EIB E247: Economic Development and Econometric Impact Evaluation
The Fletcher School, Tufts University
Fall 2013
Location: M235, M-W, 9:40-10:55

Instructor's Information:

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For any questions about concepts, assignments or data, please sign up for office hours or see me right after class. If you cannot make office hours during the pre-assigned time slot, please e-mail me with the header "Office Hours Meeting". I will not be able to respond to individual e-mails with questions about readings, class concepts, assignments or tests.

Course Objectives:

One of the primary challenges for policymakers, development practitioners, donors and non-governmental organizations is understanding what policies and interventions are the most effectiveness in improving the welfare of the world's poor. While monitoring and evaluation (M&E) is useful in determining whether a program is on the "right track", this does not tell us whether a particular intervention, policy change or program actually *causes changes* in development outcomes. Yet such information is crucial in the context of limited financial and human resources.

The objective of this course it to provide students with a set of theoretical, econometric and practical skills to estimate the causal impact of a policy or program, with a particular focus on development programs. We will seek to go beyond estimating the simple causal effect (often termed the "black box" of impact evaluation) to identifying the channels and mechanisms through which the causal effect was achieved. Examples will be drawn from a variety of sectors, including agriculture, health, education, financial services and governance.

The course will introduce students to a variety of econometric techniques in impact evaluation and a set of analytical skills that will assist them in becoming both consumers and producers of applied empirical research in development. Students will not only learn how to critically analyze evaluation research and gauge how convincing it is in establishing a causal relationship, but also use these skills to conduct an impact evaluation of an existing development project. The curriculum will be very applied.

Learning Outcomes:

By the end of this course, a student should be able to:

- Understand the value and practice of impact evaluation within the development community.
- Understand and apply a variety of quantitative methods for estimating the impact of a development program, including randomized controlled trials (RCTs), quasi-experimental designs (regression discontinuity design and difference-in-differences) and non-experimental approaches (matching and instrumental variables)
- Critically analyze impact evaluation research and gauge the validity of the findings
- Understand and apply evaluation design for development projects
- Calculate the costs and benefits of different development interventions
- Calculate the necessary sample size to conduct an impact evaluation
- Analyze existing data from a development project using impact evaluation techniques

Pre-requisites:

Introductory econometrics (EIB E213) or an equivalent intermediate econometrics course is required. Econometrics may not be taken concurrently with this course, as lectures and assignments will assume a certain level of econometrics and STATA that will not be covered until later in the semester in EIB E213. All relevant statistical and econometric concepts will be reviewed as they arise, but the reviews will be brief.

Methods of Instruction:

Concepts will be presented in class via lectures and case studies, which will also serve as the basis for class discussion and small group activities. Lectures will present key topics and summaries of the readings and will be posted on Trunk *on the day of class*. Case studies will highlight research from Africa, Asia, and South America and cover programs related to agriculture, cash transfers, education, governance, health and financial services. Group work (in terms of problem sets and a group project) will provide hands-on experience with research design and data analysis.

Registration

Starting in Fall 2013, EIB E247 will be capped at 40 students. Priority will be given to students graduating in December 2013 or May 2014. Other additional criteria are available on Trunk.

Certified auditors will be accepted depending upon the class size, but are unlikely. Auditors will need to attend each class, complete the readings and hand in all problem sets.

Requirements and Grading:

There will be five problem sets, two exams and one group research project. Grades will be calculated based upon the following criteria:

Problem sets:	30%
Exams:	35%
Final project:	35%

While technical concepts and readings will be presented in lecture, other aspects of the course will focus on a discussion of the readings. Students are expected to prepare for class by completing the required readings before each class, attending each class and actively participating in class discussion.

While class attendance and participation is not mandatory, class attendance will be noted. A formal grade will not be provided for participation, but class attendance and thoughtful class participation (ie, a meaningful contribution to critiques and ideas discussed in class) will improve your grade if you are on the margin (ie, an A from an A-, an A- from a B+).

