A., Economics, Universidad de San Andres, 2007.

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Teaching and Research Fields:

Primary Field: Public Economics.
Secondary Fields: Behavioral Economics, Political Economy, Macroeconomics.

Teaching Experience:

2013-2014	Harvard, Undergraduate: Senior Thesis Tutorial.
2011-2012	Harvard, Graduate: Macroeconomics (teaching fellow for Robert Barro). Harvard, Undergraduate: Sophomore Tutorial in Social Economics; Religion and Political Economy (teaching fellow for Robert Barro).
2010-2011	Harvard, Graduate: Macroeconomics (teaching fellow for Robert Barro). Harvard, Undergraduate: Sophomore Tutorial in Social Economics.
2009-2010	Harvard, Graduate: Macroeconomics (teaching fellow for Robert Barro). Harvard, Undergraduate: Sophomore Tutorial in Political Economy.

2006-2008	Universidad de San Andres, Undergraduate: Public Economics, Applied Economics, Game Theory, Markets and Financial Intermediation, Labor Economics, Industrial Organization, Microeconomics, Introduction to Economics. Graduate: Recursive Methods in Economics. Buenos Aires Institute of Technology, Graduate: Economics and Regulation.

Other Employment:

2011-2014	Dunster House, Harvard College: Resident Tutor and Sophomore Advisor.
2013	External Consultant for The World Bank.

Congresses and Presentations:

2013	University of Illinois at Urbana-Champaign; Universidad de San Andres.
2012	Brown University; Association for the Study of Religion, Economics and Culture; Russian Summer School on Institutional Analysis.
2011	Political Economy of Religion Seminar Series, Harvard University; Boston University.

Refereeing for: Quarterly Journal of Economics; Journal of Public Economics; Journal of Socio-Economics; Journal of Economic Behavior & Organization.

Honors, Fellowships and Grants:

2011, 2012	Harvard University: Certificate of Distinction in Teaching.
2010-2014	Institute for Humane Studies: Humane Studies Fellowship.
2008-2010	Harvard University: Graduate School of Arts and Sciences Fellowship.
2012	Harvard University: Warburg Grant; LEAP Grant.
2011	Russell Sage: Behavioral Economics Roundtable Grant. Harvard University: Warburg Grant; LEAP Grant.
2010	Harvard University: James Souverine Gall 27' Memorial Fellowship; Bradley Fellowship; Simon Kuznets Grant; Warburg Grant; LEAP Grant.
2007-2008	Fulbright Commission: Argentine Young Leader. Argentinean Association of Political Economy: prize for best economics researcher under 30 years old.
2002-2006	Universidad de San Andres: scholarship "Argentine Mathematical Olympiad" for undergraduate studies; scholarship for graduate studies.

Publications:

Cruces, G.; Perez-Truglia, R. and Tetaz, M. (2013), "Biased Perceptions of Income Distribution and Preferences for Redistribution: Evidence from a Survey Experiment," *Journal of Public Economics*, Vol. 98, pp. 100-112.

Galiani, S. and Perez-Truglia, R. (2013), "School Management in Developing Countries" in P. Glewwe (Ed.), Education Policy in Developing Countries. Chicago: *University of Chicago Press*.

Perez-Truglia, R. (2013), "A Test of the Conspicuous-Consumption Model Using Subjective Well-Being Data" *Journal of Socio-Economics*, Vol. 45, pp. 146–154.

Perez-Truglia, R. (2012), "On the Causes and Consequences of Hedonic Adaptation" *Journal of Economic Psychology*, Vol. 33, pp. 1182-1192.

Bottan, N. and Perez-Truglia, R. (2011), "Deconstructing the Hedonic Treadmill" *Journal of Socio-Economics*, Vol. 40, pp. 224-236.

Selected Working Papers:

Job Market Paper: Perez-Truglia, R. and Cruces, G. (2013), "Social Incentives in Contributions: Field Experiment Evidence from the 2012 U.S. Presidential Campaigns"

Abstract: This paper provides new evidence on the mechanisms through which social incentives operate based on a field experiment with contributors to the 2012 U.S. presidential campaigns. We sent letters with individualized information to 91,908 contributors and measure how those letters affected the recipients' subsequent contributions using administrative data. We find that exogenously making the recipients' contributions more visible to their neighbors significantly increased (respectively, decreased) subsequent contributions when the majority (respectively, minority) of neighbors supported the recipients' party. This is evidence that contributions act as a signal of party affiliation. We also induced non-deceptive exogenous variation in the information observed by the recipient about the contribution behavior of others in her area. Consistent with social norms, individuals contribute more when neighbors of the same party contribute higher average amounts. We also find evidence of moral free-riding: i.e., individuals contribute substantially less if their own party is raising more money than the opposite party. We complement the experimental results with quasi-experimental evidence from an event-study of residential mobility including nearly 100,000 contributors. Consistent with the experimental evidence, an individual's contribution is significantly affected by the political composition in her reference group. Indeed, these reference-group effects can explain about 20% of the observed geographic polarization in contributions in the U.S. We discuss the implications of the findings for fundraising strategies and for the design of optimal disclosure policies.

Bottan, N. and Perez-Truglia, R. (2013), "Religious Congregations and the Provision of Social Services in the U.S.: Lessons from an Event-Study Analysis of the Catholic-Clergy Scandals" *Submitted*

Abstract: This paper provides new evidence on the importance of religious congregations for financing and providing social services in the U.S. In order to disentangle the direction of causality, we study how the Catholic-clergy sexual abuse scandals affected the social sector in the United States. In order to estimate the causal effects of the scandals, we exploit the fine distribution of the scandals over space and time by means of an event-study analysis. We find that the scandals caused a long-lasting decline in religious congregations, charitable contributions and the provision of social services. However, the scandals did not affect religious beliefs and they did not affect alternative forms of pro-social behavior. This evidence is consistent with the hypothesis that religious participation increases charitable giving. However, the evidence suggests that the effect of religious congregations may operate mainly through social mechanisms (e.g., solicitation, social pressure) rather than through religious beliefs.

Cavallo, A.; Cruces, G. and Perez-Truglia, R. (2013), "Inflation Expectations, Learning and Supermarket Prices: Evidence from Field Experiments" *Working Paper*

Abstract: We use a series of field experiments with over 10,000 subjects conducted in a low-inflation country (U.S.) and a high-inflation country (Argentina) to study how individuals form inflation expectations. Individuals incorporate information related to inflation in a way that is strongly consistent with the rational learning model. However, even when the information on inflation statistics is readily available, individuals give significant weight to other (less reliable) types of information. We conducted a survey experiment at a supermarket that combines information on the individual's purchases and historical prices for the products purchased. Individuals put significant weight on information about their own memories about historical supermarket prices, even though those memories are extremely unreliable. This suggests that individuals may not understand the trustworthiness, representativeness and precision of inflation statistics. We discuss the implications of these findings for macroeconomic policy-making.

Perez-Truglia, R. (2012), "Measuring the Market Value of Non-Market Goods: the Case of Conspicuous Consumption" *Working Paper*

Abstract: People buy market goods (e.g., clothing) to signal their wealth and then increase the probability of obtaining some non-market goods (e.g., admiration). We exploit that relationship to measure the market value of those non-market goods with a revealed-preference approach. We estimate a signaling model using nationally representative data on expenditures in the US. We use the estimates to perform welfare and counterfactual analysis. The evidence suggests that the signaling mechanism is a fairly efficient allocation mechanism because it attains almost 90% of the full potential benefits from non-market goods. We also compute the non-linear luxury tax that would correct the positional externality.

Drenik, A. and Perez-Truglia, R. (2013), "Redistributive Public Employment: A Time-Inconsistency Dilemma" *Submitted*

Abstract: This paper explores why governments may be interested in using public employment as a tool for income redistribution and how the availability of this tool may affect equilibrium outcomes. We model a benevolent government with fairness concerns that prioritizes the well being of individuals who exerted greater effort. This government is tempted to introduce work requirements because of its screening capabilities, allowing for a better distinction between individuals who exerted greater effort and individuals who did not. We show that a time inconsistency problem arises. When the government lacks commitment power, the availability of screening through work requirements aggravates the moral hazard problem associated with redistribution, leading to lower equilibrium effort and, possibly, a Pareto-dominated allocation.

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Teaching and Research Fields: Labor Economics, Urban Economics, Public Finance

Teaching Experience:

Fall 2012-Spring 2013; Fall 2011; Fall 2009-Spring 2010	Principles of Economics (Economics 10), Harvard University Teaching Fellow for Gregory Mankiw

Research Experience and Other Employment:

May 2007-May 2009	Harvard University, Research Assistant for Edward Glaeser
July 2005-August 2007	The Urban Institute, Research Assistant in the Income and Benefits Policy Center

Honors, Scholarships, and Fellowships:

2009-present	NSF-IGERT Doctoral Fellow, Multi-Disciplinary Fellow in Inequality and Social Policy
2007-2009	Harvard University Graduate Fellowship
2007	National Science Foundation Graduate Research Fellowship, Honorable Mention

Refereeing Service: *Journal of Urban Economics, Journal of Public Economics, Journal of Regional Science*

Publications:

"Inequality in Cities" with Edward L. Glaeser and Kristina Tobio, *Journal of Regional Science*, 2009, 49(4): 617-646

"The Complementarity Between Cities and Skills" with Edward L. Glaeser, *Journal of Regional Science*, 2010, 50(1): 221-244

"Job Demands and Work Ability at Older Ages" with Richard W. Johnson and Gordon Mermin, *Journal of Aging and Social Policy*, 2011, 23(2): 101-118

Research Papers

"The Impact of Land Use Regulation on Residential Segregation: Evidence from Massachusetts Zoning Borders" (Job Market Paper)

Restrictions on permitting of multi-family housing and minimum lot size restrictions, termed "exclusionary zoning" may exacerbate racial segregation by reducing the construction in some neighborhoods of units that appeal to minority households. While this issue has long been of interest to social scientists, the lack of uniform data covering the entire scope of local housing markets has made inference difficult. Using fine-grained geographic data on zoning regulations in Masschusetts, I investigate the importance of this hypothesis in explaining racial segregation in the state's metropolitan areas. To reduce omitted variable bias I focus on differences in racial composition by block along zone borders where land use restrictions differ within jurisdictions. I show that indeed a substantial portion of racial segregation can be attributed to exclusionary zoning regulations, particularly the restriction of multi-family housing construction. I further discuss suggestive evidence on the mechanisms through which these results emerge, and address identification concerns that arise in designs of this type.

