

## Winter 2017 Newsletter



### Letter from the Chair

These are exciting times for the Economics department. We just hired a prominent development economist from Yale, Chris Udry, who will help make our already strong economic development group even stronger. This, and Kellogg's decision to also make offers...

[Read More.](#)



### Graduate Awards

The dedication of our graduate students to high-caliber academic research and superb undergraduate teaching assistance continues to thrive here in the department. Seventeen students were honored this past year with department awards.

[See the winners.](#)



### Faculty Updates

From new publications to news coverage to honors and awards, our faculty have been very busy this year advancing the bounds of economic scholarship, engaging the world and setting high standards for our students.

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DALEY KUTZMAN

GASTON ILLANES

### Department Welcomes New Faculty

**Daley Kutzman**, who has interests in development and agriculture, joins the department as an Assistant Professor of Instruction. She completed her PhD at the University of California at Berkeley.

**Gaston Illanes** joins us as an Assistant Professor after completing his PhD at MIT. His research interests are in industrial organization and econometrics. His dissertation dealt with strategic behavior in pension markets.

## Cash for Carbon: Using Economics to Conserve Forests and Combat Climate Change

Professor Seema Jayachandran's development economics experiment is protecting Uganda's trees – and sequestering carbon dioxide – in an economically efficient way.

[Read More.](#)



## Economics Alumni Share Career Path Stories and Benefits of Liberal Arts

The Economics Department co-hosted an alumni panel as part of the Weinberg Office of Student Alumni Engagement series this past November in the newly renovated Guild Lounge in Scott Hall. The event entitled “Careers for Econ Majors: It’s Not Just Finance and Consulting” featured four alumni from a variety of career paths, at different stages in their careers: Lori Alisha Hsu, Tiffany Farris, Lori Beaman and Chris Russo. After describing the twists and turns of their respective paths, the panelists highlighted those skills they found to be most helpful in their working lives so far...

[Read More.](#)

If you are interested in participating in a future alumni panel (themes and topics vary), please drop us a line at [econba@northwestern.edu](mailto:econba@northwestern.edu). We hope to see you on campus sometime soon!

### **Thank you to Our Donors!**

The continued interest and generosity of our alumni is a key element that helps us maintain and improve one of the premier undergraduate and graduate programs in the world. We hope that you will help us preserve and extend the important tradition of program stewardship, and we want to remind you that gifts specifically earmarked for the Economics department will be used wholly for the benefit of our students and to strengthen our program. We encourage you to **make a gift online** and enter "Department of Economics" or "WCAS Eisner Econ Fund" in the designation field.

**See our 2015-2016 donors.**

### **Alumni Directory**

Please stay in touch by joining ***Our Northwestern***, an exclusive space where our vibrant community of alumni, students, and faculty come together. Through *Our Northwestern*, you'll be able to find friends through the alumni directory, make professional and social connections within the NU network and engage in interesting discussions on Northwestern topics and beyond.

## **Letter From the Chair February 2017**

These are exciting times for the Economics department. We just hired a prominent development economist from Yale, Chris Udry, who will help make our already strong economic development group even stronger. This, and Kellogg's decision to also make offers in economic development gives us every reason to believe that Northwestern will become a major hub in an international network of research in economic development and related fields. These developments will bring benefits to our undergraduates, who will have opportunities to travel to destinations close and far, to study one of the major problems of our time, poverty. They will also energize economic research on campus by drawing together the resources of the Economics Department, the Buffett Institute, Kellogg and the Institute for Policy Research. On a personal level, many of us are particularly happy about the return of Chris Udry, because we have fond memories of when he was here as an assistant professor.

The Udry hire is part of a broader initiative in the Economics department. We are increasing the number of faculty who use data in innovative ways to shed light on important economic problems. This expansion in our department is part of a university-wide push to become a leader in all aspects of the analysis of 'Big Data'.

The Northwestern economics community is known not only for its empirical research, but also for its strength in economic theory. As we expand our efforts to analyze data, the role of theory will become ever more essential. No serious analysis of data can occur without solid conceptual foundations.