The problem sets will be posted on Trunk and due one week later (on average). These problem sets can be submitted in a group of **no more than five and no fewer than three people**. The midterm and final examinations will be closed book exams, but students will be allowed to use one 3X5 index card of formulas and notes for each exam

The research project will be due at the end of the semester, with intermediate deliverables throughout. The two main deliverables for the research project will be a presentation and a consultancy report. Students will be offered a choice of datasets from field projects from different international organizations, as well as the necessary program documents (project document, results framework, indicators, questionnaires and the evaluation reports). The group will:

- Review the necessary program documents, logical framework and evaluation data
- Choose at least one (1) aspect of the project on which to analyze the causal impact (either chosen by the group or by the client)
- Clean the project dataset
- Analyze the impact of the program using one or more of the econometric impact evaluation techniques learned in class
- Present the findings to the clients at a final class colloquium
- Write a group consultancy report for the client

This group project should be thought of as an ***in-class consultancy for an actual development organization***. Certain organizations (the World Bank, IFPRI, Oxfam, BRAC) have kindly agreed to share their datasets and program documents with the class, and they have identified a contact person who can answer necessary questions (within reason). For this reason, we are unable to share these datasets with other parties without the permission of the organization, and we cannot share our findings with other individuals (other than the organization).

Incubator Course for the Capstone Project

Fletcher has moved to a capstone project to replace the traditional thesis. EIB E247 is an "incubator course" for the capstone project. Students who are interested in using their final project for their capstone requirements will need to build upon their group work (presentation and group consultancy report) and write a 25-page econometric research paper for their capstone. The paper should use the group analysis as a basis, but will need to significantly expand upon the econometric analysis and use technical jargon.

Texts and Reading Materials:

This course will draw heavily from the following readings:

Gertler, Paul J., Sebastian Martinez, Patrick Premand, Laura B. Rawlings, and Christel M. J. Vermeersch. *Impact Evaluation in Practice*. Washington, D.C.: World Bank Publications. www.worldbank.org/ieinpractice. (GMPRV in the reading list below).

Khander, Shahidur R., Gayatri B. Koolwal and Hussain A. Samad. 2010. *Handbook on Impact Evaluation: Quantitative Methods and Practices*. The World Bank: Washington, D.C. (KKH in the reading list below).

Ravallion, Martin. 2008. "Evaluating Anti-Poverty Programs"*,* Chapter 59, in T. Paul Schultz and John Strauss, ed *Handbook of Development Economics*, vol.4. Elsevier: Amsterdam, The Netherlands.

Angrist, Joshua D. and S. Pischke. 2009. *Mostly Harmless Econometrics: An Empiricists' Companion*. Princeton, NJ: Princeton University Press (MHE in reading list below).

Morgan, Stephen L. and Christopher Winship. 2007. *Counterfactuals and Causal Inference: Methods and Principles for Social Research* . Cambridge University Press.

Babbie, Earl. 2013. *The Practice of Social Science Research*. Thirteenth Edition. Wadsworth, Cengage Learning.

Lee, Myoung-Jae. 2005. *Microeconometrics for Policy, Program and Treatment Effects.*

The first two documents provide a nice overview of impact evaluation and are quite intuitive (although the second document is more technical than the first). However, you cannot and should not rely on these documents alone; you need to read carefully and understand the "econometric language of impact evaluation" that is presented in the final two documents, as well as more technical readings. MHE is available online for a reasonable price. The World Bank documents and the Ravallion chapter will be uploaded onto Trunk, as will the necessary chapters from Lee, Babbie and Morgan and Winship.

Each class will also draw on several technical and applied readings as specified in the syllabus. Students are responsible for reading the required materials (marked with a *) and are encouraged to read the recommended readings, some of which will be used for in-class case studies. If a required reading is not posted on Trunk, it can be downloaded from the relevant online journal via the Tufts library.

Important or Unusual Dates

Due to travel for fieldwork in Niger, there might be one class during the semester that will be cancelled (and rescheduled) in October or November, usually around the time of another school holiday (such as Columbus Day or Veterans' Day). If this is the case, students will be informed of this cancellation and re-scheduling approximately two weeks in advance

While the official final class of the semester is on Monday, December 9th, due to the nature of the final project, we will have a colloquium on Friday, December 6th, which will last most of the day. This is an additional class and attendance at this last class is required. Please note this date accordingly, and make necessary accommodations if you have another class, as no exceptions will be granted.

Course Outline

I.   Introduction to impact evaluation in economic development

*GMPRV, Chapters 1 and 2.

*KKH, Chapter 2.

*Aker, Jenny C. "Jenny Aker on Rigor for the Rest of Us." Savings Revolution Blog, June 28, 2011.