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Undergraduate Studies:
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Graduate Studies:
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Thesis Title: "The Productivity Costs of Low Caloric Intake"
Expected Completion Date: May 2014

Harvard School of Public Health, 2005-2007
M.S., Department of Population and International Health
Thesis Title: "Message Hijacking: How Public Health Messages Can Backfire"

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Teaching and Research Fields:
Development, behavioral, health

Teaching Experience:

Fall, 2006	Population and International Health 272: Foundations of Global Population and Health. Harvard School of Public Health. Teaching Fellow for Prof. David Bloom, Harvard School of Public Health.
Spring, 2007	Population and International Health 506: Measuring Population Health. Harvard School of Public Health. Teaching Fellow for Prof. Josh Salomon, Harvard School of Public Health.
Spring, 2007	Antares Seminar. Harvard School of Public Health and Harvard Business School joint seminar. Teaching Fellow for Prof. Michael Chu and Prof. David Bloom.

Research Experience:

2007-2008	Carnegie Mellon University. Prof. George Loewenstein and Prof. Kevin Volpp (University of Pennsylvania, Wharton), Research Assistant
2007-2008	Harvard Business School. Prof. Nava Ashraf, Research Assistant.
2005-2007	Harvard School of Public Health. Prof. David Canning, Research Assistant.
2005-2008	Harvard School of Public Health. Prof. David Bloom and Prof. Michael Chu, (Harvard Business School), Research Assistant.

Professional Activities:

Conference and Seminar Presentations

"The Productivity Costs of Low Caloric Intake." Northeast Universities Development Consortium Conference (NEUDC). Harvard University. November, 2013.

"The Productivity Costs of Low Caloric Intake." Harvard/MIT Development Seminar. Harvard University. October, 2013.

"Comparing the Effectiveness of Individualistic, Altruistic and Competitive Incentives in Motivating Completion of Mental Exercises." American Society of Health Economists Conference. University of Minnesota. June, 2012.

"Message Hijacking: How Public Health Messages Can Backfire." Beyond Health Insurance: Public Policy to Improve Health. University of Illinois at Chicago. November, 2007.

Honors, Fellowships, and Grants:

2013	Roger Martin Award for Excellence in Business Economics Research, Harvard Business School
2013	Mind Brain Behavior Interfaculty Initiative, $50,000 for "The Impact of Increased Caloric Intake on Cognitive Function, Labor Supply, and Earnings." Collaborator, with Sendhil Mullainathan and Todd Rogers
2013	Program on the Global Demography of Aging, $50,000 for "The Impact of Increased Caloric Intake on Cognitive Function, Labor Supply, and Earnings." Co-PI with Sendhil Mullainathan
2013	Program on the Global Demography of Aging, $24,900 for "The Impact of Physical Pain on Productivity, Cognitive Function, and Decision-making." Co-PI with Frank Schilbach, Sendhil Mullainathan, and Anuj Shah
2008-2014	Harvard University Graduate Fellowship
2007	Harvard School of Public Health Department of Population and International Health Thesis Prize
2006-2007	Jacob K. Javits Fellowship Commended Scholar
2005-2006	Thomas E. Upham Harvard Class of 1868 Merit Scholarship
2005-2006	NCAA Postgraduate Merit Scholarship

Research Papers:

"The Productivity Costs of Low Caloric Intake" (Job Market Paper)

Abstract: This paper presents two novel analyses which find that changes in caloric intake result in substantial and broadly generalizable changes in productivity among malnourished adults in India. The first draws on a five-week randomized controlled trial among cycle-rickshaw drivers in Chennai, India in which half of the participants received an additional 700 calories per day. Treated individuals showed significant improvements in both physical and cognitive experimental tasks and increased labor supply and income by approximately 10 percent by the final week. The second

analysis examines the impact of fasting during Ramadan on agricultural production using a triple-difference approach exploiting variation in the timing of cropping cycles between and within districts as well as Ramadan's movement throughout the calendar year. This study finds that overlap between Ramadan and cropping cycles results in declines in production which correspond to a 20 to 40 percent decrease in productivity per fasting individual. Multiple sources of evidence suggest that production declines are driven by reduced caloric intake rather than by other behavioral changes during Ramadan. The estimated return to investment in additional calories is positive, with point estimates of 65 percent over six months in the randomized trial and 350 percent over one month during Ramadan fasting. Given substantial evidence that the traditionally hypothesized liquidity constraints do not meaningfully limit caloric consumption, the low caloric intake of the majority of Indian adults presents a puzzle in light of the high estimated returns. Responses from an incentivized survey suggest that inaccurate beliefs about both the returns to calories and cost-effective methods of increasing caloric intake may play a role in constraining caloric intake.

"Comparing the Effectiveness of Individualistic, Altruistic, and Competitive Incentives in Motivating Completion of Mental Exercises" (With George Lowenstein and Kevin Volpp), *Submitted.*

Abstract: This study examines the impact of individually oriented, purely altruistic, and a hybrid of competitive and cooperative monetary reward incentives on older adults' completion of cognitive exercises. All three incentive structures approximately doubled the number of exercises completed during a six-week active experimental period relative to a no incentive control condition. However, compared to the control and individually oriented conditions, the altruistic and cooperative/competitive conditions led to different patterns of participation, with significantly higher inter-partner correlations in utilization of the software, as well as greater persistence once incentives were removed. Provision of all incentives significantly improved performance on the incentivized exercises, but not on an independent cognitive testing battery.

"Matching Of Deposits Did Not Increase Participation In Deposit Contracts To Promote Weight Loss Among Obese Employees, But Other Strategies Might Enhance Engagement" (With Jeffrey Kullgren, Andrea Troxel, George Loewenstein, Laurie Norton, Dana Gatto, Yuanyuan Tao, Jingsan Zhu, Judy Shea, David Asch, Thomas Pellathy, Jay Drigger, and Kevin Volpp), *Submitted.*

Abstract: Deposit contracts are behavioral economic devices that have shown promise in promoting healthy behaviors, but participation among individuals who could benefit is often low. We conducted a randomized trial at a large employer to test whether matching the deposits of obese employees could increase their participation in deposit contracts designed to promote weight loss as well as impact weight loss. Overall, 29.3 percent of participants in a deposit contract arm made at least one deposit. But, there were no significant differences in participation rates across the 3 deposit contract arms. After 24 weeks, control arm participants gained an average of 1.0 lb, compared to mean weight losses of 4.3 lbs ($P = .03$) in the no match arm, 5.3 lbs ($P = .005$) in the 1:1 match arm, and 2.3 lbs ($P = .29$) in the 2:1 match arm. 12 weeks after the interventions ended, control arm participants gained an average of 2.1 lbs from baseline, compared to mean weight losses of 5.1 lbs ($P = .008$) in the no match arm, 3.6 lbs ($P = .02$) in the 1:1 match arm, and 2.8 lbs ($P = .12$) in the 2:1 match arm. Greater weight loss in the deposit contract arms may, however, have been caused by automated feedback the employees received through the program.

Research in Progress:

"Nutrition Knowledge: Can Beliefs about Nutrition Change Caloric Intake, Cognitive Function, Labor Supply, and Earnings?" (With Sendhil Mullainathan)

"Chronic Pain in the Developing World and its Impact on Productivity and Cognitive Function" (With Frank Schilbach, Sendhil Mullainathan, and Anuj Shah)

"Structural Facilitation: Small Structural Changes Can Lead to Unexpectedly Large Behavior Shifts" (With Todd Rogers and Sendhil Mullainathan)

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Undergraduate Studies:
University of California, Berkeley, 2004-2008
BA, Highest Distinction in General Scholarship, 2008
Major: Economics (Highest Honors); Second Major: Mathematics, Applied

Graduate Studies:
Harvard University, 2008 to present
Ph.D. Candidate in Economics
Thesis Title: "*Essays on Gender, Intra-Household Allocation and Development*"
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Teaching and Research Fields:
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Teaching Experience:

Spring 2012	Economic Development: Theory, Policy and Evidence (graduate), Kennedy School of Government, Teaching Fellow for Professors Dani Rodrik and Rohini Pande
Fall 2011	Intermediate Microeconomics (undergraduate), Harvard University, Teaching

	Fellow for Professor Jeffrey Miron
Spring 2011	Economic Development: Theory, Policy and Evidence (graduate), Kennedy School of Government, Teaching Fellow for Professors Dani Rodrik and Rema Hanna
July 2010	Executive Education Program, Teaching Assistant for The Abdul Latif Jameel Poverty Action Lab
Spring 2008	Economic Demography (undergraduate), University of California, Berkeley, Head Undergraduate Grader for Professor Ronald Lee

Research Experience and Other Employment:

2009 - 2010	Research Assistant supervising fieldwork in India and working with research data in Cambridge for Professor Rohini Pande, Harvard Kennedy School of Government
2006 - 2008	Research Assistant on projects in behavioral economics for Professor Stefano DellaVigna, University of California, Berkeley

Professional Activities:

Seminars: *The Northeast Universities Development Consortium* (NEUDC) 2013

Honors, Scholarships, and Fellowships:

2013	Harvard Center for Population and Development Studies Seed Grant
2013	Weiss Family Funds
2012 – 2013	Roger L. Martin Cornerstone Graduate Student Fellowship Fund
2010, 2012	LEAP Funds Award, Department of Economics, Harvard University
2010, 2012	Women and Public Policy Program's Cultural Bridge Fellowship
2012	Research Grant, South Asia Initiative
2010 – 2011	Research Grant, Institute of Quantitative Social Sciences, Harvard University
2010 – 2011	Warburg Funds Award, Department of Economics, Harvard University
2009 – 2010	Government of India Fellowship
2008 – 2013	Harvard Fellowship for graduate studies and Harvard Summer Fellowship
2008	University Medal Finalist, University of California, Berkeley
2007 – present	Phi Beta Kappa - Academic Honor Society

Publications:

Pande R, Cole S, Sivasankaran A, Bastian G, Durlacher K (2012) Does poor people's access to formal banking services raise their incomes? EPPI-Centre, Social Science Research Unit, Institute of Education, University of London

Research Papers in Progress:

"Work and Women's Marriage, Fertility and Empowerment: Evidence from Textile Mill Employment in India" (Job Market Paper)

Women in developing countries are starting to join the work-force in greater numbers and it has been argued that such exposure can lead to improved outcomes for women. This paper examines whether longer tenure in the formal sector affects female empowerment, marriage and fertility decisions. I exploit plausibly exogenous variation in duration worked from a natural experiment created by a large Indian textile firm's decision to replace fixed-term contracts with daily employment contracts. Using administrative data from the firm, I find that the more time women were exposed to a fixed-term contract, the longer they stayed in the formal labor market. Surveying workers about 4.5 years after they first entered the textile industry, I find that the women who worked longer delayed marriage, without any detrimental effect on eventual spousal quality in equilibrium. More time spent working translates to reductions in desired fertility and to increases in female empowerment and autonomy. This has strong spillover effects within the family, as age of marriage increases for younger sisters and school dropout rates decrease for younger brothers. These findings provide new information on the impact of duration of employment outside the parental village for young women in rural areas.

"How does Child Labor respond to changes in Adult Work Opportunities? Evidence from NREGA"
(with Mahnaz Islam)
This paper studies the impact of the National Rural Employment Guarantee Act (NREGA) in India on schooling and employment outcomes for children. We use several rounds of nationally representative cross-sectional data and panel data for three states from the National Sample Survey (NSS) in India. The NREGA offers 100 days of guaranteed work to rural households with the intention to help households smooth consumption during lean agricultural seasons. NREGA work can only be taken up by adults. Providing employment opportunities to households can affect intra-household allocation of time and resources by changing income and bargaining power. We use the phased roll out of NREGA to different districts and measure the difference-in-difference between districts that received the program early relative to those that received it later. In our analysis we look at the impact on children when adults take-up NREGA work. On one hand, additional income in the household can increase resources spent on children's education and reduce child labor. However, if wages in the economy increase or adults take-up new jobs child labor could increase. Our results show an increase in time spent on education for younger children and an increase in time spent working outside the household for older children. We also find households shifting away from working in household enterprises, predominantly agricultural activities in our sample.

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Expected Completion Date: May 2014

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Teaching and Research Fields:
Primary Field: Macroeconomics
Secondary Field: Time Series Econometrics

Teaching Experience:

Fall 2011 & 2010	*Economic Theory* (graduate macroeconomics), Harvard University Teaching Fellow for Professor David Laibson
Spring 2011	*Corporate Finance* (undergraduate), Harvard University Teaching Fellow for Professor Elias Papaioannou

Research Experience and Other Employment:

Summer 2011	Harvard University, Research Assistant to Professor Diego Comin
2010 – 2011	Harvard University, Research Assistant to Professor Gita Gopinath
Summer 2009	Harvard University, Research Assistant to Professor Ariel Pakes
2006 – 2008	Federal Reserve Bank of Boston, Senior Research Assistant to Giovanni Olivei
Fall 2006	New York University, Research Assistant to Professor Anne-Laure Sellier

Professional Activities:
Referee: *Econometrica, Quarterly Journal of Economics*

Honors, Scholarships, and Fellowships:

2012 – 2013	Roger L. Martin Cornerstone Graduate Student Fellowship
2010 – 2012	Rita Ricardo-Campbell Fellowship in Economics
Fall 2011	Harvard University Certificate of Distinction in Teaching
2008 – 2010	Harvard University Graduate Fellowship
2009	National Science Foundation Graduate Research Fellowship Honorable Mention

Job Market Paper:
"Uncertainty and the Signaling Channel of Monetary Policy"
This paper studies optimal monetary policy in an environment where policy actions provide a signal of economic fundamentals to imperfectly informed agents. I derive the optimal discretionary policy in closed form and show that, in contrast to the perfect information case, the signaling channel leads the policymaker to be tougher on inflation. The strength of the signaling effect of policy depends on relative uncertainty levels. As the signaling effect strengthens, the optimal policy under discretion approaches that under commitment to a forward-looking linear rule, thereby decreasing the stabilization bias. This contributes to the central bank finding it optimal to withhold its additional information from private agents. Under a general linear policy rule, inflation and output forecasts can respond positively to a positive interest rate surprise when the signaling channel is strong. This positive response is the opposite of what standard perfect information New Keynesian models predict and it matches empirical patterns found by Romer and Romer (2000) and Campbell et. al. (2012). In addition, I substantiate the existence of a signaling channel by providing new empirical evidence supporting the predicted interaction between uncertainty and the responses of inflation forecasts to interest rate surprises.

Publications:
"*A Principal Components Approach to Estimating Labor Market Pressure and Its Implications for Inflation*" (with Michelle Barnes, Ryan Chahrour, and Giovanni Olivei). Federal Reserve Bank of Boston Public Policy Brief No. 07-2.

Working Papers:
"*An Exact Approximation for Dynamic Stochastic Models*" (with Brock Mendel).

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Teaching and Research Fields:
Behavioral Economics, Experimental Economics, Microeconomic Theory

Teaching Experience:
Spring, 2010 — Econ 2030 *Psychology and Economics*, Teaching Fellow for Professors David Laibson, Sendhil Mullainathan, and Andrei Shleifer

Research Experience and Other Employment:
2005-2009 — Research Assistant for Professor David Laibson, Harvard University

Professional Activities
Referee: *Quarterly Journal of Economics, Economic Theory, B.E. Journal of Theoretical Economics, Journal of Environmental Economics and Management, Preventive Medicine, Theoretical Economics*

Honors, Scholarships, and Fellowships:

2012	Roger Martin Award for Excellence in Business Economics, Harvard Business School
2012	“Using Behavioral Economics to Promote Medication Adherence and Habit Formation” (with Judd Kessler and Eric Zwick): Total $159,400 Robert Wood Johnson Foundation’s Pioneer Portfolio and the Donaghue Foundation ($100,000); Sub-award from Laibson/Madrian ($39,000); Lab for Economic Applications and Policy at Harvard ($12,000); Penn-CMU Roybal Grant ($8,400)
2012	Harvard Law School PON Grant (with Holger Herz): Total $1,000
2009-2012	National Science Foundation Research Fellowship
2009-	Beinecke Scholar

Publications:

“Energy Policy with Externalities and Internalities” *Forthcoming, Journal of Public Economics* (with Hunt Allcott and Sendhil Mullainathan)

"Network Architecture and the Left-Right Spectrum." Art. 1. *B.E. Journal of Theoretical Economics, Contributions* 11 (2011).

"The allocation of time in decision making." (with Chris Chabris, David Laibson, Carrie Morris, Jonathon Schuldt) *Journal of the European Economic Association* 7, nos. 2-3 (April 2009): 628-637.

"Individual laboratory-measured discount rates predict field behavior." (with Chris Chabris, David Laibson, Carrie Morris, Jonathon Schuldt) *Journal of Risk and Uncertainty* 37, no. 2 (2008): 237-269.

Working Papers:

“From Intentions to Actions: A Model and Experimental Evidence of Inattentive Choice” (Job Market Paper)

Abstract: A growing body of evidence suggests that people's inattention may be a significant friction in domains of behavior ranging from medical compliance, to financial decisions, to residential energy use. In this paper, I present a psychologically grounded model of *inattentive choice* and investigate its implications for dynamic decisions. The model explains seemingly puzzling patterns of consumer behavior, makes novel predictions that I confirm in two experiments, and generates a rich set of market implications. Applied to repeated actions, the model provides an attention-based foundation for the formation of “good” habits in domains such as exercise or energy use. The model explains the recent evidence on the intertemporal spillover effects of temporary incentives, and makes testable predictions about when attention-focusing cues, such as reminders, will dampen or amplify the effects of incentives. Consistent with these predictions, the first experiment reported in this paper shows that while temporary interruptions to daily routines decrease subsequent performance of the behavior, reminders have the largest impact after an interruption. Applied to tasks that must be completed by a deadline, the model identifies when longer deadlines will make people less likely to complete a task. But additionally, the model leads to new comparative statics, tested in the second experiment reported in this paper, about how reminders can eliminate the potentially perverse effect of longer deadlines. Finally, I apply the model to study market interactions between sophisticated firms and inattentive consumers: the model predicts how firms will take advantage of consumers’ inattention through sales strategies such as rebates, and also leads to a dynamic theory of how firms use reminder advertisements to steer the behavior of inattentive consumers.

