

Economics 881.25 Human Capital and Economic Development

Class Meetings

Class times	Fridays 15:05 - 17:35
Classes begin	9 January 2015
Classes end	20 February 2015
Class location	Social Sciences 111

Instructor

Instructor	Robert Garlick
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Office hours	Wednesdays 13:30 - 15:30 for open office hours http://robertgarlick.youcanbook.me for one-on-one meetings about research

1 Course Overview

This is a graduate, seminar-style course studying the intersection between development economics and the economics of human capital. The course is aimed primarily at doctoral students in economics who are interested in conducting research in development economics. Much of the material will also be relevant for graduate students interested in applied microeconomic research on human capital topics.

The course will focus on two dimensions of human capital: education and health. Issues around nutrition and fertility will be discussed briefly but will not be a major focus. We will focus on economic topics relevant to low- and middle-income countries and will primarily read papers using data from these countries. We will also read some papers using data from developed countries, focusing on their theoretical or methodological contributions. We will only briefly discuss some macroeconomic aspects of the relationship between human capital and economic development. We will not study the relationship between human capital and the labor market, as this will be discussed in detail in Economics 881.26.

The course has three goals:

1. Prepare students to conduct applied microeconomic research at the intersection between development economics and the economics of human capital
2. Review the substantive literature on human capital acquisition and the implications of human capital acquisition in developing countries.
3. Review econometric and statistical tools commonly used in empirical microeconomic research and study how these tools are typically applied.

Where trade-offs need to be made between these goals, we will prioritize preparation for research. In practice, this means that we will sacrifice breadth in favor of depth and largely omit important

literatures on fertility and nutrition. We will concentrate on reading relatively recent papers and skip many canonical older papers. Some important recent papers will be skipped in favour of less influential papers that offer opportunities for interesting methodological discussion. This discussion will emphasize how methods are used in practice and the practical implications of methodological choices. This course is not a substitute for a focused microeconometrics course!

Disclaimer: As this is a new course, the syllabus should be interpreted as a prediction rather than a promise. Reading assignments may be changed through the semester.

2 Class Structure

Each class will start with a short, hopefully interactive, lecture. This will contextualize the readings for the week within the broader literature and highlight some open questions in the literature. The lectures will not summarize the assigned papers. We will then discuss the assigned readings for the week, either together or in smaller groups. I will randomly call on students to initiate class discussions or report back on small group discussions. This means that class preparation is vital. In some weeks we will add a second short lecture and discussion focused on methodological issues raised by the assigned readings.

3 Course Requirements

There are three course requirements. First, a **problem set**, which will ask you to apply some of the empirical methods discussed in class to some real data. This is worth 25% of the grade, is due on **13 February** and should be submitted on the Sakai course website. You may work in groups but each student should write and submit their own code and own answers. You may use any software package but I will only provide feedback on code written for R or Stata.

Second, **required readings and class participation**. This involves two concrete requirements. You should post a short set of discussion notes for each of the required readings in the Assignments section of the Sakai course website by 13:00 each Friday. For each paper, these notes should:

- provide a brief summary (at most 5 sentences per paper);
- discuss why the paper is considered a contribution;
- identify *at least* one limitation the paper (e.g. mismatch between theory and empirical test, poor measure of key variable, problematic interpretation of a key empirical result); and
- suggest *at least* one avenue for future research (e.g. alternative theoretical explanation for the main empirical result, alternative way to empirically test the theory).

These notes should provide a starting point for discussion, not constitute an entire discussion. You should aim for approximately a half page of writing per paper. The notes should be clear and concise but do not need to be detailed or eloquent. Once in class, you should be prepared to discuss the readings with the entire class or in small groups. Your discussion notes will obviously be a good

starting point for this discussion. The discussion notes and class discussion are jointly worth 25% of the grade.

Third, a **term paper**. This can take any one of three forms. The first option is a **preliminary draft of your second year paper**. This should follow the Duke economics department guidelines for a second year paper but will obviously not be complete at this stage. You might, for example, have only preliminary empirical results or only a special case of a more general theoretical model. This will be graded in line with the second year paper guidelines.

