

## JOSEPH A. MAHER

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### EDUCATION

- Ph.D. Agricultural and Resource Economics, University of Maryland, College Park, 2015
- M.S. Agricultural and Resource Economics, University of Maryland, College Park, 2014
- B.A. Political Science, *summa cum laude*, University of Maryland Baltimore County, 2007

### DISSERTATION

Title: “Essays on Energy Efficiency and Forest Conservation”  
Committee: Drs. Richard Just (Chair), Maureen Cropper, Robertson Williams III,  
Kenneth McConnell, and Sebastien Houde

### FIELDS OF INTEREST

Environmental economics, energy efficiency, non-market valuation, applied microeconomics

### RESEARCH EXPERIENCE

- 2015–present Postdoctoral Fellow, National Socio-Environmental Synthesis Center,  
National Science Foundation, Annapolis, MD. Mentor: Dr. Paul Ferraro.
- 2014–2015 Postdoctoral Fellow, Resources for the Future, Washington, D.C.  
Supervisor: Dr. Allen Blackman.
- 2010–2013 Graduate Research Assistant, University of Maryland, College Park, MD.  
Supervisors: Drs. Charles Towe and Lori Lynch.
- 2008–2010 Research Assistant, Resources for the Future (RFF), Washington D.C.
- 2007–2008 Fulbright Research Fellow, U.S. Students Program, Santiago, Chile.

### TEACHING EXPERIENCE

- 2014 Teaching Assistant, University of Maryland, AREC240: Introduction to  
Environmental Economics, Supervisor: Dr. Robertson Williams III, Spring 2014
- 2013 Teaching Assistant, University of Maryland, AREC240: Introduction to  
Environmental Economics, Supervisor: Dr. Lars Olson, Fall 2013

## PUBLICATIONS

Molly Macauley, **Joe Maher**, and J. Shih (2010), “From Science to Applications Determinants of Diffusion in the Use of Earth Observations,” *Journal of Terrestrial Observation*, 2(1): 22-35, Winter 2010.

## PAPERS

**Maher, Joe** (2016), “Do Energy Savings Grow on (Shade) Trees?” Draft paper, University of Maryland, College Park, September. (*Job Market Paper*).

Giraudet, Louis-Gaëtan, Sébastien Houde, and **Joe Maher** (2016), “Moral Hazard and the Energy Efficiency Gap: Theory and Evidence,” Revised and Resubmitted, *Journal of the Association of Environmental and Resource Economists*.

**Maher, Joe** (2016), “Measuring the Accuracy of Engineering Models in Predicting Energy Savings from Home Retrofits: Evidence from Monthly Billing Data.” Draft paper, University of Maryland, College Park, August.

**Maher, Joe** and Xiaopeng Song (2016), “Protecting Forests: Is it the Policies or the Actors that Count?” Draft paper, University of Maryland, College Park, August.

## WORK IN PROGRESS

Towe, Charles, Allen Klaiber, and **Joe Maher** (2016), “A Valuation of Restored Streams Using Repeat Property Sales.” Draft paper, University of Connecticut, June.

**Maher, Joe** (2013), “A Hedonic Assessment of Tree Cover and Tree Height: Evidence from Lidar, Aerial Imagery, and Property Sales Data.” Draft paper, University of Maryland, College Park, June.

## DISCUSSION PAPERS

Kousky, Carolyn and **Joe Maher** (2013), “Introducing Light Rail in Suburbia: The Impact of a New Rail Line on Property Prices in St. Louis County, Missouri.” *Resources for the Future Discussion Paper*, Washington D.C. DP11- 44, October.

**Maher, Joe** (2009), “Federal Funding for Conservation and Recreation: Trails Funding by the Department of Transportation.” *RFF Backgrounder*. RFF Press, Washington D.C.

Walls, Margaret, Juha Siikamäki, Sarah Darley, Jeff Ferris, and **Joe Maher** (2009), “Current Challenges, Funding, and Popularity Trends in State Parks: Responses to a Survey of Park Directors,” *RFF Backgrounder*. RFF Press, Washington D.C.

Walls, Margaret, Juha Siikamäki, Sarah Darley, Jeff Ferris, and **Joe Maher** (2009), “Current Challenges, Funding, and Popularity Trends in Local Parks and Recreation Areas: Responses to a Survey of Park Directors,” *RFF Backgrounder*. Washington D.C.

Siikamäki, Juha and **Joe Maher** (2007), “Climate Change and U.S. Agriculture,”  
*Weathervane Guide to Global Climate Policy*. RFF Press, Washington D.C.