Speaking of our great faculty, we have won a number of awards and honors. Mar Reguant was awarded a prestigious Sloan Fellowship in 2016. Both the outgoing (Rob Porter) and incoming (Eddie Dekel) Presidents of the Econometric society are members of our faculty. Outgoing (Marty Eichenbaum) and incoming (Jeff Ely) co-editors of the American Economic Review are also members of our faculty. Igal Hendel won the Econometric society's Frisch Medal and Joel Mokyr won the Balzan prize. In addition, Joel Mokyr was elected to the British Academy and he served as president of the Atlantic Economic Society. Our hats go off to them.

We also did very well on the graduate student job market in 2016. Laura Doval and Arlene Wong were among the 8 students selected for the Review of Economic Studies (RESTUD) tour. These 8 students were judged by RESTUD to be the best economics and finance students in the world on the 2016 job market. Doval is spending the year as a post doc at Yale and she will start as assistant professor at California Institute of Technology in Fall 2017. Wong is spending the year as a visiting scholar at the Federal Reserve Bank of Minneapolis and will start as assistant professor of economics at Princeton in Fall 2017.

The department continues to have a rich program of invited speakers and visitors. A highlight was this year's Bies lecture given by Ben Bernanke, which took the form of a conversation between Kellogg professor Jan Eberly and Bernanke. The 600-seat Coon Forum where the event took place was packed, with every available square foot taken and overflow crowds accommodated in other rooms. Although the subject of the lecture (the causes of and responses to the financial crisis of 2008) has the potential to unleash raw emotions, the discussion proceeded in the best tradition of the university. There was goodwill throughout the audience and the focus was on the issues. We are looking forward to this year's Bies lecture, which will be given by Claudia Goldin. Another important Economics Department activity is the award every two years of the Nemmers prize in economics. This year, the award went to Richard

Blundell, who will give his Nemmers lecture in the department in May 2017. The previous Nemmers prize winner, Jean Tirole, visited the department earlier this quarter and gave a series of lectures. The Nemmers prize in economics, first awarded in 1994, is growing in prestige, in part because it is a [leading indicator](#) of the Nobel prize. Eleven Nemmers prizes in economics were awarded before Blundell's and seven of those later went on to receive the Nobel prize. (Tirole won his Nobel prize only months after being awarded the Nemmers prize.)

Our graduate and undergraduate programs continue to thrive. For example, we are by far the most popular major in the College of Arts and Sciences. Still, we want to be better. So, we have several initiatives underway to find ways to strengthen the quality of graduate and undergraduate education for economics students. We are committed not just to great research, but also to making the experience of our students as rewarding as possible.

In the spring, the department will move with Kellogg into a beautiful new building by the lake. Over time, the complementarities between faculty in Kellogg and in Economics have continued to increase. The interior of the new building is designed to encourage interaction among faculty, and this will make our partnership with Kellogg even more productive. We are exploring ways to memorialize our former colleague, Dale Mortensen, who passed away too soon. We are grateful to his wife, Bev Mortensen, for gifting Dale's Nobel medal to the university. The university is constructing a suitable display case for the medal in our new building and there will be an official unveiling sometime in 2017. We are also exploring other ways to memorialize Dale. His commitment to research excellence continues to inspire us and others.

To summarize, the state of the Department is excellent. We are all very grateful to Igal Hendel, the outgoing chair, for leaving the department in such excellent shape.

Best wishes,  
Larry Christiano

## Distinguished Teaching Assistants Awards



The Department's Distinguished Teaching Assistant Awards for 2015-16 were presented in October 2016. The winners are: **Arjada Bardhi, Gideon Bornstein, Sena Ekin Coskun, Gabriela Cugat, Matias Escudero, Loren Fryxell, Sergey Gitlin, Joseph Hardwick, Sebastian Kohls, Matthew Leisten, Chiara Maggi, Giacomo Magistretti, Jordan Norris and Alex Theisen.** These awards are given to the top third of our Teaching Assistants, based on student and faculty evaluations.

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## Susan Bies Research Prizes

The annual Susan Schmidt Bies Prizes for Doctoral Student Research on Economics and Public Policy were awarded in October 2016. The awards are given to the best public policy papers presented as part of the Economics 501 Graduate Student seminar. The winners for 2015-16 were **Sam Norris** (*left*) for a paper on "Rise and Shine: The Effect of School Start Times on Academic Performance from Childhood through Puberty" and **Sasha Indarte** (*right*) for "Contagion via Financial Intermediaries in Pre-1914 Sovereign Debt Markets." The prizes were generously donated by alumna Susan Schmidt Bies (PhD, 1972). Her professional career included serving on the Board of Governors of the Federal Reserve System.