The second option is a **proposal for a paper you plan to complete**. The proposal should lay out the research question you will address, explain why it is important, and provide an overview of the theory and empirical methods you will employ. For a more theoretical paper, the proposal should describe the main model, its predictions, its key assumptions and caveats to the predictions, how these predictions differ from existing models, and how these differences could be observed in data. For a more empirical paper, it should include the theoretical basis for the paper, the empirical strategy/specification, and the data you have or plan to gather. Descriptive statistics from existing data can be a useful part of motivating both both theoretical and empirical papers. This will be graded on the (1) importance of the question, (2) feasibility of the proposed answer, and (3) quality of the proposed answer.

The third option is a **proposal for a research area you plan to explore**. This should build off one (or more) of the class topics (see section 6 below) and identify a set of open questions that you believe can be answered within that topic. You should briefly review all the required readings for that topic and at least 10 other papers and use this review to point out a set of open questions. You should then sketch out how these questions might be answered during your PhD. These sketch answers need not be detailed but should demonstrate careful attention to the underlying economic ideas and methodological challenges. This will be graded on the (1) accuracy and insights in the literature review, (2) importance of the questions identified, and (3) feasibility of the proposed answers.

In all three cases, the assignment is intended to push you to think about a concrete research agenda. You should choose the option that best suits the current state of your research program and your goals for the next few months. The term paper can be in any area of applied microeconomics or microeconometrics. I am less likely to provide useful feedback on papers written far outside my research specializations. If you are unsure about the type or topic of your paper, you should discuss it with me during office hours.

In all three cases, the paper should be at most 15 pages, double-spaced and including tables and figures. Writing concisely is a critical skill in academic research so you should try to maximize the content to length ratio rather than padding. This is worth 50% of the grade and is due on **25 February**.

4 Development Economics at Duke

I **strongly** encourage you to regularly attend seminar series. Reading published papers shows you the end product of months or years of research. Seeing seminars shows you the slightly messier work in progress and generally gives more insight into how research is actually done.

The Labor and Development seminar is held on Wednesdays from 15:30 - 17:00 in Social Sciences 111. This seminar features visiting faculty from a range of other institutions. If you are interested in meeting with a particular speaker, email me at least one week in advance and I will try to reserve a slot for you to meet with them. The International Population Health and Development workshop is held on Fridays from 12:00 - 13:00 in Social Sciences 111. IPHD is a forum for Duke, UNC and NC State students and faculty who are interested in population health and development to present their own work in progress. The Labor/Development seminar series will generally feature more polished presentations from more senior researchers. The IPHD seminar series will generally feature early stage work by students and junior faculty. You will get different insights from each series and I recommend attending both regularly.

Students who plan to specialize in development economics should also register for the IPHD workshop, which is cross-listed as Econ 911.11 and PuPol 911.1.

There are a range of other seminar series and workshops offered in the economics department that may be relevant to your research development. If you plan to work at the intersection of development and another field, I recommend attending the seminars for both fields.

You should try and actively engage with these seminars. That can mean asking questions but it can also mean writing down questions and ideas sparked by the seminar and discussing these later with other students. At this point in your career, it may be useful to come out of every seminar with a short list of research possibilities sparked by the presentation. If the speaker uses one empirical method or dataset to test a theory, how else could you do this? If the speaker presents one theoretical explanation for an empirical pattern, what other type of model might explain it? As this class meets soon after the IPHD workshops, we may sometimes discuss the seminar in class.

5 Development Economics Research

You should keep up-to-date on current research being conducted in your field(s) of interest. Current working papers in development economics are often posted at the National Bureau of Economic Research and the Bureau for Research and Economic Analysis of Development.

I encourage you to submit research papers to conferences as soon as you (and your advisors) think they're ready for public viewing. These can be a good opportunity to practice presenting to unfamiliar audiences and to see what research is taking place outside Duke. There is a list of general and subfield-specific development economics conferences on the BREAD website.

6 Schedule and Readings

6.0 Background

There is no required course textbook. I strongly recommend these two books as references for background reading:

- Joshua Angrist and Jörn-Steffen Pischke (2009). *Mostly Harmless Econometrics*. Princeton University Press
- Pranab Bardhan and Christopher Udry (1990). *Development Microeconomics*. Oxford University Press

The first book is an accessible introduction to many of the econometric methods used in empirical microeconomics. It doesn't provide enough detail to adapt or extend these methods but it's a good starting point. The second book is now somewhat dated but is still an excellent example of the style of microeconomic modeling that can be used in development work.

