

## Sendhil Mullainathan

Robert C Waggoner Professor of Economics  
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### Education

HARVARD UNIVERSITY, CAMBRIDGE, MA, 1993-1998

*PhD in Economics*

Dissertation Topic: Essays in Applied Microeconomics

Advisors: Drew Fudenberg, Lawrence Katz, and Andrei Shleifer

CORNELL UNIVERSITY, ITHACA, NY, 1990-1993

*B.A. in Computer Science, Economics, and Mathematics, magna cum laude*

### Fields of Interest

Behavioral Economics, Poverty, Applied Econometrics, Machine Learning

### Professional Affiliations

HARVARD UNIVERSITY

Robert C Waggoner Professor of Economics, 2015 to present.

Affiliate in Computer Science, Harvard John A. Paulson School of Engineering and Applied Sciences, July 1, 2016 to present

Professor of Economics, 2004 (September) to 2015.

UNIVERSITY OF CHICAGO

Visiting Professor, Booth School of Business, 2016-17.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Mark Hyman Jr. Career Development Associate Professor, 2002-2004

Mark Hyman Jr. Career Development Assistant Professor, 2000-2002

Assistant Professor, 1998- 2000

SELECTED AFFILIATIONS

Co - Founder and Senior Scientific Director, ideas42

Research Associate, National Bureau of Economic Research

Founding Member, Poverty Action Lab

Member, *American Academy of Arts and Sciences*

Contributing Writer, *New York Times*

## Books

*Scarcity: Why Having Too Little Means So Much*, joint with Eldar Shafir, 2013. New York, NY: Times Books

[Policy and Choice: Public Finance through the Lens of Behavioral Economics](#), joint with William J Congdon and Jeffrey Kling, 2011. Washington, DC: Brookings Institution Press

## Work in Progress

*Machine Learning and Econometrics: Prediction, Estimation and Big Data*, joint with Jann Spiess, book manuscript in preparation.

“Multiple Hypothesis Testing in Experiments: A Machine Learning Approach,” joint with Jens Ludwig and Jann Spiess, in preparation.

“Inductive Theory Testing: A Framework and an Application to the Disposition Effect,” joint with Jon Kleinberg, Chenhao Tan and Tom Zimmerman, in preparation.

“Low-value care from moral hazard and misprediction: Using machine learning to understand doctors’ decisions,” joint with Ziad Obermeyer, in preparation

## Working Papers

“Recommendations in the dark,” joint with Mike Yeomans, Anuj Shah and Jon Kleinberg, draft 2016.

“Predicting mortality after emergency hospitalizations in Medicare beneficiaries with cancer,” joint with Ziad Obermeyer, Maggie Makar, Andrew N. Freedman, and Jennifer S. Temel, draft 2015.

“Human Decisions and Machine Predictions,” joint with Jon Kleinberg, Himabindu Lakkaraju, Jure Leskovec and Jens Ludwig, NBER Working Papers 23180, National Bureau of Economic Research, Inc.

“The Theory is Predictive, but is it Complete? An Application to Human Perception of Randomness,” joint with Jon Kleinberg and Annie Liang, draft, 2015.

“The Market for Financial Advice: An Audit Study,” joint with Markus Noth & Antoinette Schoar June 2010, NBER Working Papers 17929, National Bureau of Economic Research, Inc.

“The Shape of Temptation: Implications for the Economic Lives of the Poor,” joint with Abhijit Banerjee, 2010, NBER Working Papers 15973, National Bureau of Economic Research, Inc.

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"Profitable Investments or Dissipated Cash? Evidence on the Investment-Cash Flow Relationship From Oil and Gas Lease Bidding," joint with Marianne Bertrand, 2005, NBER Working Papers 11126, National Bureau of Economic Research, Inc.

"Persuasion in Finance," joint with Andrei Shleifer, 2005, NBER Working Papers 11838, National Bureau of Economic Research, Inc.

"Executive Compensation and Incentives: The Impact of Takeover Legislation," joint with Marianne Bertrand, 1998, NBER Working Papers 6830, National Bureau of Economic Research, Inc.

## Journal Articles

2017

“Does Machine Learning Automate Moral Hazard and Error?” joint with Ziad, *American Economic Review*, 2017, May (forthcoming). (Non refereed)

“Inherent Trade-Offs in the Fair Determination of Risk Scores,” joint with Jon Kleinberg and Manish Raghavan. Proc. 8th Conf. on Innovations in Theoretical Computer Science (ITCS), 2017, forthcoming.