Glewwe, Paul, Michael Kremer, Sylvie Moulin and Eric Zitzewitz. 2004. "Retrospective versus Prospective Studies of School Inputs: The Case of Flip Charts in Kenya." Journal of Development Economics 74(2004): 251-268.
http://www.povertyactionlab.org/sites/default/files/publications/10_Kremer_Flip_Charts_in_Kenya.pdf

Blattman, Chris. February 2008. *Evaluation 2.0*. Presentation to DFID.

Banerjee, Abhijit. "Making Aid Work." *The Boston Review*. July/August 2006.

Center for Global Development. "When will we ever learn? Improving Lives through Impact Evaluation." *Report of the Evaluation Gap Working Group*, Washington, D.C.: 2006. Pp. 9-33.

II.   Causal Inference and the Econometrics of Impact Evaluation

*GMPRV, Chapter 3.

*Lee, Chapter 2, pp. 7-13; pp. 21-24;

*Morgan and Winship, Chapters 1-2.

Ravallion, Martin. 2008. "Evaluating Anti-Poverty Programs", Chapter 59, in* T. Paul Schultz and John Strauss, ed *Handbook of Development Economics*, vol.4. pp. 3788-3801.

*Bernard, Tanguy and Maximo Torrero. March 2011. "Randomizing the "Last Mile": A Methodological Note on Using a Voucher-Based Approach to Assess the Impact of Infrastructure Projects." *IFPRI Discussion Paper 01078. http://www.ifpri.org/publication/randomizing-last-mile*.

MHE, Chapters 1-2.

The movie "Sliding Doors", 1998, with Gwenyth Paltrow, John Hannah, John Lynch.

Shadish, William, Thomas D. Cook and Donald Campbell. *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*. Chapter 1, pp. 1-18. Boston: Houghton-Mifflin.

III.   Randomized Evaluations

Theory

*GMPRV, Chapter 4

*KKH, Chapter 3

*Duflo, Esther, Rachel Glennerster, and Michael Kremer. 2008. "Using Randomization in Development Economics Research: A Toolkit", Chapter 61, *Handbook of Development Economics.* Sections 2.1, 2.2, 3.1., 5.1., 5.2. and 8.2.

*Lee, Chapter 2, pp. 18-21

*MHE, Sections 3.2.1, 3.2.2 and 4.4.3.

*Roodman, David. "The Rapid Rise of Randomistas and the Trouble with RCTs." March 3, 2009. *David Roodman's Open Book Microfinance Blog.* Center for Global Development.

Ravallion, Martin. "Should you care about Impact Heterogeneity?" http://blogs.worldbank.org/impactevaluations/should-you-care-about-impact-heterogeneity

Ravallion, Martin. 2008. "Evaluating Anti-Poverty Programs"*,* Chapter 59, in T. Paul Schultz and John Strauss, ed *Handbook of Development Economics*, vol.4. pp. 3801-3805.

Deaton, Angus. 2009. "Instruments of development: Randomization in the tropics, and the search for the elusive keys to economic development." *NBER Working Paper #14690*.

Imbens, Guido. 2009. "Better LATE Than Nothing: Some Comments on Deaton (2009) and Heckman and Urzua.". Mimeo, Harvard University.

Rodrik, Dani. 2009. "The New Development Economics: We Shall Experiment, but how Shall we Learn?" in *What Works in Development, Thinking Big and Thinking Small*.

Practice

*Nelson, Jodi Lee. 2007. *Are we Ready for RCTs?* New York: International Rescue Committee.

*Aker, Jenny C, Christopher Ksoll and Travis J. Lybbert. Forthcoming. "Can Mobile Phones Improve Learning? Evidence from a Field Experiment in Niger." *American Economic Journal: Applied Economics.*

*Duflo, Esther, Pascaline Dupas, and Michael Kremer. 2012. "School Governance, Teacher Incentives and Pupil-Teacher Ratios: Experimental Evidence from Kenyan Primary Schools. Revised June 2012. NBER Working Paper #17939.

*Bold, Tessa, Mwangi Kimenyi, Germano Mwabu, Alice Ng'ang'a and Justin Sandefur. "Interventions & Institutions Experimental Evidence on Scaling up Education Reforms in Kenya." CGD Working Paper.

Dupas, Pascaline. 2011. "[Do Teenagers Respond to HIV Risk Information? Evidence from a Field Experiment in Kenya](#)." *American Economic Journal: Applied Economics.* 3(1): 1-34.