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## Robert Eisner Memorial Fellowships



In October 2016, fellowships in honor of our late colleague Robert Eisner were presented. For 2016-17 the Fellowships were awarded to **Gideon Bornstein** (*left*) and **Vishal Kamat**. The winners are pictured with Mrs. Edith Eisner. The fellowships are awarded annually to graduate students who have distinguished themselves in both teaching and research.

## Faculty in the News

**Robert J. Gordon's** book *The Rise and Fall of American Growth* was reviewed in publications around the world, including by *The Economist*, and by Edward Glaeser in the *Wall Street Journal*, Paul Krugman in *The New York Times Book Review*, Lawrence Summers in *Prospect*, and William Nordhaus in *The New York Review of Books*. The *New York Times* ran two additional features on Gordon's work. Print interviews appeared in numerous domestic and foreign publications. The debate sparked by the book was featured on Paul Solman's segment on the PBS News Hour. TV interviews included C-SPAN and Japanese public TV, and radio interviews included NPR and the BBC.

**Seema Jayachandran's** research on whether paying people to keep their forest intact is a cost-effective way to reduce deforestation and carbon dioxide emissions was featured in the Washington Post and Fast Company.

**Joel Mokyr's** *Culture of Growth* was reviewed in the *Wall Street Journal*, the *Financial Times*, *Nature*, and *Prospect*. He was interviewed and his work mentioned at length in *The Atlantic*, the *Wall Street Journal*, the *Washington Post*, the *New York Times*, *Bloomberg News*, *Quartz*, *La Stampa*, *Corriere della Sera*, the *Australian Financial Times*, *Reuters Blog*, *El Mundo* and other media.

**Matt Notowidigdo** was interviewed by The Washington Post describing the relationship between hospital admissions and unpaid medical debt:

<https://www.washingtonpost.com/news/wonk/wp/2016/06/06/theres-a-huge-problem-with-american-health-insurance/>

## Honors, Awards, Grants

**Lori Beaman** serves as an associate editor at the Journal of Development Economics, Economics Development and Cultural Change, the Journal of the European Economic Association, and the World Bank Economic Review.

**Ivan Canay** holds an NSF grant for the project "Econometric Methods for Models with Clustered Data and Covariate-Adaptive Randomization." He continues to serve on the editorial board of the *Econometrics Journal*.

**Eddie Dekel** was first-vice president of the Econometric Society during 2015, and the president of the Society during 2016. He gave the Presidential Address at the Econometric Society African meetings in Pretoria (South Africa), the Asian meetings in Kyoto (Japan), and the European meetings in Geneva (Switzerland). He gave a plenary lecture at the International Game Theory Conference in Stonybrook.

**Matthias Doepke** continues to serve as coordinating editor of the *Review of Economic Dynamics*. He holds an NSF grant entitled "Inflation and Redistribution: Research on the Origins and Implications of Money as a Unit of Account." He continues as an associate editor of the *American Economic Review* and the *Journal of Economic Growth*.

**Robert J. Gordon** was included by Bloomberg Markets in its list of the 50 Most Influential People in the World for 2016. He was also included in the “Politico 50” list of influential thinkers. His new book on American growth was a finalist for the *Financial Times* / McKinsey Best Business Book of the Year Award and was named to the New York Times list of 100 Notable Books of 2016. He gave keynote speeches to the *Le Monde* Festival in Paris, the Petersen Institute of International Economics in Washington, the Fletcher School at Tufts University, the World Bank, and the Seventh Asian Leadership Conference in Seoul, South Korea. He continues as a member of the advisory boards of the Bureau of Economic Analysis and Macro Advisers and as a member of the NBER Business Cycle Dating Committee.

**James Hornsten** joined the board of the National Economics Teaching Association.

**Joel Horowitz** taught a short course on nonparametric instrumental variables estimation in the faculty of mathematics at Heidelberg University in Germany. He presented papers at the Workshop on Inverse Problems at Heidelberg University and at the conference of the Bristol Econometrics Study Group in Bristol, U.K.

