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Undergraduate Studies:

B.S. Physics, University of Washington, magna cum laude, 2005

Graduate Studies:

Harvard University, 2011 to present
Ph.D. Candidate in Economics
Thesis Title: "Essays in Economic Development"
Expected Completion Date: June 2014

References:

Professor Michael Kremer
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Professor Greg Lewis
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M.A. Economics, Stanford University, 2011
M. Public Policy, Harvard University, John. F. Kennedy School of Government, 2009

Teaching and Research Fields:

Fields: Development, Industrial Organization

Teaching Experience:

- 2008 “Reasoning from Evidence”, Harvard Kennedy School
Course assistant for Dan Levy and Julie Wilson
- 2005-2007 Teach for America, High School Teacher, Math and Science, Weslaco Texas
- 2004 “Introductory Physics”, University of Washington
Teaching assistant for Peter Shaffer

Other Employment:

- 2008-2009 Jameel Poverty Action Lab (J-PAL), Consultant
- 2000-2001 Microsoft Mobile Devices Division, Software Developer Intern

Honors, Scholarships, and Fellowships:

- 2013-2014 Oppenheimer Graduate Fellowship, Harvard University
- 2011-2013 Graduate Fellowship, Harvard Economics
- 2010-2011 George Shultz Fellowship, Stanford Institute for Economic Policy Research
- 2009-2010 Graduate Fellowship, Stanford Economics

Job Market Paper:

“The Adoption of Network Goods: Evidence from the Spread of Mobile Phones in Rwanda”

This paper uses transaction data from an African mobile phone system to estimate demand for mobile phones as a function of agents’ social networks, coverage, and prices. Empirical work on network goods such as mobile phones has historically been limited because it is difficult to measure network effects and difficult to gather data on an entire network of users. This paper overcomes these issues using a new empirical approach and data on the adoption and subsequent usage of nearly the entire network of Rwandan mobile phone subscribers over 4.5 years of expansion. In my model, the utility of adoption is derived from usage. Each individual’s set of contacts is revealed by who they call after adopting, and the value of each contact is revealed by the costly decision to place calls. I use this model to simulate the effects of two policies to encourage network adoption. An adoption subsidy increased welfare by as much as 2%, with a substantial fraction of its impact due to spillovers on nonrecipients. A government coverage obligation had a small, positive effect on welfare, with most benefits accruing to individuals living outside the areas receiving coverage.

Research Papers:

“Do Hypothetical Choices and Non-Choice Ratings Reveal Preferences?”

with B. Douglas Bernheim, Jeffrey Naecker, and Antonio Rangel

We develop a method for determining likely responses to a change in some economic condition (e.g., a policy) for settings in which either similar changes have not been observed, or it is challenging to identify observable exogenous causes of past changes. The method involves estimating statistical relationships across decision problems between choice frequencies and variables measuring non-choice reactions, and using those relationships along with additional non-choice data to predict choice frequencies under the envisioned conditions. In an experimental setting, we demonstrate that this method yields accurate measures of behavioral responses, while more standard methods are either inapplicable or highly inaccurate. (NBER working paper 19269)

Research Papers in Progress

“The Spread of Profitable Technologies: Evidence from a Mobile Phone Discount”

Although the spread of new technologies is vital for economic development, it is difficult to study with traditional sources of data. Mobile phones present a promising setting: as individuals learn to use mobile phones, the network records nearly every experience of learning-by-doing, as well as nearly every remote interaction with peers who could share their own learning experiences. In 2006, a Rwandan mobile phone operator introduced a new plan that represented substantial savings for over 85% of subscribers. This project uses operator data to investigate how individuals learned about this new plan. I find that individuals learn from sales agents and from contacts that closely monitor their own usage, and most switch only after fully internalizing the new pricing structure.

“Hidden Quality”

Even simple goods have many dimensions of quality. For example, even a basic food like wheat has over 60 dimensions of nutritional quality tracked by the USDA. Since it is not feasible to communicate quality completely, in order to exchange goods over markets the dimensions of quality must be collapsed. As a result, real goods are partially credence goods, with dimensions of quality that consumers effectively never observe. These dimensions can have large economic significance—for example, though the standby power use of electronics is often not presented to consumers, electronics on standby mode represent up to 10% of residential electricity use. Innovation improves visible dimensions, sometimes at the expense of hidden dimensions. A common policy response is to mandate that a subset of these dimensions be disclosed, but disclosure can increase the distortion of innovation away from dimensions that remain hidden, in some cases lowering welfare.

“Credit Scoring using Behavioral Signatures from Mobile Phone Records”

Although unbanked households lack the formal records needed for traditional credit scores, many have maintained a rich history of interaction with a formal institution over an extended period of time, their mobile phone operator. Even with prepaid plans, operator records yield rich information about individual behavior and social networks. This project aims to identify and test key behavioral indicators associated with loan repayment and entrepreneurial success.