

## **Topics in Applied Econometrics and Development**

Toulouse School of Economics

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### **Paul Seabright**

paul.seabright@tse-fr.eu

Office: MF 509

### **Priscila Souza**

priscila.souza@tse-fr.eu

Office: MF 121

Wednesdays, 9.30am-12:30pm, Room MD 102

This course covers some general principles of empirical investigation in development economics. We will discuss both econometric theory as well as important papers in the development literature with a focus on how the authors have accomplished identification.

The 2 main questions we will be interested are:

- How identification can be achieved?
- What are the advantages and disadvantages of each empirical technique?

The main topics are economic experiments, instrumental variables, and panel data.

Required readings (marked with \*) will be covered in detail during lectures and we expect you to read them beforehand in order to participate in class discussion. Suggested readings will not be discussed in detail but may be referred to and are listed here as a guide for further study. There is also a reference bibliography for other works referred to in the course.

We also include a number of books, of which some are used for reference purposes (in which case chapter or page numbers will be indicated) while others are for background reading. Do not think that background reading is unimportant! It matters just as much to acquire a rigorous and scientific outlook on empirical investigation as to learn specific techniques.

## Course Requirements

Students are expected to participate actively in class discussions. A set of home assignments (in groups of up to 3 students) will constitute 50% of the grade; these will involve working on a data set, the details of which will be made available before the end of January. Also, there will be a final exam (50%).

We shall endeavor to make the reading material available either through a shared dropbox folder or, for some books, through lending you our personal copies. The logistics of this will be discussed in the first class.

### 1) Experiments (Jan 9th - Jan 23rd)

**\*Miguel, Ted, and Michael Kremer.** 2004. "Worms: Identifying Impacts on Education and Health in the Presence of Treatment Externalities", *Econometrica*, vol. 72(1), pp. 159-217, 01.

**\*Cohen, Jessica, and Pascaline Dupas.** 2010. "Free Distribution or Cost-Sharing? Evidence from a Randomized Malaria Prevention Experiment", *Quarterly Journal of Economics*, 125(1), pp. 1-45.

**\*Duflo, Esther, Michael Kremer, and Jonathan Robinson.** 2011. "Nudging Farmers to Use Fertilizer: Theory and Experimental Evidence from Kenya." *American Economic Review*, 101(6): 2350–90.

**\*Muralidharan, Karthik and Venkatesh Sundararaman.** 2011. "Teacher Performance Pay: Experimental Evidence from India", *Journal of Political Economy*, Vol. 119, No. 1, February, pp. 39-77

**\*Karlan, Dean and Jonathan Zinman.** 2009. "Observing Unobservables: Identifying Information Asymmetries With a Consumer Credit Field Experiment", *Econometrica*, November, 77 (6), pg. 1993-2008

**\*Banerjee, Abhijit V. and Esther Duflo.** 2009. The Experimental Approach to Development Economics, *Annual Review of Economics*, April, Vol. 1: 151-178.

Books: Poor Economics, Bad Science, The Emperor's New Drugs

## 2) Instrumental Variables (Jan 30th- Feb 20th)

\***Wooldridge**. Chapter 5

\***Angrist, Joshua D., and Alan B. Krueger**. 2001. "Instrumental Variables and the Search for Identification: From Supply and Demand to Natural Experiments." *Journal of Economic Perspectives*, 15(4): 69–85.

\***Acemoglu, Daron, Simon Johnson, and James A. Robinson**. 2002. "Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution", *Quarterly Journal of Economics*, 117(4): 1231-1294.

\***Paxson, Christina H**. 1992. "Using Weather Variability to Estimate the Response of Savings to Transitory Income in Thailand", *American Economic Review*, Vol. 82, No. 1, March, pp. 15-33.

\***Butcher, Kristin F. and Anne Case**. 1994. "The Effect of Sibling Sex Composition on Women's Education and Earnings", *Quarterly Journal of Economics*, Vol. 109, No. 3, August, pp. 531-563.

\***Rosenzweig, Mark and Kenneth Wolpin**. 2000 "Natural 'Natural Experiments' in Economics", *Journal of Economic Literature*, 38(4):827-74.

**Angrist, Joshua and Alan Krueger**. 1999. "Empirical Strategies in Labor Economics" in *Handbook of Labor Economics*, Vol. III, ed. Orley Ashenfelter and David Card, pp. 1277-1366

**Angrist, Joshua, Guido Imbens, and Donald Rubin**. 1996. "Identification of Causal Effects Using Instrumental Variables." *Journal of the American Statistical Association*, 91(434):444-455.

**Bound, John, David Jaeger and Regina Baker**. 1995. "Problems With Instrumental Variables Estimation When the Correlation Between the Instruments and the Endogenous Explanatory Variable is Weak." *Journal of the American Statistical Association* 90(430):443-450.

