

# MICHAEL GREENSTONE

## CONTACT INFORMATION

University of Chicago  
Department of Economics  
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Chicago, Illinois 60637  
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## PERSONAL

Marital Status: Married to Katherine Ozment  
Children: William Pryor Greenstone, Jessica Joan Greenstone and Anne Ozment Greenstone  
Citizenship: US

## EDUCATION

Ph.D., Economics, Princeton University, 1998  
B.A. with High Honors, Economics, Swarthmore College, June 1991

## PROFESSIONAL EXPERIENCE

### ACADEMIC POSITIONS

2014 – present Milton Friedman Professor of Economics, University of Chicago  
2014 – present Director of the Energy Policy Institute at Chicago (EPIC)  
2006 – 2014 3M Professor of Environmental Economics, MIT  
2006 – 2007 Visiting Professor, University of California Energy Institute and University of California, Berkeley, (Economics Department and Center for Labor Economics)  
2005 – 2006 Visiting Professor at University of California, Berkeley (Center for Labor Economics) and Stanford (Department of Economics)  
2003 – 2006 3M Associate Professor of Economics (with tenure), MIT  
2000 – 2003 Assistant Professor of Economics University of Chicago  
1998 – 2000 Robert Wood Johnson Scholar, University of California-Berkeley

### AFFILIATIONS and NONACADEMIC POSITIONS

2014 – present Faculty Advisory Board Member, The Paulson Institute  
2014 – present Elected Member, American Academy of Arts and Sciences  
2013 – present Faculty Director, The E2e Project  
2013 – present Director, Energy Research Programme, International Growth Centre  
2010 – 2013 Director, The Hamilton Project  
2010 – 2013 Co-Director, Climate Change, Environment and Natural Resources Research Programme, International Growth Centre  
2010 – present Board of Directors and Head of Environment and Energy Program, Abdul Latif Jameel Poverty Action Lab, MIT  
2010 – present Senior Fellow (Economic Studies), Brookings Institution  
2003 – present Research Associate, National Bureau of Economic Research  
2009 – 2010 Chief Economist, Council of Economic Advisors  
2008 – 2014 Energy Council, MIT Energy Initiative  
2008 – 2009 Environmental Research Council, MIT  
2008 – present Advisory Board, Ed Labs  
2007 – 2009 Nonresident Senior Fellow (Economic Studies), Brookings Institution  
2006 – present Fellow, Center for the Study of Poverty and Inequality at Stanford University

2006 – present	Member, Abdul Latif Jameel Poverty Action Lab
2002 – 2003	Research Fellow, American Bar Foundation
2001 – 2003	Research Associate, Center for Integrating Statistical and Environmental Science, University of Chicago
2001 – 2003	Research Associate, Population Research Center, University of Chicago
2000 – 2003	Faculty Research Fellow, National Bureau of Economic Research
1998 – 2000	Visiting Scholar, Center for Labor Economics, University of California Berkeley
1996 – present	Special Sworn Employee, US Census Bureau

## **FIELDS OF INTEREST**

Environmental and Energy Economics, Public Finance, Development Economics, Labor Economics, and Health Economics