## HONORS AND AWARDS

- 2016 [Dr. and Mrs. Bill V. Lessley Dissertation Excellence Award](#), Department of Agricultural and Resource Economics, University of Maryland.
- 2014 [Outstanding Graduate Student Award](#), College of Agriculture and Natural Resources Alumni Association, University of Maryland.
- [Distinguished Teaching Assistant Award](#), 2013–2014, Center for Teaching Excellence and the Graduate School, University of Maryland.
- 2012 Honorable Mention, recognized for distinguished paper by a second-year graduate student in the Department of Agricultural and Resource Economics, University of Maryland.
- 2011 Rhona Lantin Scholarship, awarded for the best paper by a first-year graduate student in the Department of Agricultural and Resource Economics, University of Maryland.

## FELLOWSHIPS AND GRANTS

- 2016 Principal Investigator, “Remote Sensing of Tree Canopies”, funded by the National Socio-Environmental Synthesis Center, National Science Foundation, \$5,000.
- 2015 Postdoctoral Fellowship, 2015–2017, “[Multi-Scale Forest Policy](#),” funded by the Computational, and Mathematical Postdoctoral Fellowship Program, National Socio-Environmental Synthesis Center, National Science Foundation, \$178,000.
- 2014 Joseph Fisher Dissertation Fellowship, Resources for the Future, \$18,000.  
(Declined in favor of a postdoctoral fellow position at Resources for the Future.)
- 2013 Co-Principal Investigator, “Linking Remote Sensing and Economics: Evaluating the Effectiveness of Protected Areas in Reducing Tropical Deforestation,” with Xiaopeng Song, funded by the Green Fund Fellowship for Collaborative Research on the Environment, Council on the Environment, University of Maryland, \$10,000.
- International Conference Student Support Award, University of Maryland.
- Young Professionals Travel Grant, Agricultural and Applied Economics Association.
- 2012 Principal Investigator, “Measuring the Energy Savings from Tree Shade”, funded by USDA Forest Service, Urban Forestry South, \$2,000.
- Merit Fellowship, University of Maryland, Graduate School, \$1,200.
- Jacob K. Goldhaber Travel Grant, University of Maryland, Graduate School.
- 2007 Research Fellowship, Fulbright U.S. Students Program, Santiago, Chile, \$20,000.

## PRESENTATIONS

“Measuring the Accuracy of Engineering Models in Predicting Energy Savings from Home Retrofits: Evidence from Monthly Billing Data,” versions of paper presented at:

- 2016 Allied Social Science Association Meetings, San Francisco, CA, January.  
Camp Resources XXIII, Wrightsville Beach, NC, August.
- 2015 AERE Summer Meetings, San Diego, CA, June.  
AAEA Annual Meetings, San Francisco, CA, July.
- 2014 Allied Social Science Association Meetings, Philadelphia, PA, January.  
Environmental & Resource Economists World Congress, Istanbul, TR, July.
- 2013 NAREA Summer Meetings, Ithaca, NY, June.  
AAEA Annual Meetings, Washington, D.C., August.

“Do Energy Savings Grow on (Shade) Trees?” versions of paper presented at:

- 2016 AERE Summer Meetings, Breckenridge, CO, June.
- 2013 AERE Summer Meetings, Banff, Canada, June.  
NAREA Summer Meetings, Ithaca, NY, June.  
AAEA Annual Meetings, Washington, D.C., August.
- 2012 Camp Resources XIX Meetings, Wrightsville Beach, NC, August.

“Protecting Forests: Is it the Policies or the Actors that Count?” paper presented at:

- 2015 AAEA Annual Meetings, San Francisco, CA, July.  
BIOECON 17th Annual Conference, Cambridge, UK, September.
- 2013 AAEA Annual Meetings, Washington, D.C., August.

“A Valuation of Restored Streams Using Repeat Sales,” paper presented at:

- 2012 AAEA Annual Meetings, Seattle, WA, August.  
Baltimore Ecosystem Study Annual Meeting, Baltimore, MD, October.

“A Hedonic Assessment of Tree Cover and Tree Height,” poster presented at:

- 2013 AAEA Annual Meetings, Washington, D.C., August.

“The Impact of a New Rail Line on Property Prices in St. Louis,” paper presented at:

- 2012 American Real Estate & Urban Economics Association, Washington D.C., June.

## MEDIA

Yale Climate Connections (2016), “[Shade Trees Help Save Energy](#),” Radio segment on energy savings from tree shade aired on 200 radio stations on March 16, 2016.