**Seema Jayachandran** continues to serve on the Board of Directors of the Abdul Latif Jameel Poverty Action Lab (J-PAL) and the Bureau for Research and Economic Analysis of Development (BREAD). She is a reviewing editor at *Science* and associate editor at the *American Economic Review*, *Quarterly Journal of Economics*, and *Journal of Economic Perspectives*.

**Lee Lockwood** received a grant from the National Science Foundation for his project with Daniel Fetter on retirement, family insurance, and social insurance. He was also named to the Northwestern Associated Student Government's Faculty Honor Roll for excellence in teaching.

**Charles Manski** was elected a Fellow of the American Statistical Association. He gave the annual Royal Economic Society Easter School Lectures in Wivenhoe, England. He served on the Committee on Proactive Policing of the National Academy of Sciences.

**Marti Mestieri** has become a CEPR research affiliate.

**Joel Mokyr** was elected corresponding member of the British Academy. He served as president of the Atlantic Economic Society, and gave one Presidential address in Lisbon in March 2016 and another in Washington, D.C. in September 2016. He continues to serve as chair of the advisory committee of the Institutions, Organizations, and Growth of the Canadian Institute for Advanced Research. In October 2016 he gave the *Lectio Magistralis* at the University of Bologna. In November 2016 a full day symposium was organized at the Italian Accademia dei Lincei about his work in view of his winning the International Balzan Prize for economic history in 2015.

**Matt Notowidigdo** was appointed as co-editor of the *American Economic Journal: Economic Policy* and delivered the keynote address at the Empirics and Methods in Economics Conference.

**Alessandro Pavan** continues to serve as Lead Editor of the *Journal of Economic Theory* and as Foreign Editor for the *Review of Economic Studies*. He received a new NSF grant for his project on “*Dynamic Matching: Experimentation and Cross-Subsidization*.” He gave invited lectures at the 2016 World Congress of the Game Theory Society, at the 2016 LACEA-LAMES Meetings, at the 2015 TSE Conference in honor of Jean Tirole, at the 2016 Warwick Conference on Economic Theory, and at the 2015 Paris Workshop on Information and Economic Dynamics. He presented his paper “*Matching Auctions*” at the University of Chicago, Columbia University, Stanford University, UCLA, UC San Diego, UC Berkeley, the University of Pennsylvania, University of Southern California, IESE, the University of Leicester, Carnegie Mellon University, Duke University, University of North Carolina, University of British Columbia, and the University of Illinois at Urbana Champaign. He was invited to give department-wide seminars at the University of Western Ontario and at the University of Nottingham. Alessandro presented his paper “*Platform Pricing under Asymmetric Information*” at the 2016 Iowa Conference on Global Games, his paper “*Attention, Coordination, and Bounded Recall*” at the Chicago FED, his paper “*Differential Taxation and Occupational Choice*” at the Stockholm School of Economics, and his paper “*Matching Plans for Agents with Vertically and Horizontally Differentiated Preferences*” at the 2016 North American Meetings of the Econometric Society and at Michigan State University. Together with Dirk Bergemann and Stephen Morris he co-organized a Cowles Conference on “*Information Choice: Perception and Design*” (Yale, June 2016).

**Robert Porter** served as President of the Econometric Society in 2015, and is serving as Past President in 2016. He gave the Presidential Address at the North American Winter Meetings of the Econometric Society in San Francisco in January 2016. He gave the Richard Ely Distinguished Lecturers at Johns Hopkins University in April 2016, and the David Steine Lecture at Vanderbilt University in April 2016. He gave the A.W. Phillips Lecture at the Australasian Meetings of the Econometric Society in Sydney in July 2016. He is one of the founding Editors of *Microeconomic Insights*, a new website that provides accessible summaries of high quality microeconomic research.

**Giorgio Primiceri** has been appointed as foreign editor of the *Review of Economic Studies*. He continues to serve as a member of the CEPR Euro Area Business Cycle Dating Committee, and as an associate editor of *Econometrica*, the *Journal of Applied Econometrics*, and the *Journal of Monetary Economics*.

**Mar Reguant** was awarded a Sloan Research Fellowship in 2016. She was also appointed as a Research Affiliate in the Industrial Organization program at the CEPR. She continues as a Faculty Research Fellow in the Industrial Organization and Energy and Environmental Economics program of the NBER, and as an associate editor of the *Journal of Industrial Economics*.