"The Lightbulb Paradox: Evidence From two Randomized Controlled Trials" (with Hunt Allcott)

Abstract: It is often suggested that consumers are imperfectly informed about or inattentive to energy costs of durable goods such as cars, air conditioners, and lightbulbs. We study two randomized controlled experiments that provide information on energy costs and product lifetimes for energy efficient compact fluorescent lightbulbs (CFLs) vs. traditional incandescent bulbs. We then propose a general model of consumer bias in choices between energy-using durables, derive sufficient statistics for quantifying the welfare implications of consumer bias, and evaluate energy efficiency subsidies and standards as second best corrective policies if powerful information disclosure is infeasible. Results show that moderate CFL subsidies may be optimal, but that imperfect information and inattention do not justify a ban on traditional incandescent lightbulbs.

"Market Experience is a Reference Point in Judgments of Fairness" *Under Review* (with Holger Herz)

Abstract: People's desire for fair transactions can play an important role in shaping market outcomes. In this paper, we show that markets outcomes also shape what people consider to be a fair transaction. We propose a simple and generally-applicable model of *path-dependent fairness preferences,* in which past experiences shape preferences, and we experimentally test the model's predictions. We find that previous exposure to competitive pressure substantially and persistently reduces subjects' fairness concerns, making them more likely to accept transactions in which they receive a low share of the surplus. Consistent with our theory, we also find that past experience has little effect on subjects' inclinations to treat others unfairly.

"Great Expectations and Prosocial Acts: Theory and Experiments"

Abstract: I study a model of *social preferences* that incorporates people's concerns with what kind of behavior is expected of them. The model makes a number of new predictions that differ from the predictions of commonly used models of social preferences. One implication of the model is that generosity is context-dependent: generosity will depend on what is expected, but what is expected is itself endogenous to the strategic alternatives of the decision-making environment. Another implication of the model is that generosity can *sometimes* be reluctant: people may act generously when they are expected to act that way, but they may also try to avoid particularly demanding expectations (though not less demanding expectations). Finally, the model predicts that voluntary generosity depends not only on whether behavior is observed or not, but also on how the observer is affected by the decision. Some of the theoretical predictions correspond to previous experimental evidence, while other predictions motivate novel empirical tests. I conduct a series of three experiments to examine the new theoretical predictions, and find strong support for the model.

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Graduate Studies:
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Ph.D. in Economics
Thesis Title: "Essays in Public, Labor, and Financial Economics"

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Teaching and Research Fields:
Public Economics and Labor Economics

Research Experience and Other Employment:

2012 – Present	UC Berkeley, Postdoctoral Scholar in Economics (pre-market)
2006 – 2007	McKinsey & Company, Business Analyst

Honors, Scholarships, and Fellowships:

2013	Oxford Centre for Business Taxation Award for Best Paper by a Young Scholar
2012	Rutgers University J. Robert Beyster Fellowship
2010	Harvard University Justice Welfare and Economics Fellowship
2009	State Farm Doctoral Dissertation Award
2006	Allan A. Young Prize (best Harvard undergraduate economics thesis)

Invited Presentations:
Stanford Public Economics Seminar (2013), Oxford Centre for Business Taxation Annual Symposium (2013), National Tax Association Annual Conference (2012), Rutgers University Beyster Fellows Conference (2012), OECD Early Childhood Education and Care Conference (2011)

Publications and In-Process Papers:

"Capital Tax Reform and the Real Economy: The Effects of the 2003 Dividend Tax Cut"
R&R at *American Economic Review*.

Abstract: Policymakers frequently propose to use capital tax reform to stimulate investment and increase labor earnings. This paper tests for such real impacts of the 2003 dividend tax cut—one of the largest reforms ever to a U.S. capital tax rate—using a quasi-experimental design and a large sample of U.S. corporate tax returns from years 1996-2008. I estimate that the tax cut caused zero change in corporate investment, with an upper bound elasticity with respect to one minus the top statutory tax rate of .08 and an upper bound effect size of .03 standard deviations. This null result is robust across specifications, samples, and investment measures. I similarly find no impact on employee compensation. The lack of detectable real effects contrasts with an immediate impact on financial payouts to shareholders. Economically, the findings challenge leading estimates of the cost-of-capital elasticity of investment, or undermine models in which dividend tax reforms affect the cost of capital. Either way, it may be difficult for policymakers to implement an alternative dividend tax cut that has substantially larger near-term effects.

"How Does Your Kindergarten Classroom Affect Your Earnings? Evidence from Project STAR"
(with Raj Chetty, John N. Friedman, Nathaniel Hilger, Emmanuel Saez, Diane Whitmore Schanzenbach)
Quarterly Journal of Economics 126(4), 2011, pp. 1593-1660.

Abstract: In Project STAR, 11,571 students in Tennessee and their teachers were randomly assigned to classrooms within their schools from kindergarten to third grade. This article evaluates the long-term impacts of STAR by linking the experimental data to administrative records. We first demonstrate that kindergarten test scores are highly correlated with outcomes such as earnings at age 27, college attendance, home ownership, and retirement savings. We then document four sets of experimental impacts. First, students in small classes are significantly more likely to attend college and exhibit improvements on other outcomes. Class size does not have a significant effect on earnings at age 27, but this effect is imprecisely estimated. Second, students who had a more experienced teacher in kindergarten have higher earnings. Third, an analysis of variance reveals significant classroom effects on earnings. Students who were randomly assigned to higher quality classrooms in grades K-3—as measured by classmates' end-of-class test scores—have higher earnings, college attendance rates, and other outcomes. Finally, the effects of class quality fade out on test scores in later grades, but gains in noncognitive measures persist.

"Optimal Taxation in Theory and Practice"
(with N. Gregory Mankiw and Matthew Weinzierl)
Journal of Economic Perspectives 23(4), 2009, pp. 147-174.

Abstract: We detail eight lessons from optimal tax theory and compare them to OECD tax policy over the last thirty years. We find that income and commodity taxes have moved toward standard optimal tax prescriptions: marginal income tax schedules have flattened, top marginal income tax rates have declined, and commodity taxes are more uniform and assessed on final goods. Trends in capital taxation are mixed, and rates are still well above the zero level recommended by theory. Tagging, asset-testing, and history-dependence remain rare. Discrepancies between theory and practice raise the question of whether policymakers need to learn from theorists or theorists need to learn from policymakers.

Job Market Paper:

"Moving to Opportunity? The Home Mortgage Interest Deduction and Migratory Insurance over the Great Recession" (pending disclosure review for online circulation)

Abstract: Over the Great Recession, the employment rate in some U.S. cities declined by more than twice the aggregate decline. Did the ability to migrate insure workers against these idiosyncratic local shocks, or did tax-induced underwater mortgages and related frictions prevent spatial arbitrage? I answer this question using geo-coded administrative panel data on the universe of U.S. males from years 2000-2011.

I find that despite migration flows that were in principle large enough to provide full insurance, migration has provided only 7% insurance: the *2006* residents of the average local area have borne 93% of the area's place-specific labor demand shock. I find similarly small degrees of insurance across demographic groups and labor market outcomes. However, migratory insurance was three times greater over the 2001 recession, driven entirely by greater insurance for above-average earners.

The relative absence of migratory insurance over the Great Recession is attributable to a lower observed benefit to migrating from a weak labor market to a stronger one, rather than to less such migration. This suggests that weaker employment access among in-migrants—rather than higher moving costs induced by the home mortgage interest deduction, other moving costs, or worse information about where to migrate—is responsible for the decline in migratory insurance. The results have implications for the spatial integration of U.S. labor markets and indicate that past location may be a powerful tag for directing social insurance.

Working Papers:

"Law School Admissions under the UC Affirmative Action Ban"

Abstract: The consequences of banning affirmative action depend on schools' ability and willingness to avoid it. This paper uses a seventeen-year sample of law school applications to estimate how completely UC law schools avoided the 1996 UC affirmative action ban. Controlling for selective attrition from applicant pools, I find that the ban reduced the black admission rate to 31%—well below the 61% pre-ban rate but still four times higher than the 8% rate that would prevail under observed white admission standards. Observed black admission advantages at intermediate credential levels were as large as 99 percentage points before the ban and 63 percentage points after the ban. The results have important implications for modeling affirmative action bans, sustaining racial diversity under a ban, affirmative action constitutionality, the effectiveness of mandating nondiscrimination, and identifying discrimination in cross-sectional data.

"Why Do Individual Investors Chase Stock Market Returns?"

Abstract: Net flows into equity mutual funds are strongly procyclical. Individual investors' stated beliefs indicate they are trying to time short-run peaks and troughs, but I show that investors chase returns even with assets that are illiquid over a five-year or longer horizon. Using a reduced-form beliefs model, I estimate that investors raise their expectations of the annualized long-run equity return by 10%, 6%, 5%, and 4% of the first-through-fourth annual S&P lags. Such beliefs imply frequent and dramatic revisions of the expected long-run equity return, including an 8-percentage-point reduction from 1999 to 2003.