An undergraduate textbook in development economics may also be useful for this course. I generally turn first to Debraj Ray's *Development Economics*. Gérard Roland's *Development Economics*, and Michael Todaro and Stephen Smith's *Economic Development* are also helpful references.

These references will be useful for the econometric methods covered in this course:

- Joshua Angrist and Alan Krueger (1999). "Empirical Strategies in Labor Economics". In: *Handbook of Labor Economics Volume 3A*. ed. by Orley Ashenfelter and David Card. Elsevier, pp. 1277–1366
- Colin Cameron and Pravin Trivedi (2005). *Microeconometrics: Methods and Applications*. Cambridge University Press
- Angus Deaton (1997). *The Analysis of Household Surveys: A Microeconometric Approach to Development Policy*. Johns Hopkins University Press (can be downloaded from the World Bank website)
- James Heckman and Edward Vytlacil (2007a). "Econometric Evaluation of Social Programs Part I: Causal Models, Structural Models and Econometric Policy Evaluation". In: *Handbook of Econometrics Volume 6*. Ed. by James Heckman and Edward Leamer. Elsevier, pp. 4779–4874
- James Heckman and Edward Vytlacil (2007b). "Econometric Evaluation of Social Programs, Part II: Using the Marginal Treatment Effect to Organize Alternative Econometric Estimators to Evaluate Social Programs, and to Forecast their Effects in New Environments". In: *Handbook of Econometrics Volume 6*. Ed. by James Heckman and Edward Leamer. Elsevier, pp. 4875–5143
- Guido Imbens and Jeffrey Wooldridge (2009). "Recent Developments in the Econometrics of Program Evaluation". In: *Journal of Economic Literature* 47.1, pp. 5–86
- Jeffrey Wooldridge (2010). *Econometric Analysis of Cross Section and Panel Data*. The MIT Press

I will assign specific methods-orientated readings in some weeks as well. Cameron and Trivedi's book is quite terse but is very clear and probably the broadest textbook treatment of modern empirical microeconomic methods. Wooldridge's book covers a narrower range of topics in more detail. Deaton's book is now a bit dated in some areas but covers some topics omitted from Cameron and Trivedi's book and has great applications. The review papers by Angrist & Krueger and by Imbens & Wooldridge are much briefer but are very good short introductions to "reduced-form" empirical methods. The two handbook chapters by Heckman & Vytlacil are considerably denser and more technical readings but should be very useful for students interested in doing more high-tech empirical work.

These fairly non-technical readings should be useful reading for students who plan to specialize in development economics, although there is substantial overlap in the content they cover:

- "Agenda for Development Economics" symposium in the 2008 *Journal of Economic Perspectives*, volume 24, number 3.
- Abhijit Banerjee, Pranab Bardhan, et al. (2005). "New Directions in Development Economics: Theory or Empirics?" In: *Economic and Political Weekly*
- Abhijit Banerjee and Esther Duflo (2007). "The Economic Lives of the Poor". In: *Journal of Economic Perspectives* 21.1, pp. 141–168
- Abhijit Banerjee and Esther Duflo (2011). *Poor Economics: A Radical Rethinking of the Way to Fight Global Poverty*. Public Affairs
- Angus Deaton (2010). "Instruments, Randomization, and Learning about Development". In: *Journal of Economic Literature* 48.2, pp. 424–455
- Esther Duflo, Rachel Glennester, and Michael Kremer (2007). "Using Randomization in Development Economics Research: A Toolkit". In: *Handbook of Development Economics Volume 4*. Ed. by Paul Schultz and John Strauss. Elsevier, pp. 3895–3962
- Jessica Cohen and William Easterly, eds. (2009). *What Works in Development? Thinking Big and Thinking Small*. The Brookings Institution
- William Easterly (2002). *The Elusive Quest for Growth: Economists' Adventures and Misadventures in the Tropics*. The MIT Press
- Amartya Sen (2000). *Development as Freedom*. Anchor

These references explore the ongoing debate about the role of theory in empirical microeconomics:

- Joshua Angrist and Alan Krueger (2001). "Instrumental Variables and the Search for Identification: From Supply and Demand to Natural Experiments". In: *Journal of Economic Perspectives* 15.4, pp. 69–85
- "Taking the Con out of Economics" symposium in the 2010 *Journal of Economic Perspectives*, volume 24, number 2.