## **FELLOWSHIPS AND AWARDS**

National Science Foundation Grant (with Esther Duflo and Rohini Pande), 2011-2013  
 John D. and Catherine T. MacArthur Foundation (with Hunt Allcott), 2010-2012  
 Alfred P. Sloan Foundation (with Meredith Fowlie and Catherine Wolfram), 2010-2012  
 National Institute of Health (NICHD) R21 Grant # ES019375-01 (with Olivier Deschenes), 2010-2012  
 National Institute of Health (NICHD) R21 Grant #HD055613-01 (with Janet Currie and Enrico Moretti), 2007-2009  
 Smith-Richardson Foundation, (with Ted Gayer), 2006-2007  
 Eligible Fellow, Center for Advanced Study in the Behavioral Sciences, 2005-2011  
 12<sup>th</sup> Annual Kenneth J. Arrow Award for Best Paper in Field of Health Economics, 2004  
 Albert Rees Prize for Best Dissertation in Labor Economics from Princeton in Previous Six Years, 2003  
 National Institute of Health (NICHD) R01 Grant #HD42176-01, (with Kenneth Chay), 2002-2006  
 Environmental Protection Agency through Center for Integrating Statistical and Environmental Science at University of Chicago (with Kenneth Chay), 2002-2004  
 George G. Stigler Center for Study of Economy and State Faculty Research Grant, (with Paul Oyer and Annette Vissing-Jorgensen), 2001-2002 and 2002-2003  
 National Institute of Health (NICHD) RO3 Grant #HD38302-01, (with Kenneth Chay), 2000-2001  
 National Science Foundation Grant #9730212, (with Kenneth Chay), 1998-2001  
 Alfred P. Sloan Foundation Doctoral Dissertation Fellowship, 1996-1997  
 Woodrow Wilson Society of Fellows Graduate Fellowship, Princeton University, 1996-1998  
 Joseph L. Fisher Dissertation Award, Resources for the Future, 1996-1997  
 Robertson Fellowship, Woodrow Wilson School, Princeton University, 1995-1997  
 Center for Economic Policy Studies Research Grant, Princeton University, 1996  
 Lynde and Harry Bradley Foundation Fellowship, 1995-1996  
 Princeton University Fellowship, 1993-1996 and Summers 1996 and 1997

## **PUBLICATIONS**

“Envirodevonomics: A Research Agenda for an Emerging Field,” (with B. Kelsey Jack), forthcoming *Journal of Economic Literature*, 2014; also NBER WP #19426; MIT Department of Economics WP No. 13-19, 2013.

“Environmental Health Risks and Housing Values: Evidence from 1600 Toxic Plant Openings and Closings,” (with Janet Currie, Lucas Davis, and Reed Walker), forthcoming *American Economic Review*, 2014; also NBER WP #18700, 2013; MIT Dept. of Economics WP No. 12-30, 2012.

“Particulate Matter Matters,” (with Francesca Dominici and Cass R. Sunstein) *Science*, 2014, 344 (6181, April 18, 2014): 257-259.

“Environmental Regulations, Air and Water Pollution, and Infant Mortality in India,” (with Rema Hanna), forthcoming *American Economic Review*, 2014; also NBER WP #17210; MIT Dept. of Economics WP No. 11-11, 2011; CEEPR WP 2011-014.

“Truth-telling by Third-Party Auditors and the Response of Polluting Firms: Experimental Evidence from India,” (with Esther Duflo, Rohini Pande, and Nicholas Ryan), *Quarterly Journal of Economics*, 2013, 128 (4): 1499-1545; also NBER WP #19259 and MIT Dept. of Economics WP No. 13-17.

“Evidence on the Impact of Sustained Exposure to Air Pollution on Life Expectancy from China’s Huai River Policy,” (with Yuyu Chen, Avraham Ebenstein, and Hongbin Li), *Proceedings of the National Academy of Sciences*, 2013, 110 (32): 12936–12941; MIT Dept. of Economics WP No. 13-15.

“What Does Reputation Buy? Differentiation in a Market for Third-Party Auditors,” (with Esther Duflo, Rohini Pande, and Nicholas Ryan), *American Economic Review Papers and Proceedings*, 2013, 103 (3): 314-19.

“Developing a Social Cost of Carbon for US Regulatory Analysis: A Methodology and Interpretation,” (with Elizabeth Kopits and Ann Wolverton), *Review of Environmental Economics and Policy*, 2013, 7 (1): 23–46; also MIT Dept. of Economics WP No. 11-04; CEEPR WP No. 2011-006.

“The Economic Impacts of Climate Change: Evidence from Agricultural Output and Random Fluctuations in Weather: Reply,” (with Olivier Deschenes), *American Economic Review*, 2012, 102 (7): 3761–3773.