**Ian Savage** received the Best Paper Award at the 57th Annual Meeting of Transportation Research Forum in Toronto in May 2016 for his paper “Does the demand response to transit fare increases vary by income” written with Caroline Miller (BA, 2015). He also became the President-elect of the Transportation Research Forum. In addition, he was appointed as a member of the National Research Council’s Special Committee for Study of Domestic Transportation of Petroleum, Natural Gas, and Ethanol.

**Marciano Siniscalchi** was elected Fellow of the Society for the Advancement of Economic Theory. He continues to serve as Co-Editor of the *Journal of Economic Theory* for game and decision theory. He also serves as Foreign Editor of the *Review of Economic Studies*.

## Publications

**Lori Beaman** (2016), "Social Networks and the Labor Market," in Yann Bramouille, Andrea Galeotti and Brian Rogers (ed), *Oxford Handbook on the Economics of Networks*, Oxford University Press.

Bugni, F.A., **I.A. Canay**, and X. Shi (2016), "Inference for Subvertors and Other Functions of Partially Identified Parameters in Moment Inequality Models," *Quantitative Economics*, forthcoming.

**Eddie Dekel**, Amanda Friedenberg and Marciano Siniscalchi, (2016), "Lexicographic Beliefs and Assumption," *Journal of Economic Theory* 163 955-985.

**Eddie Dekel** and Marciano Siniscalchi (2015), "Epistemic Game Theory," Chapter 12 in H. Peyton Young and Shmuel Zamir (eds.), the *Handbook of Game Theory*, Vol. 4, pages 619-702, Amsterdam: Elsevier, North Holland.

**Robert J. Gordon** (2016), *The Rise and Fall of American Growth: The U.S. Standard of Living Since the Civil War*. Princeton University Press.

**Robert J. Gordon**, "Secular Stagnation on the Supply Side: U. S. Productivity Growth in the Long Run," in *Digiworld Economic Journal*, no. 100, 4<sup>th</sup> quarter 2015, pp. 19-45.

**Robert J. Gordon**, "Perspectives on the Rise and Fall of American Growth," *American Economic Review Papers and Proceedings*, vol. 106(5), May 2016, pp. 72-76.

**Robert J. Gordon**, "Off Its Pinnacle," *Finance and Development (IMF Quarterly)*, vol. 53(2), June 2016, pp. 33-37.

Richard Blundell, **Joel L. Horowitz**, and Matthias Parey, "Nonparametric Estimation of a Nonseparable Demand Function under the Slutsky Inequality Restriction," *Review of Economics and Statistics*.

**Joel L. Horowitz** and Sokbae Lee, "Nonparametric Estimation and Inference under Shape Restrictions" (with Sokbae Lee), Cemmap working paper 29/16, Center for Microdata Methods and Practice, University College London.

Jia-Young Michael Fu, **Joel L. Horowitz**, and Matthias Parey, "Testing Exogeneity in Nonparametric Instrumental Variables Models Identified by Conditional Quantile Restrictions" (with Jia-Young Michael Fu and Matthias Parey), Cemmap working paper 68/15, Center for Microdata Methods and Practice, University College London.

Jean-Pierre Florens, **Joel L. Horowitz**, and Ingrid van Keilegom, "Bias-Corrected Confidence Intervals in a Class of Linear Inverse Problems," Cemmap working paper 19/16, Center for Microdata Methods and Practice, University College London.

Erica Field, **Seema Jayachandran**, Rohini Pande, and Natalia Rigol (2016), "Friendship at Work: Can Peer Support Catalyze Female Entrepreneurship?" *American Economic Journal: Economic Policy*, vol. 8(2), pp 125-153.

**Charles F. Manski**, "Communicating Uncertainty in Official Economic Statistics: An Appraisal Fifty Years after Morgenstern," *Journal of Economic Literature*, Vol. 53, No. 3, 2015, pp. 631-653.

**Charles F. Manski**, "Credible Interval Estimates for Official Statistics with Survey Nonresponse," *Journal of Econometrics*, Vol. 191, 2016, pp. 293-301.

**Charles F. Manski**, "Interpreting Point Predictions: Some Logical Issues," *Foundations and Trends in Accounting*, Vol. 10, No. 2-4, 2016, pp. 238-261.