- James Heckman (2010). “Building Bridges between Structural and Program Evaluation Approaches to Evaluating Policy”. In: *Journal of Economic Literature* 48.2, pp. 356–398
- James Heckman and Sergio Urzua (2010). “Comparing IV with Structural Models: What Simple IV Can and Cannot Identify”. In: *Journal of Econometrics* 156.1, pp. 27–37
- Guido Imbens (2010). “Better LATE Than Nothing: Some Comments on Deaton (2009) and Heckman and Urzua (2009)”. In: *Journal of Economic Literature* 48.2, pp. 399–423
- Michael Keane (2010). “Structural vs. atheoretic approaches to econometrics”. In: *Journal of Econometrics* 156.1, pp. 3–20

Within each of the seven following topic areas, I have listed the articles in the order that I recommend reading them. All required readings are posted on the Sakai course website.

6.1 Introduction, 9 January 2014

This class will provide a brief, birds-eye introduction to development economics and human capital. This will contextualize the rest of the course relative to older work in these fields. The readings are mostly review papers. We will also consider some papers exploring the macroeconomic implications of microeconomic research on human capital

Required readings:

- John Strauss and Duncan Thomas (1998). “Health, Nutrition, and Economic Development”. In: *Journal of Economic Literature* 36.2, pp. 766–817
- Michael Kremer and Alaka Holla (2009). “Improving Education in the Developing World: What Have We Learned from Randomized Evaluations?” In: *Annual Review of Economics* 1, pp. 513–542
- Hoyt Bleakley (2010). “Health, Human Capital, and Development”. In: *Annual Review of Economics* 2, pp. 283–310
- Mark Rosenzweig (2010). “Microeconomic Approaches to Development: Schooling, Learning, and Growth”. In: *Journal of Economic Perspectives* 24.3, pp. 81–96
- Todd Schoellman (2012). “Education Quality and Development Accounting”. In: *Review of Economic Studies* 79.1, pp. 388–417

Background and extension readings:

- Deon Filmer (2014). “Schooling and Learning: Understanding Inequalities and What To Do About Them ”. World Bank Policy Research Talk. Available online here
- John Strauss and Duncan Thomas (2008). “Health over the Life Course”. In: *Handbook of Development Economics Volume 4*. Ed. by Paul Schultz and John Strauss. Elsevier, pp. 3375–3474

- Mark Bilal and Peter Klenow (2000). “Does Schooling Cause Growth?” In: *American Economic Review* 90.5, pp. 1160–1183
- Eric Hanushek et al. (2015). “Returns to Skills around the World: Evidence from PIAAC”. in: *European Economic Review* forthcoming
- Paul Glewwe and Michael Kremer (2006). “Schools, Teachers and Education Outcomes in Developing Countries”. In: *Handbook of the Economics of Education, Volume 2*. Ed. by Eric Hanushek and Finis Welch. Elsevier, pp. 945–1017
- Daron Acemoglu and Simon Johnson (2009). “Disease and Development: The Effect of Life Expectancy on Economic Growth”. In: *Journal of Political Economy* 115.6, pp. 925–985. Also see the comment by Bloom, Canning & Fink and the rejoinder by Acemoglu & Johnson, both published in the JPE in 2014.

6.2 Human Capital Demand, 16 January 2014

This class will study how human capital investment decisions respond to prices of education and healthcare. We start with a simple framework where households make human capital investment decisions facing a given price schedule, abstracting away from behavioral factors and from market and government failures. These investments can occur at multiple margins, including school participation, study effort conditional on school participation, purchase of health products, and use of health products. We will begin by studying some papers that establish the price sensitivity of investment decisions. We will then consider the implications of this price (in)sensitivity for optimal policy design. We will conclude by exploring the presence and implications of incomplete information about human capital investment costs and returns. This class will study both education and health, with a focus on the former topic.

We will also discuss semi- and nonparametric estimation methods in this class, building off the applications in the Kremer *et al.* paper.