“Paying Too Much for Energy? The True Costs of Our Energy Choices” (with Adam Looney), *Daedalus* 241(2): 10–30, 2012.

“Is There an Energy Efficiency Gap?” (with Hunt Allcott), *Journal of Economic Perspectives*, 26 (1): 3-28, 2012; also NBER WP #17766, MIT Dept. of Economics WP No. 12-03, 2012.

“Civil Rights, the War on Poverty, and Black-White Convergence in Infant Mortality in the Rural South and Mississippi,” (with Douglas Almond and Kenneth Chay). September 2007. Accepted Subject to Minor Revisions at *American Economic Review*.

“Climate Change, Mortality, and Adaptation: Evidence from Annual Fluctuations in Weather in the US,” (with Olivier Deschenes). *American Economic Journal: Applied Economics*, 2011, 3 (4): 152–185.

“Superfund Cleanups and Infant Health,” (with Janet Currie and Enrico Moretti). *American Economic Review Papers and Proceedings*, 2011, 101 (3): 435–441.

“Comment on ‘On the Economics of Climate Policy’: Is Climate Change Mitigation the Ultimate Arbitrage Opportunity?” (with Manasi Deshpande). *B.E. Journal of Economic Analysis & Policy*, 10 (2) (Symposium), Article 20, 2010; reprinted in Mark Cohen, Don Fullerton and Robert Topel (Eds.) *Distributional Aspects of Energy and Climate Policies*. Cheltenham, UK.: Edward Elgar, 2013, pp. 28-40.

“Identifying Agglomeration Spillovers: Evidence from Winners and Losers of Large Plant Openings,” (with Rick Hornbeck and Enrico Moretti). *Journal of Political Economy*, 2010, 118 (3): 536-598.

“The Changing Consequences of Attending Historically Black Colleges and Universities,” (with Roland Fryer). *American Economic Journal: Applied Economics*, 2010, 2(1): 116-48.

“Climate Change and Birth Weight,” (with Olivier Deschenes and Jonathan Guryan). *American Economic Review Papers and Proceedings*, 2009, 99(2): 211-217.

- “Winter Heating or Clean Air? Unintended Impacts of China’s Huai River Policy,” (with Douglas Almond, Yuyu Chen, and Hongbin Li). *American Economic Review Papers and Proceedings*, 2009, 99(2): 184-190.
- “Quasi-Experimental and Experimental Approaches to Environmental Economics,” (with Ted Gayer). *Journal of Environmental Economics and Management*, 57 (1), 2009: 21-44.
- “Does Hazardous Waste Matter? Evidence from the Housing Market and the Superfund Program,” (with Justin Gallagher). *Quarterly Journal of Economics*, August 2008.
- “The Economic Impacts of Climate Change: Evidence from Agricultural Output and Random Fluctuations in Weather,” (with Olivier Deschenes). *American Economic Review*, March 2007.
- “Mandated Disclosure, Stock Returns, and the 1964 Securities Act,” (with Paul Oyer and Annette Vissing-Jorgensen). *Quarterly Journal of Economics*, May 2006.
- “Does Air Quality Matter? Evidence from the Housing Market,” (with Kenneth Chay). *Journal of Political Economy*, April 2005, 113(2).
- “Did the Clean Air Act Cause the Remarkable Decline in Sulfur Dioxide Concentrations?” *Journal of Environmental Economics and Management*, 2004, 47(3).  
 •Reprinted in Spatial Aspects of Environmental Policy, editors Jacqueline Geoghegan and Wayne Gray
- “Estimating the Value of a Statistical Life: The Importance of Omitted Variables and Publication Bias,” (with Orley Ashenfelter). *American Economic Review Papers and Proceedings*, 2004, 94(2).
- “Using Mandated Speed Limits to Measure the Value of a Statistical Life,” (with Orley Ashenfelter). *Journal of Political Economy*, 2004, 112(1, Pt. 2).
- “The Clean Air Act of 1970 and Adult Mortality,” (with Kenneth Chay and Carlos Dobkin). *Journal of Risk and Uncertainty*, 2003, 27(3).
- “The Impact of Air Pollution on Infant Mortality: Evidence from Geographic Variation in Pollution Shocks Induced by a Recession,” (with Kenneth Chay). *Quarterly Journal of Economics*, 2003, 118(3).  
 •Awarded Kenneth J. Arrow Award for Best Paper in Field of Health Economics in 2003.
- “Estimating Regulation-Induced Substitution: The Effect of the Clean Air Act on Water and Ground Pollution.” *American Economic Review Papers and Proceedings*, 2003, 93(2).
- “The Impacts of Environmental Regulations on Industrial Activity: Evidence from the 1970 and 1977 Clean Air Act Amendments and the Census of Manufacturers.” *Journal of Political Economy*, 2002, 110(6).  
 •Reprinted in The Economics of Pollution Control, editor Kathleen Segerson. Cheltenham, UK: Edward Elgar, 2011.
- “A Reexamination of Resource Allocation Responses to the 65-mph Speed Limit.” *Economic Inquiry*, 2002, 40(2).
- “The Convergence in Black/White Infant Mortality Rates during the 1960s,” (with Kenneth Chay). *American Economic Review Papers and Proceedings*, 2000, 90(2).