**Joel Mokyr** (2016), *A Culture of Growth: Origins of the Modern Economy*. Princeton University Press.

Amira Ofer and **Joel Mokyr** (2016), *An Introduction to Economic History*, 2 vols. In Hebrew. Tel Aviv: Israel's Open University.

**Joel Mokyr** (2016), "Flexible Supply of Apprenticeship in the British Industrial Revolution" with N. Ben Zeev and K. Vanderbeek, *Journal of Economic History*, in press.

**Joel Mokyr**, "Institutions and Economic History: A Critique of Professor McCloskey," with Avner Greif. *Journal of Institutional Economics*, Volume 12, Issue 01, March 2016, pp 29-41.

**Joel Mokyr**, "Science, Technology, and Knowledge: What Economic Historians can learn from an Evolutionary Approach." In Ulrich Witt, ed., *Evolutionary Economics*. Cambridge: Cambridge University Press, forthcoming.

**Joel Mokyr**, "Institutions and the Origins of the Great Enrichment" (Presidential Address), *Atlantic Economic Journal*, June 2016, Volume 44, Issue 2, pp .243-259.

**Joel Mokyr**, "Cognitive Rules, Institutions and Economic Growth: Douglass North and Beyond," with Avner Greif. *Journal of Institutional Economics*, forthcoming 2017.

**Joel Mokyr**, "The Bourgeoisie and the Scholar: a Review Essay of Deirdre N. McCloskey, *Bourgeois Equality: How Ideas, not Capital or Institutions, Enriched the World.*" *Erasmus Journal of Philosophy and Economics*, volume 9 issue 2, Summer 2016, pp. 53-65.

Kroft, Kory, and **Matthew J. Notowidigdo**, "Should Unemployment Insurance Vary with the Unemployment Rate? Theory and Evidence," *Review of Economic Studies*, 83(3): 1092-1124, July 2016.

Charles, Kerwin Kofi, and Erik Hurst, and **Matthew J. Notowidigdo**, "The Masking of Declining Manufacturing Employment by the Housing Bubble," *Journal of Economic Perspectives*, 30(2): 179-2000, May 2016.

Kory Kroft, Fabian Lange, **Matthew J. Notowidigdo**, and Lawrence F. Katz, "Long-Term Unemployment and the Great Recession: The Role of Composition, Duration Dependence, and Non-Participation," *Journal of Labor Economics*, 34(S1): S7-S54, January 2016.

**Alessandro Pavan**, "Dynamic Mechanism Design: Robustness and Endogenous Types," *Advances in Economics and Econometrics*, 11<sup>th</sup> World Congress of the Econometric Society, forthcoming.

**Alessandro Pavan**, "Differential Taxation and Occupational Choice" (with Renato Gomes and Jean-Marie Lozachmeur), *Review of Economic Studies*.

**Alessandro Pavan**, "Many-to-Many Matching and Price Discrimination" (with Renato Gomes), *Theoretical Economics*.

**Alessandro Pavan**, "Dynamic Managerial Compensation: A Variational Approach" (with Daniel Garrett), *Journal of Economic Theory*.

**Alessandro Pavan**, "Introduction to JET Symposium on Dynamic Contracts and Mechanism Design" (with Dirk Bergemann), *Journal of Economic Theory*.

**Alessandro Pavan**, "Introduction to JET Symposium on Information, Coordination and Market Frictions" (with Xavier Vives), *Journal of Economic Theory*.

Marco Del Negro and **Giorgio Primiceri** (2015), "Time Varying Structural Vector Autoregressions and Monetary Policy: A Corrigendum," *Review of Economic Studies*, 82 (4), 1342-1345.

Alejandro Justiniano, **Giorgio Primiceri**, and Andrea Tambalotti (2015), "A Simple Model of Subprime Borrowers and Credit Growth," *American Economic Review (Papers & Proceedings)*, 106(5), 543-547.

Koichiro Ito and **Mar Reguant**. (2016), "Sequential Markets, Market Power and Arbitrage," *American Economic Review*, 106(7):1921-1957.

Meredith Fowlie, **Mar Reguant** and Stephen Ryan (2016) "Market-Based Emissions Regulation and Industry Dynamics," *Journal of Political Economy*, 124(1): 249-302.

**Ian Savage** (2016), "Analysis of fatal train-pedestrian collisions in metropolitan Chicago 2004-2012," *Accident Analysis and Prevention* 86:217-228.