Required readings:

- Pascaline Dupas (2014). “Short-Run Subsidies and Long-Run Adoption of New Health Products: Evidence From a Field Experiment”. In: *Econometrica* 82.1, pp. 197–228
- Michael Kremer, Edward Miguel, and Rebecca Thornton (2009). “Incentives to Learn”. In: *Review of Economics and Statistics* 91.3, pp. 437–456
- John DiNardo and Justin Tobias (2001). “Nonparametric Density and Regression Estimation”. In: *Journal of Economic Perspectives* 15.4, pp. 11–28
- Petra Todd and Kenneth Wolpin (2006). “Assessing the Impact of a School Subsidy Program in Mexico: Using a Social Experiment to Validate a Dynamic Behavioral Model of Child Schooling and Fertility”. In: *American Economic Review* 96.5, pp. 1384–1417
- Robert Jensen (2010). “The (Perceived) Returns to Education and the Demand for Schooling”. In: *Quarterly Journal of Economics* 125.2, pp. 515–548

Background and extension readings:

- Pascaline Dupas (2011b). “Health Behavior in Developing Countries”. In: *Annual Review of Economics* 3, pp. 425–449
- Nava Ashraf, James Berry, and Jesse Shapiro (2010). “Can Higher Prices Stimulate Product Use? Evidence from a Field Experiment in Zambia”. In: *American Economic Review* 100.5, pp. 2383–2413
- Paul Schultz (2004). “School Subsidies for the Poor: Evaluating the Mexican PROGRESA Poverty Program”. In: 74.1, pp. 199–250
- Pascaline Dupas (2011a). “Do Teenagers Respond to HIV Risk Information? Evidence from a Field Experiment in Kenya”. In: *American Economic Journal: Applied Economics* 3.1, pp. 1–34
- Felipe Barrera-Osorio et al. (2011). “Improving the Design of Conditional Cash Transfer Programs: Evidence from a Randomized Education Experiment in Colombia,” in: *American Economic Journal: Applied Economics* 3.2, pp. 167–195
- Jeffrey Racine (2008). “Nonparametric Econometrics: A Primer”. In: *Foundations and Trends in Econometrics* 3.1, pp. 1–88
- Petra Todd and Kenneth Wolpin (2010). “Structural Estimation and Policy Evaluation in Developing Countries”. In: *Annual Review of Economics* 2, pp. 21–50

6.3 Human Capital Demand and the Household, 23 January 2014

This class will continue to study human capital investment decisions. We will focus on intra-household factors that affect human capital acquisition including the relationship between parents’ education and children’s education and health, long-term consequences of early childhood nutrition and health, and parents’ decisions about how to distribute investment across multiple children. This class will study both education and health.

We will also discuss fixed effects and difference-in-differences methods in this class, building off the applications in Almond’s paper.

Required readings:

- Jere R. Behrman et al. (1999). “Women’s Schooling, Home Teaching, and Economic Growth”. In: *Journal of Political Economy* 107.4, pp. 682–715
- Douglas Almond (2006). “Is the 1918 Influenza Pandemic Over? Long-Term Effects of In Utero Influenza Exposure in the Post-1940 U.S. Population”. In: *Journal of Political Economy* 114.4, pp. 672–712
- Difference-in-differences notes on my website
- Rebecca Dizon-Ross (2014). “Parents’ Perceptions and Children’s Education: Experimental Evidence from Malawi”. Working paper, Stanford University

Background and extension readings:

- Sharon Maccini and Dean Yang (2009). “Under the Weather: Health, Schooling, and Economic Consequences of Early-Life Rainfall”. In: *American Economic Review* 99.3, pp. 1006–1026
- Jessica Leight (2014). “Sibling Rivalry: Endowment and Intrahousehold Allocation in Gansu Province, China”. Working paper, Williams College
- Richard Akresh et al. (2012). *Child Labor, Schooling, and Child Ability*. Working Paper 5965. World Bank Policy Research
- Duncan Thomas et al. (2004). “Education during a crisis”. In: *Journal of Development Economics* 74.1, pp. 53–85
- Tahir Andrabi, Jishnu Das, and Asim Ijaz Khwaja (2012). “What Did You Do All Day? Maternal Education and Child Outcomes”. In: *Journal of Human Resources* 47.4, pp. 873–912
- Mark Rosenzweig and Junsen Zhang (2009). “Do Population Control Policies Induce More Human Capital Investment? Twins, Birth Weight and China’s “One-Child” Policy”. In: *Review of Economic Studies* 76.3, pp. 1149–1174
- Hanan Jacoby (2002). “Is There an Intrahousehold Flypaper Effect? Evidence from a School Feeding Programme”. In: *The Economic Journal* 112, pp. 196–221
- Erica Field and Attila Ambrus (2008). “Early Marriage, Age of Menarche, and Female Schooling Attainment in Bangladesh”. In: *Journal of Political Economy* 116.5, pp. 881–930
- Michael Lechner (2010). “The Estimation of Causal Effects by Difference-in-Difference Methods”. In: *Foundations and Trends in Econometrics* 4.3, pp. 165–224
- Martin Browning, Pierre-André Chiappori, and Yoram Weiss (2014). *Economics of the Family*. Cambridge University Press