“Are There Sectoral Anomalies Too? The Pitfalls of Multiple Hypothesis Testing and a Simple Solution,” (with Paul Oyer). *Review of Quantitative Finance and Accounting*, 2000, 15(1).

## WORKING PAPERS

“The Effects of Environmental Regulation on the Competitiveness of U.S. Manufacturing,” (with John A. List and Chad Syverson), NBER WP #18392, MIT Department of Economics WP No. 12-24, 2012. Revision requested by *Quarterly Journal of Economics*.

“Adapting to Climate Change: The Remarkable Decline in the U.S. Temperature-Mortality Relationship Over the 20<sup>th</sup> Century,” (with Alan Barreca, Karen Clay, Olivier Deschenes, and Joseph Shapiro), NBER WP #18692, 2013; MIT Dept. of Economics WP No. 12-29, 2012. Revision requested by *Journal of Political Economy*.

“Up in Smoke: The Influence of Household Behavior on the Long-Run Impact of Improved Cooking Stoves” (with Rema Hanna and Esther Duflo), NBER WP #18033, May, 2012; MIT Dept. of Economics WP No. 12-10, 2012. Revision requested by *American Economic Journal: Economic Policy*.

“Defensive Investments and the Demand for Air Quality: Evidence from the The NO<sub>x</sub> Budget Program and Ozone Reductions,” (with Olivier Deschenes and Joseph Shapiro), NBER WP #18267, MIT Department of Economics WP No. 12-18, 2012. Revision requested by *American Economic Review*.

“The Value of Discretion in the Enforcement of Regulation: Experiment Evidence and Structural Estimates from Environmental Inspections in India” (with Esther Duflo, Rohini Pande, and Nicholas Ryan), Mimeograph, 2014.

“The Value of a Statistical Life: Evidence from Military Retention Incentives and Occupation-Specific Mortality Hazards,” (with Stephen Ryan and Michael Yankovich), Mimeograph, 2014.

“Do Energy Efficiency Investments Deliver? Evidence from the Weatherization Assistance Program” (with Meredith Fowlie and Catherine Wolfram), Mimeograph, 2014.

“The Local Welfare Consequences of Hydraulic Fracturing” (with Alexander W. Bartik, Janet Currie, and Christopher R. Knittel), Mimeograph, 2014.

“Weather and Death in India: Mechanisms and Implications for Climate Change,” (with Robin Burgess, Olivier Deschenes, and Dave Donaldson), Mimeograph, 2013.

“Do Credit Market Shocks Affect the Real Economy? Quasi-Experimental Evidence from the Great Recession and 'Normal' Economic Times,” (with Alex Mas and Hoai-Luu Nguyen), Mimeograph, 2012.

