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HARVARD UNIVERSITY

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Placement Director: Lawrence F. Katz LKATZ@HARVARD.EDU 617-495-5148
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Undergraduate Studies:
AB, Mathematics, Dartmouth College, *cum laude*, 2003

Graduate Studies:
MSc, Economics for Development, University of Oxford, 2004

Harvard University, 2005 to present
Thesis Title: "Essays on technological change in health care markets"
Expected Completion Date: June 2010

References:
Professor Lawrence Katz (co-primary adviser)
Department of Economics, Harvard University
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Professor Amy Finkelstein (co-primary adviser)
Department of Economics, MIT
afink@mit.edu; 617-253-4149

Professor David Cutler
Department of Economics, Harvard University
dcutler@fas.harvard.edu; 617-496-5216

Teaching and Research Fields:
Primary fields: Public economics, health economics
Secondary fields: Economics of innovation, labor economics

Research Experience and Other Employment:

2004-2005	Research assistant to Professor Amy Finkelstein, MIT
2003-2009	Research assistant to Professor Michael Kremer, Harvard University
2003-2005	Consultant, Center for Global Development
Summer 2003	Intern, the Brookings Institution

Professional Activities

Presentations:	NBER Productivity meeting (2009, scheduled); NBER Health Care meeting (2009); Middlebury College (2008); ASSA meetings (2007); OECD (2007); NIH MIDAS meeting (2006); Yale School of Medicine (2006)
Discussant:	Harvard Law School conference on pharmaceutical research (2009)
Referee:	*Economic Journal*; *Journal of Human Resources*; *Journal of Public Economics*; *Mathematical Biosciences*; *Quarterly Journal of Economics*
Other:	Selection committee member, Harry S. Truman Scholarship (2008, 2009)

Honors, Scholarships, and Fellowships:

2008, 2009	Pre-Doctoral Fellowship in Aging and Health Economics; NBER
2008	Research Fellow, Project on Justice, Welfare, and Economics; Harvard University
2007	Price Theory Scholar, Becker Center on Chicago Price Theory; U. of Chicago
2006, 2008	Student Fellow, Petrie-Flom Center; Harvard Law School
2004	Webb-Medley Overall Prize (*proxime accessit*); University of Oxford
2003	National Science Foundation Graduate Research Fellowship
2003	Rhodes Scholarship
2002	Harry S. Truman Scholarship

Publications:

"Estimating Marginal Returns to Medical Care: Evidence from At-Risk Newborns" (with Douglas Almond, Joseph Doyle, and Amanda Kowalski), *Quarterly Journal of Economics*, forthcoming.

Abstract: A key policy question is whether the benefits of additional medical expenditures exceed their costs. We propose a new approach for estimating marginal returns to medical spending based on variation in medical inputs generated by diagnostic thresholds. Specifically, we combine regression discontinuity estimates that compare health outcomes and medical treatment provision for newborns on either side of the very low birth weight threshold at 1500 grams. First, using data on the census of US births in available years from 1983-2002, we find that newborns with birth weights just below 1500 grams have *lower* one-year mortality rates than do newborns with birth weights just above this cutoff, even though mortality risk tends to decrease with birth weight. One-year mortality falls by approximately one percentage point as birth weight crosses 1500 grams from above, which is large relative to mean infant mortality of 5.5% just above 1500 grams. Second, using hospital discharge records for births in five states in available years from 1991-2006, we find that newborns with birth weights below 1500 grams have discontinuously higher charges and frequencies of specific medical inputs. Hospital costs increase by approximately $4,000 as birth weight crosses 1500 grams from above, relative to mean hospital costs of $40,000 just above 1500 grams. Under an assumption that observed medical spending fully captures the impact of the "very low birth weight" designation on mortality, our estimates suggest that the cost of saving a statistical life of a newborn with birth weight near 1500 grams is on the order of $550,000 in 2006 dollars.

"Advance Market Commitments for Vaccines Against Neglected Diseases: Estimating Costs and Effectiveness" (with Ernst Berndt, Rachel Glennerster, Michael Kremer, Jean Lee, Ruth Levine, and Georg Weizsäcker), *Health Economics*, 2007, 16(3): 491-511.