## PROFESSIONAL SERVICE

Referee for: *Resource and Energy Economics*, *Agricultural and Resource Economics Review*,  
*Advances in Water Resources*

Mentor, Internship Program for Undergraduate Research, National Socio-Environmental  
Synthesis Center (SESYNC) and University of Maryland, June 2016–present.

Member, Search Committee for Natural Resource, Environmental, and Ecological  
Economics Postdoctoral Fellows, SESYNC, July 2016–present.

Member, NSF Review Panel, Socio-Environmental Immersion Postdoctoral Program,  
SESYNC, December 9, 2015 and February 13, 2016.

Participant in NSF workshop “Growing the Urban Forest: Revealing the Processes that Shape  
Urban Canopy,” SESYNC, February 8–10, 2016.

Participant in five-week NSF workshop series focused on interdisciplinary research spanning  
economics, ecology, and anthropology, SESYNC, August 2015–March 2016.

President, Association of Agricultural and Resource Economists at University of Maryland,  
College Park, August 2012 - July 2013.

## SKILLS

Computer: Stata, Python, R, PostgreSQL, ArcGIS

Language: English (*native*), Spanish (*basic*)

## ACADEMIC ORGANIZATION MEMBERSHIPS

Association of Environmental and Resource Economists (AERE), Agricultural and Applied  
Economics Association (AAEA), American Economic Association (AEA)

## REFERENCES

### **Richard Just**

Distinguished University Professor, Department of Agricultural and Resource Economics  
2200 Symons Hall, University of Maryland, College Park, MD, 20742  
Email: [rjust@umd.edu](mailto:rjust@umd.edu), Phone: (301) 405-1267

### **Maureen Cropper**

Distinguished University Professor, Department of Economics  
3114H Tydings Hall, University of Maryland, College Park, MD, 20742  
Email: [cropper@econ.umd.edu](mailto:cropper@econ.umd.edu), Phone: (301) 405-3483

### **Paul Ferraro**

Bloomberg Distinguished Professor, Carey Business School/Whiting School of Engineering  
3400 North Charles Street, Johns Hopkins University, Baltimore, MD 21218-2608  
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## DISSERTATION ESSAYS

### Do Energy Savings Grow on (Shade) Trees? ([Job Market Paper](#))

*In warm climates, trees could provide natural air-conditioning by shading homes. Yet, there is little rigorous empirical evidence on the shade benefits of green infrastructure. This paper uses data on tree removal permits from a tree protection policy in Gainesville, Florida, between 2000 and 2016, and applies a difference-in-difference estimation model to examine whether tree shade reduces electricity demand. I find that a typical tree removal leads to 4-6% more electricity consumption annually, and 8-10% more during summer months of peak air-conditioning demand. Effects increase with the amount of shade loss: from zero effect (no shade) to 8-12% (large shade loss) and 10-20% (very large shade loss). I then use these estimates to calculate the private benefits of shade trees (\$450 to \$1,900) and find that they are similar to other energy efficiency investments (retrofits, building codes) assessed using comparable evaluation methods. I also calculate the social benefits (shade benefits to neighbors, avoided emissions, and avoided generation costs) of the tree protection policy and find that they are equal to the city expenditures on this policy. Overall, this study presents a road map for utilities and policy makers to assess returns from investments in green infrastructure.*

### Measuring the Accuracy of Engineering Models in Predicting Energy Savings from Home Retrofits: Evidence from Monthly Billing Data.

*To date, the energy savings from energy-efficiency building retrofits are assessed using ex-ante engineering models. This paper reports the results of a quasi-experimental evaluation of energy savings from nine energy-efficiency measures conducted on a sample of more than 5,000 participants in a utility rebate program. The findings suggest that energy saving benefits exceed the upfront costs; the average private rate of return is approximately 5% annually. Further, model-projected savings are statistically similar to actual savings for most measures. Yet, I find important differences across the wide range of measures. When accounting for rebate payments, program cost-effectiveness varies widely across measures, implying opportunities to improve program performance by targeting more cost-effective measures.*

### Protecting Forests: Is It the Policies or the Actors That Count?

*In current climate change discussions, Protected Areas (PAs) are a primary policy tool for efforts that aim to reduce emissions from deforestation and forest degradation (REDD+). To date, the effectiveness of PAs have been assessed using cross-sectional methods. This paper reports the results of a quasi-experimental evaluation of avoided forest loss from a sample of more than 300 PAs established in Brazil after 2001. Findings reveal new insights into the importance of government oversight of protected areas. In particular, results provide no evidence that designating indigenous territories reduces deforestation – a finding that challenges conventional wisdom about forest conservation. I extend the analysis to estimate avoided carbon emissions, a policy-relevant outcome that differs considerably from forest loss outcomes.*