“The Short- and Medium-Run Impacts of Clean Water on Diarrhea and Malaria in Rural India,” (with Esther Duflo, Raymond Guiteras, and Thomas Clasen), Mimeograph, 2014.

“Bidding for Industrial Plants: Does Winning a ‘Million Dollar Plants’ Increase Welfare?” (with Enrico Moretti). Mimeograph, 2004. Revision requested by *American Economic Review*.

“Is The ‘Surge’ Working? Some New Facts.” MIT Department of Economics Working Paper, September 2007. Revision Requested by *B.E. Journal of Economic Analysis & Policy*.

“Air Quality, Infant Mortality, and the Clean Air Act of 1970,” (with Kenneth Chay). NBER Working Paper No. 10053, 2003.

“The Wage Consequences of Enclave Residence: Evidence from the 1980 and 1990 Censuses.” University of California-Berkeley, Center for Labor Economics Working Paper No. 6, November 1998. Revision requested by *Industrial and Labor Relations Review*.

## **WORKS IN PROGRESS**

“Experimental Evidence on the Benefits of a Cap-and-Trade System of Regulating Air Pollution in India” (with Aparna Krishnan, Rohini Pande, Nick Ryan, and Anant Sudarshan).

“The Causes and Consequences of Energy Efficient Investments in the Residential Sector? Evidence from a Large Randomized Field Experiment” (with Hunt Allcott).

“The Health Effects of Radioactive Fallout from Nuclear Testing: Evidence from Infant Health Outcomes,” (with Douglas Almond).

“The Hill-Burton Hospital Construction Program and Infant Health,” (with Doug Almond, Kenneth Chay, Stacy Sneeringer, and Melissa Thomasson).

## **OTHER PUBLICATIONS**

“The First Step to Cutting Red Tape: Better Analysis,” Testimony to U.S. Congress Joint Economic Committee, April 30, 2014.

“Water pollution and public health in India: The potential for a market-friendly approach,” (with Raahil Madhok, Rohini Pande, and Hardik Shah) in [In Health and South Asia](#), Cambridge, MA: Harvard South Asia Institute, pp. 61-65, 2013.

“Eliminating Unnecessary and Costly Red Tape Through Smarter Regulations,” Testimony to U.S. Congress Joint Economic Committee, June 26, 2013.

“The True Costs of Alternative Energy Sources: Are We Unfairly Penalizing Natural Gas?” Testimony to U.S. Congress Joint Economic Committee, April 26, 2012.

“Improving Regulatory Performance: Lessons from the United Kingdom,” Testimony to Congress, Senate Budget Committee Task Force on Government Performance, November 16, 2011; also CEEPR WP No. 2011/019.

“Renewing Economically Distressed American Communities,” (with Adam Looney) *Issues in Science and Technology*, Winter, 2011.

“Trends,” (with Adam Looney) *Milken Institute Review*, 13(3): 8-16.

“Towards an Emissions Trading Scheme for Air Pollutants in India: A Concept Note,” (with Esther Duflo, Rohini Pande and Nicholas Ryan) Discussion Paper, Ministry of Environment and Forest, Government of India, August, 2010.

“The Importance of Research and Development (R&D) for U.S. Competitiveness and a Clean Energy Future,” Testimony to Congress, Joint Economic Committee Hearing on Promoting a Clean Energy Economy, July 27, 2010; also CEEPR WP No. 2011-010.

“Liability and Financial Responsibility for Oil Spills under the Oil Pollution Act of 1990 and Related Statutes,” Testimony to Congress, House Committee on Transportation and Infrastructure, June 9, 2010; MIT CEEPR Working Paper No. 2011-009.

“Effective Regulation through Credible Cost–Benefit Analysis: The Opportunity Costs of Superfund,” in Edward Balleisen and David Moss (eds.) Government and Markets: Toward a New Theory of Regulation. Cambridge; New York: Cambridge University Press, pp. 52-91, 2010.