2016

“Thinking, Fast and Slow? Some Field Experiments to Reduce Crime and Dropout in Chicago”, joint with Heller, S. B., Shah, A. K., Guryan, J., Ludwig, J., and Pollack, H. A. (2015). (Formerly National Bureau of Economic Research No. 21178) *Quarterly Journal of Economics*, 2016, 132 (1): 1-54

“Assessing Human Error Against a Benchmark of Perfection,” joint with Ashton Anderson and Jon Kleinberg, Proc. 22nd ACM SIGKDD Intl. Conf. on Knowledge Discovery and Data Mining, 2016.

“The Psychological Lives of the Poor,” joint with Frank Schilbach and Heather Schofield, *American Economic Review*, 2016, May. (Non refereed)

“Productivity and Selection of Human Capital with Machine Learning,” joint with Aaron Chalfin, Oren Danieli, Andrew Hillis, Zubin Jelveh, Michael Luca, and Jens Ludwig, *American Economic Review*, 2016, May. (Non refereed)

2015

"Getting to the Top of Mind: How Reminders Increase Saving," joint with Dean Karlan, Margaret McConnell, & Jonathan Zinman, 2015, *Management Science*, 2016, January.

“Self Control at Work: Evidence from a Field Experiment,” joint with Supreet Kaur & Michael Kremer, *Journal of Political Economy*, 2016, 123 (6), 1227-1277

“Behavioral Hazard in Health Insurance,” joint with Katherine Baicker & Joshua Schwartzstein, 2015, *The Quarterly Journal of Economics*, 2015, 130(4), 1623-1667

“Prediction Policy Problems,” joint with Jon Kleinberg, Jens Ludwig and Ziad Obermeyer, *American Economic Review* (May), 2015. (Non-refereed)

“Scarcity Frames Value,” joint with Anuj Shah and Eldar Shafir, *Psychological Science*, 2015, April.

2014

“Learning through Noticing,” joint with Rema Hanna & Joshua Schwartzstein, *The Quarterly Journal of Economics* 129.3 (2014): 1311-1353.

“Externalities, Internalities, and the Targeting of Energy Policy,” joint with Hunt Allcott and Dmitry Taubinsky, *Journal of Public Economics*, Vol. 112 (April) 2014, pages 72-88.

“Behavioral Design: A New Approach to Development Policy,” joint with Saugato Datta, *Review of Income and Wealth* 60.1 (2014): 7-35.

2013

“Poverty Impedes Cognitive Function,” joint with Anandi Mani, Eldar Shafir, and Jiaying Zhao, *Science*, August 2013.

“Targeting with Agents,” joint with Paul Niehaus, Antonia Atanassova, & Marianne Bertrand, *American Economic Journal: Economic Policy* 5 (1), 2013, pp. 206-38

2012

“Notes on behavioral economics and labor market policy,” joint with Linda Babcock, William Congdon and Lawrence Katz, *IZA Journal of Labor Policy* 1, no. 1 (2012): 1-14.

“Health Insurance Coverage and Take- Up: Lessons from Behavioral Economics,” joint with Baicker, Katherine and William J. Congdon. *Milbank Quarterly* 90.1 (2012): 107-134.

“Some Consequences of having too Little,” joint with Anuj K. Shah & Eldar Shafir, *Science*, November 2012.

“A Reduced Form Approach to Behavioral Public Finance” joint with Joshua Schwartzstein & William J. Congdon, *Annual Review of Economics*, 2012.

“Comparison Friction: Experimental Evidence from Medicare Drug Plans,” joint with Jeffrey Kling, Eldar Shafir, Lee Vermeulen, & Marian V. Wrobel. *Quarterly Journal of Economics*, 127:1 (February 2012), 199-235.

“Mechanism Experiments and Policy Evaluations,” joint with Jens Ludwig & Jeffrey R. Kling, *Journal of Economic Perspectives*, 25:3 (Summer 2011), 17-38.

“Helping Consumers Know Themselves,” joint with Emir Kamenica & Richard Thaler *American Economic Review: Papers and Proceedings* 2011, 101(3), 417-22. (Non-refereed)

“Rigidity in Microfinancing: Can One Size Fit All?” joint with Dean Karlan, *QFinance* (June 2010).

“Self Control and the Development of Work Arrangements,” joint with Supreet Kaur & Michael Kremer, *American Economic Review: Papers and Proceedings*, May 2010, 100, 624-628. (Non-refereed)