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Undergraduate Studies:
B.A, Economics and Mathematics, Swarthmore College, High Honors/Phi Beta Kappa, 2007

Graduate Studies:
Harvard University, 2009 to present
Ph.D. Candidate in Business Economics
Thesis Title: "Finance Implications of the Great Recession"
Expected Completion Date: May 2014

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Professor Josh Lerner
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Teaching and Research Fields:
Primary fields: Corporate Finance, Public Economics
Secondary fields: Applied Economics, Behavioral, Urban

Teaching Experience:

Fall, 2012	Real Property, Harvard Business School (HBS), TA for Professor Arthur Segel
Spring, 2012	Behavioral & Value Investing, HBS, TA for Professor Robin Greenwood
Fall, 2011	Household Finance, Harvard College, TA for Professor Brigitte Madrian

Research Experience and Other Employment:

2010-	Private Capital Research Institute, Data scientist
2007-2009	National Bureau of Economic Research, RA for John Beshears, James Choi, David Laibson, and Brigitte Madrian
2003-2009	Qwobl Inc., Harmony Line Inc., johnkerry.com, and Swarthmore College; Web and software developer

Honors, Fellowships and Grants:

2013	Martin Award for Excellence in Business Economics, Harvard Business School
2012	"Using Behavioral Economics to Promote Medication Adherence and Habit Formation" (with Judd Kessler and Dmitry Taubinsky): Robert Wood Johnson Foundation's Pioneer Portfolio and the Donaghue Foundation ($100,000); Sub-award from Laibson/Madrian ($39,000); Lab for Economic and Applications and Policy at Harvard ($12,000); Penn-CMU Roybal Grant ($8,400) – Total $159,400

Research Papers:

"Do Financial Frictions Amplify Fiscal Policy? Evidence from Business Investment Stimulus" (Job Market Paper) (with James Mahon)

Abstract: We estimate the causal effect of temporary tax incentives on equipment investment using a difference-in-differences design and policy shifts in accelerated depreciation. Analyzing data for over 120,000 U.S. firms from 1993 to 2010, we present three findings. First, bonus depreciation raised investment by 18.5 percent on average between 2001 and 2004 and 31.2 percent between 2008 and 2010. Second, financially constrained firms respond more strongly than unconstrained firms. And third, firms respond strongly when the policy generates immediate cash flows, but do not respond at all when the policy only benefits them in the future. These results provide an estimate of the discount rate firms apply to future cash flows: constrained firms act as if $1 next year is worth 38 cents today. The estimated discount rate is too high to match the predictions of a frictionless model, nor can it be explained entirely by costly external finance, unless firms also neglect financial constraints binding in the future.

- *Winner:* Best Paper at Oxford Centre for Business Taxation Doctoral Conference, Sept 2013

"Arrested Development: Theory and Evidence of Supply-Side Speculation in the Housing Market" (with Charles Nathanson)

Abstract: This paper incorporates speculation into the standard supply-and-demand framework used to analyze housing booms and busts. Speculation reverses the common intuition that elastic housing supply attenuates housing booms. Housing market frictions make land a more attractive speculative investment than housing. As a result, undeveloped land both facilitates construction and intensifies speculation that causes booms and busts in house prices. This insight explains the frequent housing booms and busts that coincide with high construction activity (e.g., Las Vegas, 2000-2010). These episodes are most likely to occur when a housing market nears but has not yet reached a long-run development constraint. Consistent with the recent U.S. housing experience, the model predicts higher price volatility within cities in neighborhoods where housing is more easily rented. Land is an asset whose price volatility can increase with its float.

"Opting Out of Good Governance" (with C. Fritz Foley, Paul Goldsmith-Pinkham and Jonathan Greenstein)

Abstract: Cross-listing on a U.S. exchange does not bond foreign firms to abide by the corporate governance rules of that exchange. Hand-collected data indicate that 80% of cross-listed firms opt out of at least one exchange governance rule, instead committing to follow the rules of their home country.

Firms that opt out appear to have weaker governance practices in that they have a smaller share of independent directors than do firms that comply. Cross-listed firms from countries with weak corporate governance rules are more likely to opt out, but those firms from such countries that are growing and have a need for external financing are more likely to comply. Opting out appears to affect the value of cash holdings. For cross-listed firms based in countries with weak governance rules, estimates imply that a dollar of cash held inside the firm is $1.55 if the firm complies with U.S. exchange rules but just $0.36 if it is non-compliant.

“Regulators vs. Zombies: Loss Overhang and Lending in a Long Slump”

Abstract: Zombie banks suffer from a debt overhang problem caused by unrealized losses on past loans. To deter regulatory action, zombies restrict new lending in healthy categories, prop up lending in unhealthy categories, and overallocate to safe, liquid assets. FDIC-induced failures allow zombies to discharge bad loans, and lending subsequently resumes. In the slump that began in the United States in 2007, limited FDIC liquidity and manpower prevented it from refreshing some zombie balance sheets. As a consequence, counties afflicted with unhealed zombies displayed a slower recovery in employment, even in tradable goods industries, which are less subject to local demand conditions. This loss overhang mechanism helps explain the puzzle of long slumps: why are economic recoveries following banking crises so sluggish? It also provides a micro-level depiction of the liquidity trap, with banks playing a central role as "excess" savers.

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Undergraduate Studies:
B.S., Molecular and Integrative Physiology, University of Illinois at Urbana-Champaign, 2000

Graduate Studies:
Harvard University Graduate School of Education
Ed.D. Candidate in Quantitative Policy Analysis in Education, Economics Track
Thesis Title: "Targeting Basic Needs of Students: Understanding Factors that Influence Educational Decision-Making of Families in Developing Countries"
Expected Completion Date: May 2014

Harvard University Graduate School of Education
Ed.M., International Education Policy, 2012
Ed.M., Higher Education (Administration, Planning, and Social Policy), 2003

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Teaching and Research Fields:
Economics of Education, Development Economics, Labor Economics

Teaching and Advising Experience:

2008 — Instructor, *Microeconomics*, Intensive Preparation for the Study of International Education, Harvard Graduate School of Education

2007 — Teaching Assistant, *Evaluating Social Programs*, Executive Training, Abdul Latif Jameel Poverty Action Lab, MIT

2004-11 — Instructor, Special Topics Trainings and Seminars. Examples include:
- "Gathering Local Insights to Inform Policy and Research Questions"
- "The Education Industry and System in India"
- "Collecting Qualitative Data from the Field"
- "Increasing Organizational Capacity through Volunteers"

2010-11	Undergraduate Concentration Advisor, Harvard Department of Economics
	Teaching Fellow, Harvard Graduate School of Education - Degree Programs:
2008-09	Quantitative Policy Analysis in Education, Doctoral Concentration
2007-09	Special Studies, Master's Program

Research and Other Employment:

2009	World Bank, Consultant (Washington, DC)
2005-06	Office of Academic Services, Harvard Graduate School of Education, Special Projects Associate (Cambridge, MA)
2004-05	Indicorps, Director of Domestic Initiatives (Ahmedabad, Gujarat, India)
2003-04	Office of the President and Provost, Harvard University, Visiting Administrative Fellow (Cambridge, MA)
2004	Democratic National Convention Committee, Volunteer Coordinator (Boston, MA)
2002-03	Civil Rights Project, Harvard University, Research Assistant (Cambridge, MA)
2002-03	Office of the Dean, Harvard Graduate School of Education, Academic Cabinet Intern (Cambridge, MA)
2001-02	Make-A-Wish Foundation, Volunteer Manager (San Francisco, CA)
2000-01	Forum for Women Entrepreneurs, Membership & Events Coordinator *(8/00 – 10/00)* and Community Relations & Programs Manager *(11/00 – 3/01)* (San Francisco, CA)
1999-00	Office of the Vice Chancellor for Student Affairs, University of Illinois, Leadership Development Intern (Urbana, IL)

Professional Activities:

Conference and Seminar Presentations:

2013:	Harvard/MIT Economic Development and Harvard Labor Economics Seminar; Comparative and International Education Society-Northeastern Regional Conference; Harvard Labor Economics Lunch; Harvard Development Economics Lunch; Harvard Quantitative Policy Analysis in Education Seminar; Richmond Seminar, Center on the Developing Child
2012:	Comparative and International Education Society Annual Conference
2011:	Stanford Center for Education Policy Analysis Student Seminar; Harvard Graduate School of Education International Education Seminar; Harvard Labor Economics Lunch; Harvard Quantitative Policy Analysis in Education Seminar

Other Service:

2004 -	Manav Sadhna: India, Volunteer
2004 -	Safai Vidyalaya/Environmental Sanitation Institute: India, Volunteer
2005 -	Harvard in South Asia Student Group, Founding Member
2008-09	After Mumbai/Voices of Unity, Founding Member
2005-11	Gandhi Ashram Library Preservation Project: India, Volunteer
2007-08	Harvard Graduate School of Education Student Advisory Group to the Faculty Appointments Committee, Member
2007-08	Help Vinay – National Bone Marrow Registration, Drive Organizer
2003-07	South Asian Immigrant Mentoring & Tutoring Association, Steering Committee
2002-04	AOCC Conference, Harvard Graduate School of Education, Founding Member
2001-02	Young Non-Profit Professionals Network: SF, Advisory Board Member
2003-04	South Asian Committee on Human Rights: Boston, Founding Member

2003-04	Democratic Leadership for 21st Century: Boston, Founding Member
2003-04	LiNC Boston for Young Non-Profit Professionals, Committee Chair
2001-02	Alliance of South Asians Taking Action: SF, Steering Committee Member

Honors, Scholarships, and Fellowships:

2012-13	Julius B. Richmond Fellowship, Harvard Center on the Developing Child ($10K)
2013, 2012	Harvard Graduate School of Education Doctoral Travel Grant ($900)
2010	Project on Justice, Welfare & Economics Research Grant ($5K)
2010-11	Harvard South Asia Initiative, Graduate Associate ($3K)
2009	Harvard Asia Center-South Asia Initiative Research Grant ($3K)
2009	Center for International Development Empowerment Lab Research Grant ($1.5K)
2009	Sustainability Science Water and Development Student Research Grant ($5K)
2009	Institute for Quantitative Social Science Research Grant ($3K)
2009-10	Harvard South Asia Initiative, Graduate Associate ($3K)
2008	Harvard Graduate School of Education Dean's Summer Fellowship ($3K)
2008	Tata-Harvard South Asia Initiative Study Grant ($3K)
2008-09	Harvard South Asia Initiative, Graduate Associate ($3K)
2006-09	John and Elisabeth Hobbs Fellowship ($87K)
2006-07	Harvard Graduate School of Education Dean's Fellowship ($7K)

Research:

"Sanitation and Education" (Job Market Paper)

One in five children worldwide does not complete upper-primary school, with particularly high drop-out rates among pubescent-age girls that may limit economic opportunities and perpetuate gender inequality. This paper tests whether educational attainment is stymied by endemically inadequate school sanitation that threatens children's health, privacy, and safety. Using annual school-level data from India, disaggregated by student sex and grade, I compare schools that receive latrines during a national school-latrine-construction initiative to similar schools using a differences-in-differences empirical methodology. I estimate that latrine construction increases enrollment of all students. At younger ages, girls and boys both benefit substantially from a latrine, regardless of whether it is unisex or sex-specific; at older ages, however, separate latrines become crucial. Pubescent-age girls do not benefit from unisex latrines, and their enrollment increases substantially after the construction of a female-only latrine. These effects persist at least three years after construction, in contrast to the impact of many educational interventions that fade over time. Investments in school sanitation support education of pubescent-age girls, yet the narrow focus on menstruation should be expanded to reflect the importance of health, safety, and privacy for pubescent-age boys and younger children as well.

"Clothing and Student Outcomes: Evidence from a School Uniform Program"

Many schools in developing countries require students to wear uniforms. While mandatory school uniforms may generate benefits by removing a visible symbol of differences in socioeconomic status, the cost of school uniforms may be a prohibitive barrier for the poorest students. In India, though government schooling is nominally free, the cost of school uniforms introduces a substantial cost of schooling for many families who cannot otherwise afford clothing. Many developing countries have begun offering free school uniforms to reduce the cost of schooling for families. Small-scale studies have shown positive impacts on educational attainment, but no study has provided causal evidence on the impact of ongoing large-scale government-run school uniform programs. I analyze a large-scale free school uniform program in India that targets females and lower socioeconomic status students. In AY 2004-05, government schools in "educationally-backward" village groups became required to provide free uniforms to girls and lower caste students. By 2009, over 14 million children had received uniforms. The increase in the provision of a clothing-based schooling incentive within particular village groups provides a quasi-experimental setting to understand how improving the self-efficacy, safety, and learning ability of students can influence educational decisions.

“Roads and Education”
(with S. Asher and P. Novosad)
Geographic proximity of schools to homes is an often-cited factor that may influence educational decision-making of families in developing countries. Due to a lack of other transportation options, children are often required to travel to school on foot, which can pose issues of safety, fatigue, and opportunity-cost of time. Even in places where bicycles or motorized vehicles are readily available, the lack of usable roads makes them prohibitive to use. Starting in December 2000, the Indian Ministry of Rural Development began the Pradhan Mantri Gram Sadak Yojana (PMGSY), a national plan to provide all-season roads to previously-unconnected villages. This initiative provided not only an opportunity for greater transportation to schools but also for greater educational investment both in the form of increased amenities in existing schools and in the form of the opening of new schools. The “rule” was that roads would be provided to villages: (1) with a population of 1000 persons and above by 2003, and (2) with a population of 500 persons and above by 2007. We will use annual data on schools and from PMGSY to compare educational outcomes and school investment in villages that are immediately above and below the specified cutoffs using a regression discontinuity framework.

“Schooling and Patience: Environmental Factors in the Development of Self-Control”
Numerous studies find that self-control increases academic and social competence, ability to save, and success in industry. However, researchers still have very little understanding of how environmental factors influence the development of these skills. Without a deeper insight into what drives the development of executive control in young children, policy-makers remain limited in their ability to design policies to boost child development. Using field survey data on 176 Indian children, this study looks to see if whether attending primary school is associated with the development of executive control. Specifically, this research will test whether school enrollment is positively correlated with patience, memory and attention. Preliminary findings indicate that school-going children exhibit more patience and working-memory skills than those who are not attending school.

Policy Briefs:
“The Impact of the Financial Crisis on Tertiary Education World Wide"
(with B. Long). World Bank, August 2009.

“The Broadmoor Project New Orleans Community Engagement Initiative: Progress Report”
(with D. Ahlers, M. Blakley, L. Cole, M. El Dahshan, A. Hodari, H. Ko, J. Maeso, A. Noble, D. Radcliffe, M. Richards, C. Valentine, A. Van, D. Walsh, A. Watson, A. Woods, C. Wood, J. Wright, K. Yang). Harvard Kennedy School - Broadmoor Initiative, March 2007.

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Graduate Studies:
Harvard University, 2009 to present
Ph.D. Candidate in Health Policy, Economics Concentration
Thesis Title: "Essays in Health Economics: Understanding Educational and Socioeconomic Differentials in Health Behavior"
Expected Completion Date: May 2014

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Teaching and Research Fields:
Research fields: Health Economics, Behavioral Economics, Public Economics
Teaching fields: Microeconomics, Health Economics, Health Policy, Math for Economists

Teaching Experience:

Aug. 2012 & 2013	Doctoral Student Math Camp, Harvard Kennedy School, Instructor
Aug. 2012 & 2013	Introduction to Research Methods, Harvard PhD Program in Health Policy, Instructor
Spring 2011	Microeconomic Theory II: Doctoral level microeconomics, Teaching fellow for Christopher Avery & Julian Jamison
Fall 2010 & 2011	Microeconomic Theory I, Doctoral level microeconomics, Teaching fellow for Christopher Avery & Elon Kohlberg

Grant Funding:

2013 -2015	"Behavioral Experiments in Improving Medicare Coverage Choices." Co-PI with Richard Frank. Source: Robert Wood Johnson Foundation ($200,000)

Honors, Scholarships, and Fellowships:

2013-2014	Radcliffe Dissertation Completion Fellowship
Summer 2013	Mathematica Policy Research Summer Fellowship
Summer 2011	Harvard GSAS Pre-dissertation Summer Fellowship
2009 - 2012	Aetna Fellowship, Harvard PhD Program in Health Policy
2009 - 2011	AHRQ Traineeship, Agency for Healthcare Research and Quality
2009, 2010	Honorable Mention, NSF Graduate Research Fellowship
2007	Columbia College Romine Prize for Best Senior Thesis in Economics

Research Experience and Other Employment:

2011-2013	National Bureau of Economic Research, Research Assistant to David Cutler
Summer 2010	Harvard Medical School Dept. of Health Care Policy, Researcher
2008-2009	Harvard School of Public Health, Research Assistant to David Bloom
2007-2008	National Bureau of Economic Research, Research Assistant to Michael Greenstone

Professional Activities:

Talks:	"Education and Health Behaviors: Advertising, Information and the Education Gradient in Smoking," Cornell University Institute on Health Economics, Health Behaviors & Disparities, May 13, 2013 "Adverse Events & Adolescent Health Behaviors," Mathematica Policy Research, Aug. 16, 2013 Explaining Socioeconomic Differentials in Adolescent Health Behaviors," Harvard Dept. of Health Care Policy Health Economics Lunch Seminar, March 18, 2013 "Explaining Costly Health Behaviors," Harvard PhD in Health Policy Research Seminar, March 5, 2013 "Education as a Modifier: Differentials in the Impact of Advertising and Information on Smoking Behaviors," Economic History Tea, Harvard Dept. of Economics, Nov. 19, 2012
Posters:	"Explaining the Growing Gap in Smoking by Education," AcademyHealth Annual Research Meeting, June 24, 2013 "Explaining the Growing Gap in Smoking by Education," Health Economics Interest Group Poster Session, AcademyHealth, June 22, 2013
Organizer:	Economics Alumni Reunion Dinner, Harvard PhD Program in Health Policy, 2013 Harvard Health Economics Lunch Seminar, 2010-2011 Economics-Concentration Retreat, Harvard PhD Program in Health Policy, 2010
Referee:	Journal of Health Economics
Affiliations:	American Society of Health Economics, American Economic Association, AcademyHealth

Publication

Bärnighausen T, Bloom DE, Canning D, **Friedman A**, Levine O, O'Brien J, Privor-Dumm J, Walker D (2011). Rethinking the benefits and costs of childhood vaccination: the example of the *Haemophilus influenza* type b vaccine. *Vaccine*, 29(13): 2371-80.

Abstract: Economic evaluations of health interventions, such as vaccinations, are important tools for informing health policy. Approaching the analysis from the appropriate perspective is critical to ensuring the validity of evaluation results for particular policy decisions. Using the example of cost–benefit analysis (CBA) of Haemophilus influenzae type b (Hib) vaccination, we demonstrate that past economic evaluations have mostly adopted narrow evaluation perspectives, focusing primarily on health gains, health-care cost savings, and reductions in the time costs of caring, while usually ignoring other important benefits including outcome-related productivity gains (improved economic productivity due to prevention of mental and physical disabilities), behavior-related productivity gains (economic growth due to fertility reductions as vaccination improves child survival), and community externalities (herd immunity and prevention of antibiotic resistance). We further show that potential cost reductions that could be attained through changes in the delivery of the Hib vaccine have also generally been ignored in economic evaluations. Future economic evaluations of childhood vaccinations should take full account of benefits and costs, so that policymakers have sufficient information to make well-informed decisions on vaccination implementation.