“Toward a Culture of Persistent Regulatory Experimentation and Evaluation” in David Moss and John Cisternino (eds.) New Perspectives on Regulation. Cambridge, MA: The Tobin Project, pp. 111-126, 2009.

“Cooking Stoves, Indoor Air Pollution, and Respiratory Health,” (with Esther Duflo and Rema Hanna). *Economic and Political Weekly*, 43 (32), pp. 71-76 (August 09 - August 15, 2008).

“Tradable Water Rights,” *Democracy*, Spring 2008.

“Indoor Air Pollution, Health, and Economic Well-Being,” (with Esther Duflo and Rema Hanna). *Surveys and Perspectives Integrating Environment and Society*, 2008, 1(1).

“The Value of Knowing,” (with Paul Oyer and Annette Vissing-Jorgensen). *Regulation*, Summer 2006.

## **INVITED LECTURES**

PHFI Foundation Day 2014 Lecture, New Delhi, India, March 2014

Merrick Lecture, University of Virginia, May 2013

Keynote Address, Southern California Conference in Applied Microeconomics, April, 2012

Keynote Address, IGC ISI India Development Policy Conference, Delhi, India, December 2011

2010/2011 EADS Distinguished Visitor, American Academy in Berlin, November, 2011

IDB Conference on Development Challenges and Policies in Latin America and the Caribbean: What are The Issues? September, 2011

EPA and DOE Conference on Progress toward a Social Cost of Carbon, 2010

Keynote Address, Developing Standards for Benefit-Costs Analysis Conference, 2010

MIT Energy Conference Dinner Keynote, MIT, 2010

Myron Scholes Global Markets Forum, University of Chicago Booth School, 2010

Special Session Lecture, Royal Economic Society Conference, 2009

Statistics in Society Lecture, New York University, 2009

Razin Economic Policy Lecture, Georgetown University, 2009

Keynote Address, Hong Kong Economic Association Biennial Conference, 2008

Bernard Saffran Lecture at Swarthmore College, 2008

News Executives Climate Change Symposium, Stanford University, 2007

J. Fish Smith and Lillian F. Smith Endowed Chair of Economics Visiting Lecture, BYU, 2004.

Lecture to National Association of Attorneys General, 2003.

Invited Address, 2<sup>nd</sup> World Congress of Environmental Economists, June 2002.

## **PROFESSIONAL ACTIVITIES**

### **JOURNALS**

Editor, *Journal of Political Economy*, 2015 –

Editor, *Review of Economics and Statistics*, 2007 – 2010

Board of Editors, *American Economic Journal: Economic Policy*, 2007 – 2010; 2013 - present

Associate Editor, *Review of Economics and Statistics*, 2007

Board of Editors, *Review of Environmental Economics and Policy*, 2006 - present

Board of Editors, *Journal of Economic Literature*, 2005 – 2011  
Associate Editor, *Journal of Business and Economic Statistics*, 2004 – 2006

#### PUBLIC SERVICE

Reviewer, National Institutes of Health, Special Emphasis Panel, 2007  
Member, US EPA Science Advisory Board, Environmental Economics Subcommittee, 2003 – 2009  
Member, US EPA, Advisory Board for Methods for Estimating the Social Benefits of EPA Land Clean-Up and Reuse Programs, 2006-7  
Member, Secretary of Energy Advisory Board, Task Force on Energy R&D, 2010 - 2011

#### CONFERENCES

Program Committee, Association of Environmental and Resource Economists Summer Workshop, 2007 and 2008  
(Chair)  
Program Committee, North American Summer Meeting of the Econometric Society, 2007  
Co-organizer, NBER Environmental and Energy Economics Summer Institute, 2002, 2004, 2006, 2008, 2014  
Program Committee, 2003 American Economic Association Meetings  
Program Committee, 2002 World Congress of Environmental Economists  
Selection Committee, National Tax Association Dissertation Award, 2006 and 2007