6.4 Human Capital Supply and Resource Provision, 30 January 2014

This class will switch attention to the supply side of human capital acquisition. We will begin with a largely technocratic human capital production function approach, exploring how human capital outcomes respond to (arguably) exogenous inputs. We will focus on education and study the effects of changes in resources (e.g. class size, learning materials, teacher characteristics) on student participation and learning outcomes.

We will also discuss regression discontinuity methods in this class, building off the applications in Angrist & Lavy’s and Pop-Eleches & Urquiola’s papers.

Required readings:

- Paul Glewwe, Michael Kremer, et al. (2004). “Retrospective vs. prospective analyses of school inputs: the case of flip charts in Kenya”. In: *Journal of Development Economics* 74.1, pp. 251–268

- Leigh Linden (2008). “Complement or Substitute? The Effect of Technology on Student Achievement in India”. Working paper, UT Austin
- Joshua Angrist and Victor Lavy (1999). “Using Maimonides’ Rule to Estimate the Effect of Class Size on Scholastic Achievement ”. In: *Quarterly Journal of Economics* 114.2, pp. 533–575
- Christian Pop-Eleches and Miguel Urquiola (2013). “Going to a Better School: Effects and Behavioral Responses”. In: *American Economic Review* 103.4, pp. 1289–1324
- David Lee and Thomas Lemieux (2010). “Regression Discontinuity Designs in Economics”. In: *Journal of Economic Literature* 48.2, pp. 281–355

Background and extension readings:

- Natalie Bau and Jishnu Das (2014). “The Misallocation of Pay and Productivity in the Public Sector: Evidence From the Labor Market for Teachers”. Working paper, Harvard University
- Esther Duflo, Pascaline Dupas, and Michael Kremer (2014). “School Governance, Teacher Incentives, and Pupil-Teacher Ratios: Experimental Evidence from Kenyan Primary Schools”. In: *Journal of Public Economics* Forthcoming
- Miguel Urquiola and Eric Verhoogen (2009). “Class-Size Caps, Sorting, and the Regression-Discontinuity Design”. In: *American Economic Review* 99.1, pp. 179–215
- Paul Glewwe, ed. (2014). *Education Policy in Developing Countries*. University of Chicago Press
- Paul Glewwe and Michael Kremer (2006). “Schools, Teachers and Education Outcomes in Developing Countries”. In: *Handbook of the Economics of Education, Volume 2*. Ed. by Eric Hanushek and Finis Welch. Elsevier, pp. 945–1017
- Michael Kremer and Alaka Holla (2009). “Improving Education in the Developing World: What Have We Learned from Randomized Evaluations?” In: *Annual Review of Economics* 1, pp. 513–542

6.5 Human Capital Supply and Political Economy, 6 February 2014

This class will continue to study human capital supply but will adopt a political economy focus. We will first document widespread quality problems in government-supplied education and healthcare in developing countries. We will then consider general challenges to public goods and government service provision. We conclude with some specific examples of interventions that aim to improve the quality of government-provided services. This class will study both education and health.