Bruhn, Miriam and David McKenzie. October 2009. "In Pursuit of Balance: Randomization in Practice in Development Field Experiments." *American Economic Journal-Applied Economics.* 1(4): 200-232.

IV.   **Regression Discontinuity Design (RDD)**

Theory

*GMPRV, Chapter 5

*KKH, Chapter 7 (pp. 103-109)

*MHE, Section 6.1.

Ravallion, Martin. 2008. "Evaluating Anti-Poverty Programs", [Chapter 59, in](#) T. Paul Schultz and John Strauss, ed *Handbook of Development Economics*, vol.4. pp. 3812-3815.

Lee, D. S. and T. Lemieux (2010). "Regression Discontinuity Designs in Economics." *Journal of Economic Literature* 48(2): 281-355.

Imbens, Guido and Thomas Lemieux. 2008. "Regression discontinuity designs: A guide to practice." *Journal of Econometrics.* 142: 615–635.

Practice

*Manacorda, Marco, Edward Miguel and Andrea Vigorito. 2011. "Government Transfers and Political Support." *American Economic Journal: Applied Economics.*

*Kazianga, Harounan, Dan Levy, Leigh L. Linden and Matt Sloan. "The Effect of "Girl-Friendly" schools Evidence from the BRIGHT School Construction Program in Burkina Faso." *American Economic Journal: Applied Economics*, 5(3): 41-62.

Alix-Garcia, Jennifer, Craig McIntosh, Katharine Sims, and Jerrod Welch. Forthcoming. ["The Ecological Footprint of Poverty Alleviation : Evidence from Mexico's Oportunidades program.](#)" *Review of Economics and Statistics.*

Angrist, Joshua and Victor Lavy. 1999. "Using Maimonides Rule to Estimate the Effect of Class Size on Scholastic Achievement." *The Quarterly Journal of Economics*, 114(2): pp. 533-575.

V.   **Differences-in-Differences**

Theory

*GMPRV, Chapter 6

*KKH, Chapter 5.

*Ravallion, Martin. 2008. "Evaluating Anti-Poverty Programs", Chapter 59, in T. Paul Schultz and John Strauss, ed *Handbook of Development Economics*, vol.4. pp. 3815-3823.

Practice

*Aker, Jenny. 2010. July 2010. "Information from Markets Near and Far: The Impact of Mobile Phones on Grain Markets in Niger." *American Economic Journal: Applied Economics*. 2(July 2010): 46-59.

Jack, William and Tavneet Suri. "Risk Sharing and Transaction Costs: Evidence from Kenya's Mobile Money Revolution."* Forthcoming, *American Economic Review*.

*Duflo, Esther. "Schooling and Labor Market Consequences of School Construction in Indonesia: Evidence from an Unusual Policy Experiment," *American Economic Review*. 91(4): 795-813, 2001.

de Janvry, Alain, Craig McIntosh, and Elisabeth Sadoulet, "The Supply and Demand Side Impacts of Credit Market Information", forthcoming in *Journal of Development Economics*

Galiani, Sebastian, Paul Gertler, and Ernesto Schargrodski. 2005. "Water for Life: The Impact of the Privatization of Water Services on Child Mortality." *Journal of Political Economy*. 113(1).

VI.   **Matching and Propensity Score**

Theory

*GMPRV, Chapter 7

*KKH, Chapter 4.

*Ravallion, Martin. 2008. "Evaluating Anti-Poverty Programs", Chapter 59, in T. Paul Schultz and John Strauss, ed *Handbook of Development Economics*, vol.4. pp. 3805-3812.

*Caliendo, Marco and Sabine Kopeinig. 2005. "Some Practical Guidance for the Implementation of Propensity Score Matching." IZA *Discussion Paper No. 1588*. *(Please read pp 1-16)*.

Practice

*Bernard, Tanguy, Alemayehu Seyoum Taffesseb, Eleni Gabre-Madhin. 2008. "Impact of cooperatives on smallholders' commercialization behavior: evidence from Ethiopia." *Agricultural Economics* 39(2): 147–161.

*Van de Walle, Dominique and Ren Mu. 2007. "Fungibility and the Flypaper Effect of Project Aid: Microevidence for Vietnam." *Journal of Development Economics*. 84: 667-685.

Gotland, E. M.*,* Sadoulet, E.*,* De Janvry, A.*,* Murgai, R.*,* Ortiz, O.*,* 2004. "The impact of farmer field schools on knowledge and productivity: A study of potato farmers in the Peruvian Andes.*" Economic Development and Cultural Change* 53: 63–92.