Job Market Paper

"Adverse Events and Risky Behaviors: Evidence from Adolescents"

Abstract: Distressing life events may lead youths to engage in risky behaviors as a coping response, if greater mental distress raises such behaviors' short term benefits. This theory is separate from models of risky behavior that emphasize rational addiction or time-inconsistent preferences, and distinct from a System 1–System 2 framework. To test this theory, I use data from the 1979 National Longitudinal Survey of Youth to consider how first use of four substances—cigarettes, binge drinking, marijuana, and other illegal drugs—is affected by experiencing either of two events—violent crime victimization, or death of a non-family member the respondent felt close to. Results show statistically significant increases in first use of cigarettes and of illegal drugs other than marijuana following adverse events. Such shocks explain 6.7 and 14.3 percent of first use, for each substance respectively. Controls and specification checks address peer pressure, access, and neighborhood factors that might otherwise confound these results, while falsification tests support the adverse event exogeneity assumption. Such events also influence a positive coping mechanism—days exercised per week—in a manner consistent with the coping-response theory, but not with rational, time-inconsistent, or non-rational models. I conclude that distressing events lead to risky behaviors, with a coping response contributing to this effect.

Research Paper in Progress

"Explaining the Education Gradient in Smoking: The Impact of Advertising and Information on Smoking Behaviors." (with David Cutler).

Abstract: Smoking's education gradient grew rapidly over the mid-twentieth century. This paper considers the role of health risk and brand image advertising in explaining this gradient. We compile a new dataset of annual cigarette advertising expenditure and cigarette tax rates back through 1925, and combine this with data from the 1978-1980 and 1987 National Health Interview Surveys, along with new data on cigarette brands smoked by those respondents. Retrospective cohort analyses find statistically significant education differentials in initiation and cessation responses to cigarette advertising, explaining 39 and 27 percent of growth in smoking's education gap from 1950 to 1980, for males and females respectively. Education differentials are also evident in initiation responses to brand-specific tar and nicotine information, explaining 13 and 8 percent of this growth. Brand-choice analyses test whether high-education smokers are more responsive to cigarette branding versus health risk, capturing the latter via cigarette filtration categories—unfiltered, low filtration, or high filtration. More educated smokers exhibit greater demand for both lower risk cigarettes and the freestanding high filtration brand image, which tended to emphasize risk-reduction. Controlling for filtration category, more educated smokers also smoke fewer cigarettes per day. These results suggest an education differential in smokers' demand for risk-reduction as well as for brand image.

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Undergraduate Studies:
B.Eng., Systems Engineering, Universidad Metropolitana, 2003 (Caracas, Venezuela)

Graduate Studies:
The Hebrew University in Jerusalem, 2008
MA in Economics, *Magna Cum Laude*

Harvard University, 2010
M.P.A. in International Development (MPA/ID)

Harvard University, 2010 to Present
Ph.D. Candidate in Public Policy
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Expected Completion Date: May 2014

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Research Fields:
International Economics, Economic Development

Teaching Experience:

Spring, 2011/12	"Advanced Quantitative Methods II: Econometric Methods (API-210)", Harvard Kennedy School, teaching fellow for Professor Alberto Abadie
Fall, 2009	"Why countries are poor, volatile and unequal? (PED-130)", Harvard Kennedy School, teaching fellow for Professor Ricardo Hausmann

Previous Employment:

2013	Camomille (Asset Management Start-up), Consultant
2011-2013	Inter-American Development Bank, Consultant (Caribbean)
2011	Economic Policy Research Foundation of Turkey, Consultant
2010	The World Bank, Consultant (Eastern Europe)
2009	IFMR Center for Micro Finance, Field Research Consultant (India)
2008	Research Assistant for Prof. Saul Lach and Prof. Omer Moav, HUJI
2007-2008	Intel Corporation, Engagement Manager (Israel)
2004-2007	Israel Government Agency for Education and Immigration, Division Manager

Professional Activities

Seminars and Conferences

2013: NBER, Harvard Economics Department, The Hebrew University, Bar Ilan University
2012: Gruter Institute, Harvard CID, Harvard IQSS
2011: Suffolk University Business Complexity Conference

Honors, Scholarships, and Fellowships:

2010-Present	Harvard Center for International Development Doctoral Fellow
2012-Present	Harvard Institute for Quantitative Social Sciences Graduate Student
2013-2014	GSAS Dissertation Completion Fellowship, Harvard University
2013	International Economics Field Student Grant, Harvard Economics Department
2013	Visiting Doctoral Student, Economics, Hebrew University and Bar Ilan University
2010-2013	Doctoral Program in Public Policy Fellowship, Harvard University
2009	Cultural Bridges Fellow, Women and Public Policy Program Harvard University
2008-2010	Boies Fellow, Harvard Kennedy School
2008	Excellence Award, Economics Department Hebrew University of Jerusalem
2005-2008	Ministry of Immigrant Absorption of the State of Israel Scholarship
2003	Procter & Gamble's Award for Academic Performance and Leadership
2002	Universidad Metropolitana Dean's List

Job Market Paper:

"*Heavier than Air? Knowledge Transmission within the Multinational Firm*" **[Download]**

Abstract: To what extent do barriers to knowledge transmission influence a firm's decision to expand? Using a worldwide dataset on foreign subsidiaries, I show that multinational corporations are, on average, about 4 percentage points less likely to horizontally expand a sector that is 10% higher in the knowledge intensity scale. Evidence shows that when firms expand horizontally, they do so at shorter distances, contrary to conventional wisdom. Locating a foreign subsidiary in the same time zone as its headquarters tends to reduce barriers to knowledge transmission by easing communication and effectively reducing the distance between them. The empirical results can be explained through an expansion of the theoretical framework developed by Helpman, Melitz and Yeaple (2004). The new model incorporates the cost of knowledge transmission for firms engaged in foreign direct investment, which affects the mechanisms of the proximity-concentration hypothesis.

Publications:

Bahar, D., Hausmann, R., Hidalgo, C. A. "*Neighbors and the Evolution of the Comparative Advantage of Nations: Evidence of International Knowledge Diffusion?*" Forthcoming. Journal of International Economics. **[Download]**

Bahar, D. "Guide for Private Sector Assessment Report", 2011. Inter-American Development Bank. Compete Caribbean Program. **[Download]**

Other Research Papers:

"Migration, Knowledge Diffusion and the Comparative Advantage of Nations" (with Hillel Rapoport)

Abstract: In this paper we study the drivers of knowledge diffusion by looking at the dynamics of the export basket of countries. In this context, we study the usual suspects of knowledge diffusion: international flow of goods, capital and people, with special emphasis on the latter. We find that migration is a strong and robust driver of productive knowledge diffusion. The identification strategy is based on instrumenting for migration stocks using bilateral geographic and cultural variables.

"Aid and Fertility" **[Download]**

Abstract: This paper uses a panel data from developing countries to study the relationship between foreign aid flows and fertility rates. By making use of natural disasters in neighboring countries as an instrumental variable to foreign aid receipts, I find that a percentage point increase in the share of aid in the GDP increases on average fertility rates among the population by 0.045 additional children. This can be translated to an additional child for about every 22 women of childbearing age. The positive effect of foreign aid on fertility rates can contribute to the current debate on foreign aid, and supply an additional explanation for its limited efficacy historically. By making use of the same instrumental variable, I also find no effect of foreign aid on other determinants of economic growth and growth itself.

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Ph.D. Candidate in Public Policy
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Expected Completion Date: May, 2014

M.A., Economics, Hunter College 2008

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Teaching and Research Fields:
Primary fields: Health Economics, Innovation and Entrepreneurship
Secondary fields: Applied Microeconomics, Health Care Policy and Strategy

Teaching Experience:

Spring 2010 - Spring 2012	Quantitative Methods II (accelerated course): Masters level econometrics, teaching fellow for Amitabh Chandra (2010, 2011) and Joshua Goodman (2012)
Fall 2010	Quantitative Methods I (accelerated course): Masters level statistics, teaching fellow for Kerrie Nelson
Fall 2011	US Health Care Policy: head teaching fellow for Richard Frank
Summer 2012	Quantitative Methods: mathematics, probability and statistics for incoming mid-career masters students, full instructor

Research Experience and Other Employment:

Summer 2011	Federal Reserve Bank of Boston, AEA CSWEP Summer Economics Fellow
2009-2011	LeapFrog Investments, Consultant
2008-2009	Bosch Foundation Fellow: German Development Bank (KfW) & Direktzu, GmbH.
Summer 2008	LeapFrog Investments, Summer Associate
2007-2008	Bear, Stearns & Co. Inc., Associate Economist
2006-2007	Federal Reserve Bank of New York, Research Associate
2005-2006	German Institute for Economic Research (DIW Berlin), Visiting Researcher
Summer 2005	Harvard Kennedy School, Research Assistant to Amitabh Chandra
2003-2005	Dartmouth College, Presidential Scholar Research Assistant to Bruce Sacerdote

Professional Activities:

Referee:	Journal of Health Economics (x2); Journal of Human Resources; Health Economics
Presentations: (Invited)	Federal Reserve Bank of Boston (2011); Harvard/MIT/MGH Seminar Series on Quantitative Medicine (2013); National Bureau of Economic Research Health Care Meetings (2013); Midwest Health Economics Conference (2013); National Science Foundation IGERT Video and Poster Competition (2013); National Bureau of Economic Research Productivity Seminar (2013)
Organizer:	Harvard Health Economics Working Group (Summer 2011), NBER Aging and Health Fellows speaker and seminar series (2012 – 2013), Harvard/MIT/MGH Seminar Series in Quantitative Medicine (2013 – Present)
Participant	National Bureau of Economic Research Summer Institute (2011, 2012, 2013); RAND Summer Institute: Mini-Medical School for Social Scientists / Demography, Epidemiology and Economics of Aging Conference (2012); Transatlantic Program: Young Technology Leaders in Healthcare Delivery & Medical Technology (2012); National Bureau of Economic Research Health Care Meetings (2013); Midwest Health Economics Conference (2013); Academy of Management: Technology & Innovation Management Doctoral Consortium (2013); MIT Biotechnology & Standards Conference (2013)