## Cash for Carbon:

### Using Economics to Conserve Forests and Combat Climate Change

Global deforestation is a leading driver of climate change: It accounts for 12-15% of global carbon dioxide emissions and ranks as the second largest source of human-created carbon emissions after fossil fuels. Today most deforestation occurs in less developed countries. But how do you convince people not to cut down their trees when their livelihood depends on it? One policy approach that's gaining traction is to provide payments for ecosystem services (PES). In PES programs, individuals agree not to cut down trees on their land in exchange for cash. The payments offset the lost economic opportunities that come with cutting down a tree, which include the revenue from selling the timber or farming the cleared land. While PES programs are promising in theory, Prof. Seema Jayachandran of Northwestern University and her research partners set out to experimentally test whether PES programs work – more precisely, whether they work well enough to be cost-effective.

#### The Experiment: Randomized Control Trial

To test the effectiveness of PES on forest conservation, Prof. Jayachandran and her team randomly assigned 121 villages in western Uganda to receive the PES program or to be part of a comparison group. In PES villages, a local non-governmental organization (NGO) offered to pay landowners \$28 per hectare of forested land for each year they refrained from cutting down those trees. A typical landowner owned 2 hectares of forest so would earn \$56 per year if he took advantage of the deal, or about 16% of median annual income. If a program enrollee changed his mind and decided to cut down his trees, there was no penalty besides not receiving the PES payments. The NGO staff conducted spot checks in the forest to determine which enrollees had conserved their forest and earned the payments.

This experiment is the first of its kind because it applies the rigorous randomized controlled trial design to the question of payments for ecosystem services. A randomized controlled trial allows researchers to observe the counterfactual: How many trees would have been conserved without the program? By comparing treatment villages to control villages, researchers get a clearer picture of how much deforestation was avoided because of the program.

#### So How Much Deforestation Was Avoided?

The NGO used boots on the ground to determine who conserved and who deforested among enrollees, but the researchers wanted a more precise measure of deforestation and, importantly, one also available in the comparison villages where NGO staff were not present. High-resolution satellites offer an exciting new data source for researchers. The research team obtained satellite images of the area – detailed enough that you can see each tree – and fed the hundreds of millions of pixels through a computer algorithm to quantify tree cover before and

after the program, in both the villages that received the program and the business-as-usual comparison villages.

The results showed that the amount of forested area declined by 7% to 10% in the control villages over the two-year study period, but only by 2% to 5% in the villages that got the payments. Importantly, the study also found no evidence that participants simply shifted their deforestation to nearby plots not covered by the agreement.

## **The Bottom Line: Measuring Impact**

From an environmentalist's perspective, the value to society of a tree sequestering carbon in Uganda is the same as a tree in Evanston. And from an economist's perspective, you're better off saving the tree in Uganda because it's cheaper. For development economists, proving a given intervention works is just one piece of the puzzle: interventions also need to be cost-effective in order to become sustainable policy practices. The PES program cost an estimated \$0.57 per metric ton of carbon dioxide delayed from entering the atmosphere; this includes both the payments to forest owners and administrative costs. This is much cheaper than the "social cost of carbon," defined as the negative economic impact of carbon pollution on society, which the US Environmental Protection Agency calculates through complex models of the global climate and economy. Using the EPA's estimates, the economic benefit of the deforestation and carbon emissions that this program averted was \$1.11 per ton. Thus, the program's climate-change benefits were twice as large as its costs. By comparison, programs designed to reduce carbon emissions in the US, such as subsidizing hybrid cars or incentivizing people to weatherize their homes, often are far more expensive than the social benefit they generate through reduced carbon emissions.

If you add in more difficult-to-quantify program impacts, such as protecting endangered chimpanzees, who reside in Uganda's thinning forests, it seems this program passes the cost-effectiveness test with flying colors.

## **Buzz in the Blogosphere/Learn More!**

This project has received a lot of attention, and not just in the development economics community. Websites such as the [Washington Post](#), [Fast Company](#), and Climate-Eval have all run stories on this project. You can also read the study's [working paper](#) published by the National Bureau of Economic Research.