VII. Instrumental Variables

Theory

*KKH, Chapter 6.

*Morgan and Winship, Chapter 7.

*Ravallion, Martin. 2008. "Evaluating Anti-Poverty Programs", Chapter 59, in T. Paul Schultz and John Strauss, ed *Handbook of Development Economics*, vol.4. pp. 3823-3831.

*Lee, Chapter 5, pp. 129-138.

MHE Sections 4.1., 4.4.1.-4.4.2.

Practice

*Duflo, E. (2003). "Grandmothers and granddaughters: Old age pension and intrahousehold allocation in South Africa". *World Bank Economic Review* 17 (1), 1–26.

*Dube, Oeindrile and Juan Vargas. "Commodity Price Shocks and Civil Conflict: Evidence from Colombia." Forthcoming, *Review of Economic Studies*.

Nunn, Nathan and Nancy Qian. "U.S. Food Aid and Civil Conflict." Forthcoming, *American Economic Review.*

VIII. Data Quality and Attrition

*Duflo, Esther, Rachel Glennerster, and Michael Kremer. 2008. "Using Randomization in Development Economics Research: A Toolkit", Chapter 61, *Handbook of Development Economics*. Section 6.4.

*Baird, Sarah and Berk Ozler. May 2012. "Examining the Reliability of Self-Reported Data on School Participation." *Journal of Development Economics*. 98: 89-93.

*Thomas, Duncan et al. May 2012. "Cutting the Costs of Attrition: Results from the IFLS." *Journal of Development Economics*. 98: 108-123.

IX. Power Calculations

*Babbie, Chapter 7.

*Duflo, Esther, Rachel Glennerster, and Michael Kremer. 2008. "Using Randomization in Development Economics Research: A Toolkit", Chapter 61, *Handbook of Development Economics*. Section 4.

*FANTA, 1997, *Sampling Guide*.

Guiseppi Iarossi. 2006. *The Power of Survey Design.* Washington, DC: The World Bank.

X. Cost Benefit and Cost Effectiveness Analyses

*Dhaliwal, Iqbal, Esther Duflo, Rachel Glennerster, Caitlin Tulloch. August 2011. "Comparative Cost-Effectiveness Analysis to Inform Policy in Developing Countries: A General Framework with Applications for Education." Abdul Jameel Poverty Action Lab.

*McEwan, Patrick. June 2012. "Cost Effectiveness Analysis of Education and Health Interventions in Developing Countries." *Journal of Development Effectiveness*, Vol 4 (No 2).

*Stephanie Riegg Cellini and James Edwin Kee, "Cost Benefit and Cost Effectiveness Analysis." Chapter 21.

*World Bank Development Blog. "How much do our impacts costs?" February 2012. http://blogs.worldbank.org/impactevaluations/how-much-do-our-impacts-cost-guest-post-by-alaka-holla

J-PAL March 30, 2010. J-PAL Cost Effectiveness Metholodogy. Cambridge, MA: MIT.

XI. Reporting Impact Evaluation Results

A Guide to Critically Reading Impact Evaluations

As you read the articles assigned for this course, please keep the following questions in mind:

Main Research Questions

1. What is the main research question being asked in this paper? Do you think that this question is interesting from both a development and policy perspective?
2. What is the main causal question being asked in the paper? (This should be of the form: "What is the effect of *X* on *Y*?" Make sure that you can identify the *X* and *Y*)
3. What are the other variables (*Z*) that can affect *Y*? Which of these are observable? Which are unobservable?

Study Design and Identification Strategy
4. How do the authors identify the causal effect of X on Y? (Note: Clearly state how the counterfactual is constructed. This should refer to the "treatment group" and "control group")
5. Who is the treatment group? Who is the control group?
6. If the study used randomization to construct a counterfactual, answer the following questions:
    - What units did the program randomize across?
    - Are there any potential concerns with this randomization approach?
    - Did the randomization "work"? How do you know?

Findings, Internal and External Validity
7. What are the key findings of the paper? Are these effects economically and statistically important?
8. What are the main threats to internal validity of the findings? (Are the falsification tests and robustness checks convincing?)
9. What are the limits to external validity?
10. Would you recommend that this program be expanded to other areas or countries? Why or why not?
11. Is this the best way to answer the causal question of interest? Is there a better methodology, sample or context?