Jack Willis

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Personal Information
Born: 12 March 1984, London
Citizenship: British

Employment

Columbia University (from Jan. 2018)
Assistant Professor, Department of Economics

Education

Harvard University, 2011 to 2017
Ph.D. in Economics
Thesis Title: "Essays in Development Economics"
References: (all Harvard University)

Professor Michael Kremer
Littauer Center M-20
mkremer@fas.harvard.edu
+1 617-495-9145

Professor Sendhil Mullainathan
Littauer Center M-18
mullain@fas.harvard.edu
+1 617-496-2720

Professor David Laibson
Littauer Center M-12
dlaibson@harvard.edu
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Paris School of Economics, Université Paris 1 (Panthéon-Sorbonne), 2007 to 2009
Masters in Economics (ETE-QEM)

Cambridge University, Trinity College, 2002 to 2006
Masters (Part III) and B.A. in Mathematics

Research Fields

Primary field: Development Economics
Secondary fields: Public Finance, Behavioral Economics, Machine Learning, Household Finance

Teaching Experience (all as teaching fellow)

2015	Development Economics (Ph.D.), Ec 2390, Harvard University, Professors Michael Kremer, Shawn Cole
2014, 2013	Development Policy Strategy (masters), PED-309, Harvard Kennedy School, Professor Ricardo Hausmann
2014	Intermediate Microeconomics (undergraduate), Ec 1010a, Harvard University, Professor Jeffrey Miron
2014	Development Macroeconomics (Ph.D.), Ec 2390c, Harvard University, Professors Michael Kremer, Nathan Nunn, Shawn Cole
2013	International Trade (Ph.D.), Ec 2530a, Harvard University, Professor Elhanan Helpman
2009	Advanced Analysis (masters), Université Paris 1, Professor Bernard De Meyer
2008	Multivariate Calculus (masters), Université Paris 1, Professor Alain Chateauneuf

Research Experience and Other Employment

2011 to 2014	Research Assistant for Professors Michael Kremer, Sendhil Mullainathan, Dina Pomeranz
2009 to 2011	Oxford Policy Management, Assistant Consultant
2006 to 2009	Phasor Solutions Ltd., Mathematical Engineer (part time 2007 to 2009)

Professional Activities

Presentations

2017	ABCA conference, Cambridge, Columbia, Cornell, DIAL conference, ECBE conference, IIES, INSEAD (scheduled), Lindau meetings, NBER insurance working group, Paris School of Economics (scheduled), Princeton, Sciences Po, Toulouse School of Economics, UCL, UCSD
2016	NEUDC conference, BREAD pre-conference, NOVAFRICA conference
2015	CSAE Oxford conference, SAET conference
2013	SAET conference

Referee (papers and grants)

American Economic Review, Economic Development and Cultural Change, Oxford Bulletin of Economics and Statistics, Quarterly Journal of Economics, The Economics of Transition, 3ie

Research Grants

2016	ATAI, "Time vs. State in Insurance: Experimental Evidence from India" (with Lorenzo Casaburi, Bheeshm Chaudhary, Siddharth George) *$28,062*
2015	Weiss Fund, "Time vs. State in Insurance: Experimental Evidence from India" (with Lorenzo Casaburi, Bheeshm Chaudhary, Siddharth George) *$31,600*
2014	World Bank Big Data Innovation Challenge, "Targeting Poverty by Predicting Poverty: Using Machine Learning in Targeted Transfer Programs" (with Melissa Adelman, Sendhil Mullainathan, Paul Niehaus) *$100,000*
2012	Weiss Fund, "The Causes and Effects of Improved Health Supply: Evidence from Rwanda" (with Martin Rotemberg) *$6,400*

Languages

English (native), French (fluent)

Research Papers

"Time vs. State in Insurance: Experimental Evidence from Contract Farming in Kenya" (with Lorenzo Casaburi)

The gains from insurance arise from the transfer of income across states. Yet, by requiring that the premium be paid upfront, standard insurance products also transfer income across time. We show that this intertemporal transfer can help explain low insurance demand, especially among the poor, and in a randomized control trial in Kenya we test a crop insurance product which removes it. The product is interlinked with a contract farming scheme: as with other inputs, the buyer of the crop offers the insurance and deducts the premium from farmer revenues at harvest time. The take-up rate for pay-at-harvest insurance is 72%, compared to 5% for the standard pay-upfront contract, and take-up is highest among poorer farmers. As for channels, we use additional experiments and outcomes to look at the role of liquidity constraints, present bias, and counterparty risk. Finally, evidence from a natural experiment in the United States, exploiting a change in the timing of the premium payment for Federal Crop Insurance, shows that the transfer across time also affects insurance adoption in developed countries.