Research Paper:

"Intellectual Property Rights and Innovation: Evidence from the Human Genome" (Job Market Paper)

Abstract: This paper provides empirical evidence on how intellectual property (IP) on a given technology affects subsequent downstream innovation. To shed light on this question, I analyze the sequencing of the human genome by the public Human Genome Project and the private firm Celera, and estimate the impact of Celera's gene-level IP on subsequent scientific research and product development outcomes. Celera's IP applied to genes sequenced first by Celera, and was removed when the public effort re-sequenced those genes. I test whether genes that ever had Celera's IP differ in subsequent downstream innovation, as of 2009, from genes sequenced by the public effort over the same time period, a comparison group that appears balanced on *ex ante* gene-level observables. A complementary panel analysis traces the effects of removal of Celera's IP on within-gene flow measures of innovation. Both analyses suggest Celera's IP led to reductions in subsequent scientific research and product development outcomes on the order of 30 percent. Celera's short-term IP thus appears to have had persistent negative effects on subsequent innovation relative to a counterfactual of Celera genes having always been in the public domain.

Research Papers in Progress:

"Tax Policy and the Hospital Industry"

Abstract: One of the largest tax subsidies to non-profit hospitals grants access to debt in the form of tax-exempt hospital construction bonds. Non-profit hospitals' reliance on these bonds has been controversial, in part because the price of capital facing a given hospital in the tax-exempt bond market is lowest for hospitals likely least in need of tax subsidies. To shed light on how reliance on this source of capital financing has shaped the hospital industry, I analyze a series of federal, state, and local tax policies changes from the 1960s to the 1990s that expanded non-profit hospitals' access to tax-exempt bonds. Despite reducing non-profit hospitals' costs of capital, my preliminary results provide little evidence that expansions in access to tax-exempt bonds increased overall levels of hospital capital investments. I am collecting additional data to test whether these policies changed the distribution of access to financial capital across hospitals, as a function of hospital characteristics determining the price of capital facing a given hospital in the tax-exempt bond market.

"Dynamic Effects of Medical Technologies: Evidence from the Prostate Cancer Market"

Abstract: Changes in medical diagnostic technologies can induce substantial changes in the number of patients diagnosed with a disease. In a dynamic sense, such induced changes in disease prevalence could change firms' incentives for research and development (R&D) investments into new medical treatments. To test for such dynamic effects, I analyze the introduction of the PSA screening test in 1986, which led to a sharp increase in the number of men diagnosed with prostate cancer. Using other cancers as a control group, my preliminary results suggest the introduction of the PSA test led to substantial increases in the completion of clinical trials and the approval of new drugs for the treatment of prostate cancer.

"Complementarities and Substitutabilities Across Medical Technologies"

Abstract: In many markets – ranging from health care to auto repair – "expert" firms are consulted to assess the need for a service the firm itself provides, inducing potential distortions if the expert has an informational advantage relative to the consumer. I ask whether such incentives affect the set of diagnostic technologies available to consumers in health care markets. Firms selling medical treatments face incentives to increase access to "complementary" diagnostics - such as cancer screening tests able to diagnose patients with smaller, earlier stage tumors - and to reduce access to "substitutable" diagnostics - such as genetic tests predicting a given medical treatment is ineffective for some currently treated patients. To test whether such complementarities and substitutabilities affect the set of diagnostic technologies available to consumers, I am collecting data on a risk set of known gene-disease links, only a subset of which are marketed to consumers in the form of gene-based diagnostic tests. This risk set will allow me to test whether consumers have more access to "complementary" diagnostics and less access to "substitutable" diagnostics, relative to diagnostics that are neutral in this respect.

Other Professional Writing:

"Incentivizing Innovation: Adding to the Toolkit" (with Michael Kremer), in Josh Lerner and Scott Stern (editors), *Innovation Policy and the Economy Volume 10*, forthcoming.

"Creating Markets for Vaccines" (with Rachel Glennerster and Michael Kremer), *Innovations*, 2006, 1(1): 67-79.

"Advance Market Commitments: A Policy to Stimulate Investment in Vaccines for Neglected Diseases" (with Owen Barder and Michael Kremer), *The Economists' Voice*, 2006, 3(3): article 1.

Last updated: November 2009