## **The Center for the Study of Development Economics**

The Payments for Ecosystem Services project is just one of many exciting experiments conducted by faculty of the Center for the Study of Development Economics! To learn more, visit our [website](#) or come to one of CSDE's events.

## Economics Alumni Share Career Path Stories and Benefits of Liberal Arts

The Economics Department co-hosted an alumni panel as part of the Weinberg Office of Student Alumni Engagement series this past November in the newly renovated Guild Lounge in Scott Hall. The event entitled “Careers for Econ Majors: It’s Not Just Finance and Consulting” featured four alumni from a variety of career paths, at different stages in their careers: Alisha Hsu, Tiffany Farris, Lori Beaman and Chris Russo. After describing the twists and turns of their respective paths, the panelists highlighted those skills they found to be most helpful in their working lives so far – effective communication and networking, the ability to work with datasets, and critical thinking and developing a frame of view to evaluate business decisions. The alumni also emphasized the importance of the passion and energy one brings to one’s work. “Developing and pursuing a self-initiated project, which may include experiencing some degree of failure, can often be the single most distinguishing factor of successful job candidates,” Ms. Fariss commented. All the panelists agreed that the undergraduate experience is a unique and valuable opportunity to broaden horizons both socially and academically and they encouraged students to take courses outside their comfort zone. Technical skills are very important to acquire – data analysis, math, research design – but also important is learning how to think on the fly, articulating ideas and opinions and diversifying one’s knowledge base. Northwestern’s broad array of liberal arts courses is a great place to do all of those things, and the panelists were certainly appreciative of their Northwestern experience.

### Panelists Bios

#### Lori Beaman

Lori is an Associate Professor of Economics at Northwestern University. She received an Early Career Development (CAREER) Award from the National Science Foundation as well as numerous other grants. She currently serves as an associate editor of three Economics journals: *The Journal of Development Economics*, *Economic Development and Cultural Change*, and *the Journal of European Economic Association*.

A development economist working on microeconomic issues, Lori’s research interests are centered on two themes: social networks and gender. Her work has evaluated the impact of a political affirmative action program on gender bias in rural India; how social networks affect labor market opportunities among women in Malawi; and how to encourage African farmers to adopt profitable agricultural technologies. After receiving her B.A. in Economics from Northwestern in 1999, she served as a Peace Corps volunteer in Mali for two years. She then received her PhD in Economics in 2007 from Yale University.

#### Tiffany Farris

Tiffany is the CEO of Palantir.net, a full-service Web firm that creates engaging online experiences and believes the best outcomes are achieved when people are able to create and collaborate in an open and inclusive environment. At Palantir, Tiffany specializes in providing project leadership and strategy through consultation, project planning and training. She has over 18 years of Internet consulting and development experience and extensive experience providing information architecture and usability consulting for a wide variety of clients. She is an avid supporter and proponent of open source software and serves as Treasurer of the Drupal Association. Tiffany has a BA in Mathematics from Northwestern University, where she focused on mathematical modeling and human computer interaction.

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## **Alisha Hsu**

Alisha graduated from Northwestern in 2013 with a major in Economics and a minor in Chemistry. After graduation, Alisha joined AbbVie, a biopharmaceutical company located in the northern suburbs of Chicago, as a Project Specialist in the Health Economics and Outcomes Research team, where she had interned her Senior year at Northwestern. In 2015, she moved into the Marketing Analytics and Business Insights group and continues to work on this team.

## **Christopher Russo**

Chris is a recognized industry leader and innovator in digital sports media and technology. He currently serves as Founder of Fifth Generation Sports and as a Managing Director at investment bank Houlihan Lokey. Prior to his current roles, Mr. Russo served as Founder and CEO of Big Lead Sports, the largest independent digital sports property in the U.S. Mr. Russo's sports experience also includes his tenure as Senior Vice President, New Media and Publishing, for the National Football League. In that position, he had broad P&L responsibility for the digital media and publishing business units and oversaw all day-to-day operations, including content, advertising sales, marketing, and business development. Mr. Russo began his media career in television, first serving as Vice President, Marketing for NBC and later as Executive Vice President, Franchise Programming & Marketing for Time Warner's New Line Television. Mr. Russo is a member of the SportsBusiness Journal 40 under 40 Hall of Fame. He received his BA from Northwestern University and his MBA from Harvard University.

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### Contributors to the Department of Economics from September 2015 to August 2016

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