Professional Memberships:

Academy of Management, American Economic Association, American Society of Health Economists

Honors, Scholarships, and Fellowships:

2013 – 2014	Harvard University Dissertation Completion Fellowship
2012	Taubman Center Dissertation Fellowship for research travel
2011 – Present	NBER Pre-Doctoral Fellowship in Aging and Health Economics
2011	Harvard Kennedy School Dean's Award for Excellence in Student Teaching
2011	CSWEP Summer Economics Fellowship, American Economic Association
2010 – Present	NSF-IGERT Doctoral Fellow, *Multidisciplinary Program in Inequality & Social Policy*, Harvard University
2009 – 2011	Harvard Kennedy School Graduate Fellowship
2008 – 2009	Robert Bosch Foundation Fellowship for Young American Leaders
2005	Haney Prize for best senior honors thesis in Economics, Dartmouth College

Research Papers:

"*Innovation Under Regulatory Uncertainty: Evidence from Medical Technology*" (Job Market Paper)

This paper explores how the regulatory approval process affects incentives to innovate in medical technologies. While prior studies of medical innovation under regulation have found an early mover regulatory advantage for drugs, I find the opposite to be true for medical devices. Using detailed data on three decades of high-risk medical device approval times in the United States, I show pioneer entrants spend approximately 34 percent (7.2 months) longer in the approval process than the first follow-on innovator. Back-of-the-envelope calculations suggest that a delay of this length could translate to a loss of approximately 8 percent of expected lifetime product revenues. I consider how different types of regulatory uncertainty affect approval times and find that a product's technological novelty is largely unrelated to time spent under review. In contrast, procedural uncertainty appears to play a large role: when objective guidelines for evaluation are published, approval times quicken for subsequent entrants. Finally, I consider how the regulatory process affects firms' market entry strategies and find that financially constrained firms are less likely to enter new device markets as pioneers.

"*Physician Beliefs and Patient Preferences: A New Look at Regional Variation in Health Care Spending*" (with David Cutler, Jonathan Skinner and David Wennberg); NBER Working Paper 19320

There is considerable controversy about the causes of regional variations in healthcare expenditures. We use vignettes from patient and physician surveys, linked to Medicare expenditures at the level of the Hospital Referral Region, to test whether patient demand-side factors, or physician supply-side factors, explains regional variations in Medicare spending. We find patient demand is relatively unimportant in explaining variations. Physician organizational factors (such as peer effects) matter, but the single most important factor is physician beliefs about treatment: 36 percent of end-of-life spending, and 17 percent of U.S. health care spending, are associated with physician beliefs unsupported by clinical evidence.

Research in Progress:

"Conflicts of Interest and FDA Advisory Committee Voting: Implications for Regulatory Policy"

The U.S. Food and Drug Administration (FDA) regularly convenes expert Advisory Committees to make formal recommendations about the approval of new medical products. Individuals on these committee sometimes have declared financial conflicts of interest. I consider the voting behavior of 2180 uniquely identified individuals at 186 new product meetings (96 drug and 90 device meetings), representing 26 specialty-specific panels (13 drugs and 13 devices panels) over a seven-year period. I find that financially conflicted individuals are far more likely to vote favorably for new medical devices than new drugs. This pattern is driven by individuals voting favorably for competitors' products. This finding is consistent with a regulatory setting in which early innovators "pave the way" for subsequent entrants to move more swiftly through the regulatory approval process. In such an environment, individuals with interests in competitor firms would have strong incentives to support the approval of pioneer devices, which will likely accelerate the approval regulation of follow-on products that their firms may produce.

"The Industrial Organization of the Biologics Industry: Theory, Empirics, and Policy Implications" (with Fiona Scott Morton & Scott Stern)

This project analyzes competition in the biologics industry and policies that affect competition. We evaluate the impact of alternative policies, in particular the introduction of biosimilars ("generic biologics"), on price, quantity, and consumer welfare. We use data from IMS – the most systematic source for data in this industry – that includes product, revenue, and quantity data covering 21 European countries. The market for biologics and biosimilars is intellectually interesting, yet scarcely studied by economists. The important differences between chemical drugs and biologics both in production and institutions (high marginal costs, importance of tacit knowledge, delivery to the patient through a physician visit, etc.) suggest that we will find exciting new results relative to existing work in the pharmaceutical industry. A major intellectual contribution of the research program will be to estimate the degree of substitutability and the extent to which biologics compete on price both among existing brands and between biosimilars and their reference product.

Publications:

Hawkins, Summer Sherburne, **Ariel Dora Stern** & Matthew W. Gillman. 2013. Do state breastfeeding laws in the USA promote breastfeeding? Journal of Epidemiology and Community Health, 67(3):250-6.

Objectives: Despite the passage of state laws promoting breastfeeding, a formal evaluation has not yet been conducted to test whether and/or what type of laws may increase breastfeeding. The enactment of breastfeeding laws in different states in the USA creates a natural experiment. We examined the impact of state breastfeeding laws on breastfeeding initiation and duration as well as on disparities in these infant feeding practices. **Methods:** Using data from the Pregnancy Risk Assessment Monitoring System, we conducted differences-in-differences models to examine breastfeeding status before and after the institution of laws between 2000 and 2008 among 326 263 mothers from 32 states in the USA. For each mother, we coded the presence of two types of state breastfeeding laws. Mothers reported whether they ever breastfed or pumped breast milk (breastfeeding initiation) and, if so, how long they continued. We defined breastfeeding duration as continuing to breast feed for ≥4 weeks. **Results:** Breastfeeding initiation was 1.7 percentage points higher in states with new laws to provide break time and private space for breastfeeding employees (p=0.01), particularly among Hispanic mothers (adjusted coefficient 0.058). While there was no overall effect of laws permitting mothers to breast feed in any location, among Black mothers we observed increases in breastfeeding initiation (adjusted coefficient 0.056). Effects on breastfeeding duration were in the same direction, but slightly weaker. **Conclusions:** State laws that support breastfeeding appear to increase breastfeeding rates. Most of these gains were observed among Hispanic and Black women and women of lower educational attainment suggesting that such state laws may help reduce disparities in breastfeeding.

Feyrer, James, Bruce Sacerdote, & **Ariel Dora Stern**. 2008. Will the Stork Return to Europe and Japan? Understanding Fertility within Developed Nations. Journal of Economic Perspectives, 22(3): 3–22.

Only a few rich nations are currently at replacement levels of fertility and many are considerably below. We believe that changes in the status of women are driving fertility change. At low levels of female status, women specialize in household production and fertility is high. In an intermediate phase, women have increasing opportunities to earn a living outside the home yet still shoulder the bulk of household production. Fertility is at a minimum in this regime due to the increased opportunity cost in women's foregone wages with no decrease in time allocated to childcare. We see the lowest fertility nations (Japan, Spain, Italy) as being in this regime. At even higher levels of women's status, men begin to share in the burden of childcare at home and fertility is higher than in the middle regime. This progression has been observed in the US, Sweden and other countries. Using ISSP and World Values Survey data we show that countries in which men perform relatively more of the childcare and household production (and where female labor force participation was highest 30 years ago) have the highest fertility within the rich country sample. Fertility and women's labor force participation have become positively correlated across high-income countries. The trend in men's household work suggests that the low fertility countries may see increases in fertility as women's household status catches up to their workforce opportunities. We also note that as the poor nations of the world undergo the demographic transition they appear to be reducing fertility faster and further than the current rich countries did at similar levels of income. By examining fertility differences between the rich nations we may be able to gain insight into where the world is headed.

Feyrer, James, Bruce Sacerdote, & **Ariel Dora Stern**. Did the Rust Belt Become Shiny? A Study of Cities and Counties That Lost Steel and Auto Jobs in the 1980s. Brookings-Wharton Papers on Urban Affairs, 2007, 41-89.

How do countries, cities, or regions respond to adverse economic shocks? How quickly does an area recover and through which adjustment mechanisms? We undertake a study of one of the biggest negative shocks to affect the U.S. economy in the past fifty years, namely, the massive loss of steel- and auto-related jobs in the early 1980s, which we refer to collectively as the Rust Belt shock. In the decade between 1977 and 1987 the United States shed about 500,000 jobs in the auto industry and 350,000 jobs in the steel industry, far outstripping any other job losses in recent U.S. history. These job losses were concentrated in roughly 140 of the 3,000 counties in the United States. We find very rapid recovery in the unemployment rate in Rust Belt cities and counties: within five years, unemployment in the Rust Belt areas returned to the U.S. average. The adjustment took place entirely through out-migration of people rather than in-migration of jobs or a change in labor force participation. Each steel or auto job lost in a county led to a net decrease in population of 1.8 persons. While Rust Belt counties and MSAs recovered quickly on certain dimensions like unemployment and income per capita, amenities in these places experienced a negative shock that did not diminish over time. We also examine the Rust Belt shock in the United Kingdom and find that regional adjustment was considerably slower, taking more than ten years for unemployment rates to converge to pre-shock levels. Furthermore, only half of the adjustment in the United Kingdom occurred through population movement, while the other half occurred through a relative decrease in labor force participation.