- “Behavior and Energy Policy,” joint with Hunt Allcott, *Science* 5 March 2010: 1204-1205.
- “Affirmative Action in Education: Evidence from Engineering College Admissions in India,” joint with Marianne Bertrand & Rema Hanna, *Journal of Public Economics*, 94 (1-2), 2010: 16-29.
- “What’s Advertising Content Worth? Evidence from a Consumer Credit Marketing Field Experiment,” joint with Marianne Bertrand, Dean Karlan, Eldar Shafir, & Jonathan Zinman, 2010. *The Quarterly Journal of Economics*, Vol. 125, No. 1: 263–305.
- “Behavioral Economics and Tax Policy,” joint with William J. Congdon & Jeffrey R. Kling, *National Tax Journal*, 62:3 (September 2009), 375-386.
- “Sticking With Your Vote: Cognitive Dissonance and Political Attitudes,” joint with Ebonya Washington, *American Economic Journal: Applied Economics*, 1(1), 2009:86-111.
- “Labor Market Discrimination in Dehli: Evidence from a Field Experiment,” joint with Abhijit Banerjee, Marianne Bertrand, & Saugato Datta, *Journal of Comparative Economics*, 37( 1), 2009:14-27.
- “Limited Attention and Income Distribution,” joint with Abhijit V. Banerjee, *American Economic Review*, 98( 2), 2008:489-93.
- “Why Don’t People Insure Late-Life Consumption? A Framing Explanation of the Under-Annuitization Puzzle,” joint with Jeffrey Robert Brown, Jeffrey R. Kling, & Marion V. Wrobel, *American Economic Review*, 98 (2), 2008: 304-09.
- “Coarse Thinking and Persuasion,” joint with Joshua Schwartztein & Andrei Shleifer, *The Quarterly Journal of Economics*, 123( 2) 2008: 577-619.
- “Obtaining a Driver’s License in India: An Experimental Approach to Studying Corruption,” joint with Marianne Bertrand, Simeon Djankov, & Rema Hanna, *The Quarterly Journal of Economics*, 22(4), 2007: 1639-1676.
- “Development Economics Through the Lens of Psychology,” *Proceedings of the Annual Bank Conference on Development Economics*, 2006. (Non-Refereed)
- “Behavioral Economics and Marketing in Aid of Decision-Making among the Poor,” joint with Marianne Bertrand, & Eldar Shafir, 2006, *Journal of Public Policy and Marketing*, 25, 1, 8-23.
- “Implicit Discrimination,” joint with Marianne Bertrand & Dolly Chugh, *American Economics Review*, 95(2), 2005:94-98.
- “The Market for News,” joint with Andrei Shleifer, *American Economic Review*, 95(4), 2005: 1031-1053.

“Do Cigarette Taxes Make Smokers Happier?” joint with Jonathan Gruber, *The B.E. Journal of Economic Analysis and Policy*, 5(1), 2005.

“Psychology, Behavioral Economics, and Public Policy,” joint with On Amir, Dan Ariely, Alan Cooke, David Dunning, Nicholas Epley, Botond Koszegi, Donald Lichtenstein, Nina Mazar, Drazen Prelec, Eldar Shafir, & Jose Silva, 2005, *Marketing Letters*, 16 (3-4), p. 443-454. (Non-refereed)

“A Behavioral Economics View of Poverty,” joint with Marianne Bertrand, & Eldar Shafir, 2004, *American Economic Review*, 94, 2, 419-423.

“Are Emily and Greg More Employable than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination,” joint with Marianne Bertrand, *American Economic Review*, 94( 4), September 2004: 991-1013.

“A Behavioral-Economics View of Poverty,” joint with Marianne Bertrand & Eldar Shafir, *American Economic Review Papers and Proceedings*, 94(2) May 2004:419-423. (Non-refereed)

“How Much Should We Trust Difference-in-Difference Estimates?” joint with Marianne Bertrand & Esther Duflo, *The Quarterly Journal of Economics*, 119(1), 2004: 249-275.

“Pyramids,” joint with Marianne Bertrand, *Journal of the European Economic Association*, 1(2-3), April/May 2003: 478-83. (Non-refereed)

“Enjoying the Quiet Life? Corporate Governance and Managerial Preferences,” joint with Marianne Bertrand, *Journal of Political Economy*, 111(5), October 2003: 1043-1075.

“Public Policy and Extended Families: Evidence from South Africa,” joint with Marianne Bertrand & Douglas Miller, *World Bank Economic Review*, 17(1), 2003: 27-50.

“A Memory-Based Model of Bounded Rationality”, *Quarterly Journal of Economics*, 117(3), August 2002: 735-774.

"Ferretting Out Tunneling: An Application to Indian Business Groups," joint with Marianne Bertrand & Paras Mehta, *The Quarterly Journal of Economics*, 117(1), February 2002: 121-48.

“Behavioral Economics,” joint with Richard Thaler, *International Encyclopedia of Social Sciences*, Pergamon Press, 1st edition, October 1, 2001: 1094-1100. (Non-refereed)

“Are CEOs Rewarded for Luck? The Ones Without Principals Are,” joint with Marianne Bertrand, *The Quarterly Journal of Economics*, 116(3), August 2001: 901-32. (Longer version available as “Do CEOs Set Their Own Pay? The Ones Without Principals Do,” National Bureau of Economic Research Working Paper #7604).