Publications

"Guns, Latrines, and Land Reform: Dynamic Pigouvian Taxation" (with Michael Kremer),
American Economic Review Papers & Proceedings, 2016, 106(5): 83-88

Dynamically and statically optimal Pigouvian subsidies and taxes on durables will differ in a growing economy. In a dynamic game, consumers may delay purchasing durables with positive externalities, such as latrines, anticipating greater future subsidies. Governments can most cheaply induce optimal purchasing by committing to make subsidies temporary. The presence of multiple subsidizing bodies, including foreign donors, may make commitment impossible, generating delays in private investment that more than fully offset the social benefits of transfers. For durables with negative externalities, such as guns, anticipated future taxes or regulation may encourage current purchase, potentially causing policymakers who would otherwise prefer taxes or regulation to abandon such policies. Political actors may also be able to shape others' policy preferences by changing private expectations. For example, a political party that announces an intent to redistribute land may reduce investment incentives for current owners, thus reducing the benefits of maintaining existing property rights and making land reform more attractive to the median voter.

Research Papers in Progress

"(Machine) Learning to Target" (with Melissa Adelman, Jonathan Glidden, Sendhil Mullainathan, Paul Niehaus)

Targeted transfers are central to nearly every anti-poverty program. The aim of targeting is often simple: give to the poorest. But, in many settings, even identifying the poor is difficult, and poverty must be predicted using other characteristics. Such prediction is a supervised learning problem, the bread and butter of machine learning. Existing methods tackle the problem using linear functions, called Proxy Means Tests, which are trained using ordinary least squares on standard household survey data. Machine learning may improve on these methods in two ways: by using new types of data and by applying new algorithms to existing data. We focus on new algorithms and investigate the gains in targeting efficiency of using methods explicitly designed for prediction, across multiple countries. The potential welfare gains are large, since huge quantities of transfers are targeted using existing methods, and switching predictive functions is essentially costless.

"Identifying Spillovers by Predicting Compliance" (with Martin Rotemberg)

In order to identify local average treatment effects, instrumental variables analyses assume away spillovers. However, in many economically important environments spillovers are likely to be present, and are often interesting in and of themselves. We propose a machine learning framework for the measurement of local spillovers, for settings with geographic-level treatments and imperfect compliance. In such settings, local spillovers are identified for non-compliers, by comparing their outcomes in treatment areas to their outcomes in control areas. The challenge in doing so is identifying the non-compliers. Under the standard no-defiers assumption, this is a prediction problem, to which we apply machine learning: we predict the probability of take-up, using ex-ante characteristics, and then compare predicted never-takers and always-takers across treatment and control areas. Under stronger assumptions, we can also partially identify spillovers for those with larger predicted probabilities of compliance. We apply the method to measure the spillover effects of deworming on schooling outcomes and find similar effects to those reported by Kremer and Miguel (2004).

"Converging Towards Convergence" (with Michael Kremer)

Absolute convergence is a central prediction of neoclassical growth models. Yet an empirical literature in the 1990s found that, if anything, absolute divergence was the norm. We show that these studies coincided with a shift towards convergence, and that since the mid-2000s there has been strong absolute convergence. This shift to convergence is not just driven by a slow-down in growth rates of rich countries; nor is it just an Africa effect; nor do demographics appear to play a large role. It *is* associated with a reduction in growth disasters, i.e. prolonged periods of negative growth, in less developed countries. It also coincides with convergence in policies, which has shrunk the difference between absolute and conditional convergence, yet including a wide range of covariates suggests that the role of policy convergence may be limited.