Required readings:

- Jishnu Das, Jeffrey Hammer, and Kenneth Leonard (2008). “The Quality of Medical Advice in Low-Income Countries”. In: *Journal of Economic Perspectives* 22.2, pp. 93–114

- Chapters 1 and 2 of Lant Pritchett (2013). *The Rebirth of Education: Schooling Ain't Learning*. Center for Global Development
- Abhijit Banerjee, Lakshmi Iyer, and Rohini Somanathan (2007). “Public Action for Public Goods”. In: *Handbook of Development Economics Volume 4*. Ed. by Paul Schultz and John Strauss. Elsevier, pp. 3117–3154
- Martina Bjorkman and Jakob Svensson (2009). “Power to the People: Evidence from a Randomized Field Experiment on Community-Based Monitoring in Uganda”. In: *Quarterly Journal of Economics* 124.2, pp. 735–769
- Karthik Muralidharan and Venkatesh Sundararaman (2011). “Teacher Performance Pay: Experimental Evidence from India”. In: *Journal of Political Economy* 119.1, pp. 39–77

Background and extension readings:

- Nazmul Chaudhury et al. (2006). “Missing in Action: Teacher and Health Worker Absence in Developing Countries”. In: *Journal of Economic Perspectives* 20.1, pp. 91–116
- World Bank (2014). *RBFA Smarter Approach to Delivering More and Better Reproductive, Maternal, Newborn, and Child Health Services*. Available online here
- Abhijit Banerjee, Esther Duflo, and Rachel Glennester (2007). “Putting a Band-Aid on a Corpse: Incentives for Nurses in the Indian Public Health Care System”. In: *Journal of the European Economic Association* 6, pp. 487–500
- Esther Duflo, Rema Hanna, and Stephen Ryan (2012). “Incentives Work: Getting Teachers to Come to School”. In: *American Economic Review* 102.4, pp. 1241–1278
- Ritva Reinikka and Jakob Svensson (2011). “The Power of Information in Public Services: Evidence from Education in Uganda”. In: *Journal of Public Economics* 95.7-8, pp. 956–966
- Abigail Barr et al. (2012). “Information and collective action in community monitoring of schools: Field and lab experimental evidence from Uganda”. Working paper, University of Nottingham
- Paul Glewwe, Nauman Ilias, and Michael Kremer (2010). “Teacher Incentives”. In: *American Economic Journal: Applied Economics* 2.3, pp. 205–27
- Derek Neal (2011). “The Design of Performance Pay in Education”. In: *Handbook of the Economics of Education Volume 4*. Ed. by Eric Hanushek, Stephen Machin, and Ludger Woessmann. Elsevier, pp. 495–550

6.6 Human Capital Supply via Private Provision, 13 February 2014

This class will turn from public to private provision of human capital. We will study how education and healthcare markets function in those developing countries where they exist. We will document some market failures in these settings and consider the scope for government policy to limit these failures. This class will study education and health with a focus on the former.

We will discuss instrumental variables methods in this class, building off the applications in Muralidharan & Sundararaman's and Hsieh & Urquiola's papers.

Required readings:

- Karthik Muralidharan and Venkatesh Sundararaman (2014). "The Aggregate Effect of School Choice: Evidence from a Two-stage Experiment in India". Working paper, UC San Diego
- Tahir Andrabi, Jishnu Das, and Asim Khwaja (2014). "Report Cards: The Impact of Providing School and Child Test Scores on Educational Markets". Working paper, Pomona College
- Chang-Tai Hsieh and Miguel Urquiola (2006). "The Effects of Generalized School Choice on Achievement and Stratification: Evidence from Chile's Voucher Program". In: *Journal of Public Economics* 90.8-9, pp. 1477–1503
- Martina Björkman Nyqvist, Jakob Svensson, and David Yanagizawa-Drott (2013). "The Market for (Fake) Antimalarial Medicine: Evidence from Uganda". Working paper, Stockholm School of Economics
- Chapter 4 of Joshua Angrist and Jörn-Steffen Pischke (2009). *Mostly Harmless Econometrics*. Princeton University Press

Background and extension readings:

- Joshua Angrist, Eric Bettinger, et al. (2002). "Vouchers for Private Schooling in Colombia: Evidence from a Randomized Natural Experiment". In: *American Economic Review* 92.5, pp. 1535–1558. There are multiple follow-up papers on the long-term consequences of this experiment.
- Benjamin Feigenberg (2014). "Priced Out: Aggregate Income Shocks and School Pricing in the Chilean Voucher Market". In: Working paper, University of Illinois at Chicago
- Micaela Tincani (2014). *School Vouchers and the Joint Sorting of Students and Teachers*. Working paper 2014-012. Human Capital and Economic Opportunity Global Working Group
- Sophie Witter et al. (2012). *Paying for performance to improve the delivery of health interventions in low- and middle-income countries*. Tech. rep. 2. Cochrane Database of Systematic Reviews
- Kenneth Leonard (2007). "The cost of imperfect agency in health care: Evidence from rural Cameroun". In: *Journal of Development Economics* 88.2, pp. 282–291
- Gabriella Conti and Rita Ginja (2014). "Evaluating a Universal Health Insurance Program: Evidence from Mexico". Working paper, University College London
- Rebecca Thornton et al. (2010). "Social Security Health Insurance for the Informal Sector in Nicaragua: A Randomized Evaluation". In: *Health Economics* 19, pp. 181–206
- Sebastian Galiani, Paul Gertler, and Ernesto Schargrodsy (2005). "Water for Life: The Impact of the Privatization of Water Services on Child Mortality". In: *Journal of Political Economy* 113.1, pp. 83–120

- Sections I, II and VI of Richard Blundell and Monica Costa Dias (2009). “Alternative Approaches to Evaluation in Empirical Microeconomics”. In: *Journal of Human Resources* 44.3, pp. 565–640
- “Identification of Causal Effects Using Instrumental Variables” symposium in the 1996 *Journal of the American Statistical Association*, volume 91, number 434.

6.7 Human Capital Spillovers, 20 February 2014

This class will conclude by studying spillovers or peer effects in human capital acquisition. We will both document the existence of these spillovers and examine whether these spillovers lead to sub-optimally low levels of human capital investment. This class will study both education and health with a focus on the latter topic.

We will discuss econometric methods for identifying spillovers or identifying other parameters of interest in the presence of spillovers.

Required readings:

- Edward Miguel and Michael Kremer (2004). “Worms: Identifying Impacts on Education and Health in the Presence of Treatment Externalities”. In: *Econometrica* 72.1, pp. 159–217
- Jessica Cohen and Pascaline Dupas (2010). “Free Distribution or Cost-sharing? Evidence from a Randomized Malaria Prevention Experiment”. In: *Quarterly Journal of Economics* 125.1, pp. 1–45
- Ester Duflo, Pascaline Dupas, and Michael Kremer (2011). “Peer Effects, Teacher Incentives, and the Impact of Tracking: Evidence from a Randomized Evaluation in Kenya”. In: *American Economic Review* 101.5, pp. 1739–1774
- Andrew Foster and Mark Rosenzweig (1995). “Learning by Doing and Learning from Others: Human Capital and Technical Change in Agriculture”. In: *Journal of Political Economy* 103.6, pp. 1176–1209
- **Methods reading on peer effects to be confirmed**

Background and extension readings:

- Daron Acemoglu and Joshua Angrist (2000). “How Large Are Human Capital Externalities? Evidence from Compulsory Schooling Laws”. In: *NBER Macroeconomics Annual* 15, pp. 9–59
- Oriana Bandiera and Imran Rasul (2006). “Social Networks and Technology Adoption in Northern Mozambique”. In: *Economic Journal* 116, pp. 869–902
- Debopam Bhattacharya and Pascaline Dupas (2012). “Inferring Welfare Maximizing Treatment Assignment Under Budget Constraints”. In: *Journal of Econometrics* 167, pp. 168–196

- Margherita Comola and Silvia Prina (2014). “Do Interventions Change the Network? A Dynamic Peer Effect Model Accounting for Network Changes”. Working paper, Paris School of Economics
- Michael Kremer and Edward Miguel (2007). “The Illusion of Sustainability”. In: *Quarterly Journal of Economics* 122.3, pp. 1007–1065
- Bruce Sacerdote (2011). “Peer Effects in Education: How Might They Work, How Big Are They and How Much Do We Know Thus Far?” In: *Handbook of the Economics of Education Volume 3*. Ed. by Eric Hanushek, Stephen Machin, and Ludger Woessmann. Elsevier, pp. 249–277
- Paul Goldsmith-Pinkham and Guido Imbens (2013). “Social Networks and the Identification of Peer Effects”. In: *Journal of Business and Economic Statistics* 31.3, pp. 253–264. Also see the comments by Bramoullé, Graham, Jackson, Manski, Sacerdote, and Kline & Tamer in the same issue.
- Matthew Jackson (2009). “Networks and Economic Behavior”. In: *Annual Review of Economics* 1, pp. 489–513