“Do Firm Boundaries Matter?” joint with David Scharfstein, *American Economic Review Papers and Proceedings*, 91(2), May 2001: 195-199. (Non-refereed)

“Do People Mean What They Say? Implications for Subjective Survey Data,” joint with Marianne Bertrand. Shorter version: *American Economic Review Papers and Proceedings*, 91(2), May 2001: 67-72. (Non-refereed)

“Network Effects and Welfare Cultures,” joint with Marianne Bertrand & Erzo F.P. Luttmer, *Quarterly Journal of Economics*, 115( 3), August 2000: 1019-1055.

“Agents With and Without Principals,” joint with Marianne Bertrand, *American Economic Review Papers and Proceedings*, 90(2), May 2000: 203-208.

“Is there Discretion in Wage Setting?” joint with Marianne Bertrand, *Rand Journal of Economics*, 30(3), Autumn 1999: 535-554.

“Resource Bounds and Combinations of Consensus Objects,” joint with Jon M. Kleinberg, *Proceedings of the 12th Annual ACM Symposium on Principles of Distributed Computing*, ACM Press, 1993.

## **Book Chapters**

“Corruption” joint with Abhijit Banerjee & Rema Hanna, 2012, *Handbook of Organizational Economics*

“Does Less Market Entry Regulation Generate More Entrepreneurs? Evidence from a Regulatory Reform in Peru,” joint with Philipp Schnabl in *International Differences in Entrepreneurship*, eds. Josh Lerner & Antoinette Schoar, The University of Chicago Press, 2010: 159-179.

“Savings Policy and Decision Making in Low Income Households,” joint with Eldar Shafir in *Insufficient Funds: Savings, Assets, Credit and Banking Among Low-Income Households*, eds. Michael Barr & Rebecca Blank, Russell Sage Foundation Press, 2009: pp. 121-145.

“The Impact of Electoral Debate on Public Opinion: An Experimental Investigation of the 2005 New York City Mayoral Election” joint with Ebonya Washington & Julia R. Azari in *Political Representation* eds. Ian Shapiro, Susan C. Stokes, Elisabeth Jean Wood, & Alexander S. Kirshner, Cambridge University Press, 2009: 324-342.

“The Case for Behaviorally Informed Regulation ,” joint with Michael S. Barr & Eldar Shafir in *New Perspectives on Regulation* , eds. David Moss & John Cisternino, The Tobin Project, Cambridge, MA, 2009, 25-62.

“Behaviorally Informed Home Mortgage Credit Regulation,” joint with Michael S. Barr & Eldar Shafir, in *Borrowing to Live Consumer and Mortgage Credit Revised*, eds. Nicolas P. Retsinas & Eric S. Belsky, Brookings Institution Press, Washington D.C., 2008: 170-203.

“Psychology and Development Economics,” in *Yrjö Jahnsson Foundation 50th Anniversary Conference on Economic Institutions and Behavioral Economics*, eds. Peter Diamond & Hannu Vartiainen, Princeton University Press, Princeton, New Jersey, 2007.



“Better Choices to Reduce Poverty,” in *Understanding Poverty*, eds. Abhijit Vinayak Banerjee, Roland Benabou & Dilip Mookherjee, Oxford University Press, 2006:379-389.

### **Other Articles (and more general writings)**

“A Guide to Solving Social Problems with Machine Learning,” joint with Ludwig, Jens and Jon Kleinberg. *Harvard Business Review* December 8 (2016).

"Algorithms Need Managers, Too," joint with Luca, Michael and Jon Kleinberg. *Harvard Business Review* 94 (2016): 96-101.

“Spotting Bubbles on the Rise,” *Harvard Business Review* (2010) Volume: 88, Issue: 3, 41-57.

“Take-up: Why Microfinance Take-up Rates Are Low & Why It Matters,” joint with Dean Karlan, Jonathan Morduch, Financial Access Initiative framing note, June 2010.

“Psychology and Economics: What it Means for Microfinance,” joint with Sudha Krishnan, Financial Access Initiative framing note, April 2008.

“An Opt-Out Home Mortgage System,” joint with Michael S. Barr, & Eldar Shafir, Hamilton Project Discussion Paper 2008-14, The Brookings Institution.

“Behaviorally Informed Financial Services Regulation,” joint with Michael S. Barr & Eldar Shafir, 2008, New America Foundation White Paper.

“Is Microfinance Too Rigid?” joint with Dean Karlan, Financial Access Initiative framing note, December 2007.

“Microentrepreneurs and Their Money: Three Anomalies,” joint with Bindu Ananth & Dean Karlan, Financial Access Initiative framing note, August 2007.

“Market Efficiency Versus Behavioral Finance,” joint with Bruce Stangle, *Journal of Applied Corporate Finance*, 17(3), 2005: 124-136.