**Heckman, James J, Sergio Urzua, and Edward Vytlacil**. 2006. "Understanding Instrumental Variables in Models with Essential Heterogeneity", *Review of Economics and Statistics*, 88:3, 389-432.

**Heckman, James and Edward Vytlacil. 2002.** “Structural Equations, Treatment Effects, and Econometric Policy Evaluation.”, *Econometrica* 73(3):669-738.

**Imbens, Guido W. and Joshua D. Angrist. 1994.** ”Identification and Estimation of Local Average Treatment Effects”, *Econometrica*, Vol. 62, No. 2, March, pp. 467-475P.

**Timothy G. Conley, Christian B. Hansen, and Peter E. Rossi.** “Plausibly Exogenous.”, *Review of Economics and Statistics*, Forthcoming.

### **3) Regression Discontinuity, Propensity Score Matching, other Quasi-experiment Designs (Feb 29th)**

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

**\*Souza, Priscila.** ”Informality and Labor Supply”, working paper available at <https://sites.google.com/site/priscilazsouza/home>.

**Hahn, Jinyong , Petra Todd and Wilbert Van der Klaauw. 2001.** ”Identification and Estimation of Treatment Effects with a Regression-Discontinuity Design”, *Econometrica*, Vol. 69, No. 1, Jan, pp. 201-209.

### **4) Panel Data (February 27th and March 13th)**

**\*Woodridge.** Chapters 10 & 11

**\*Townsend, Robert M. 1994.** ”Risk and Insurance in Village India”, *Econometrica*, Vol. 62, No. 3, May, pp. 539-591.

**\*Jayachandran, Seema. 2006.** Selling Labor Low: Wage Responses to Productivity Shocks in Developing Countries. *Journal of Political Economy*, Vol. 114, June, pp. 538-575.

### **5) Students’ Presentation (March 20th)**

## 6) Discussion (March 27th)

**Popper, Karl.** 1972. "Conjectural Knowledge: My Solution to the Problem of Induction." In *Objective Knowledge: An Evolutionary Approach*. pp.1-31.

**Friedman, Milton.** 1953. "The Methodology of Positive Economics." In *Essays in Positive Economics* pp. 3-46.

**Heckman, James.** 2000. "Causal Parameters and Policy Analysis in Economics: A Twentieth Century Retrospective." *The Quarterly Journal of Economics* 115(1):45-97.

**Manski, Charles F.** 1989. "Anatomy of the Selection Problem", *Journal of Human Resources*, Vol. 24, No. 3, Summer, pp. 343-360.

**Manski, Charles F.** 1995. "The Reflection Problem," In: *Identification Problems in the Social Sciences*. Cambridge: Harvard University Press, 127-136.

### Books:

BANERJEE, Abhijit and DUFLO Esther, *Poor Economics: A Radical Rethinking of the Way to Fight Global Poverty*

This book focus on research that investigates the behavior of poor people and how antipoverty programs and financial aid impact their lives. It emphasizes the contribution of randomized control trials to the field of development economics. A summary by the authors of the book's message can be found at [www.foreignpolicy.com/articles/2011/04/25](http://www.foreignpolicy.com/articles/2011/04/25)

CAMERON A. Colin and TRIVEDI Pravin, *Microeconometrics: Methods and Applications*

This graduate-level book is oriented to researchers doing empirical work, as it covers a broad range of topics frequently encountered during microeconometrics applications.

DEATON, Angus, *The Analysis of Household Surveys: A Microeconomic Approach to Development Policy*

Focusing on microeconomic empirical techniques, this book study issues that arise in the construction and analysis of household survey data from poor countries. It emphasizes policy questions from several different developing economies.

GOLDACRE, Ben, *Bad Science*

This excellent and very readable book shows how scientific methods and findings can be distorted and abused by those who seek to borrow the credibility of science in pursuit of a private agenda. A very good reminder of the importance of rigor in both the conduct of research and the dissemination of its findings.

GREENE, William H, *Econometric Analysis*

This is a widely used graduate-level book in econometrics that covers a vast number of topics.

KIRSCH, Irving, *The Emperor's New Drugs: Exploding the Anti-Depressant Myth*

This book takes a particular example - the use of controlled trials for antidepressant drugs - and shows how problems of selectivity and experimental design can bias findings. Particularly good on placebo effects.

WOOLDRIDGE, Jeffrey, *Econometric Analysis of Cross Section and Panel Data*

A graduate-level book on microeconomic methods with a well-organized and clear text. This is one of the most used books by researchers doing applied work with cross section and panel data.

### **Miscellaneous Bibliography**

**Imbens, Guido, and Jeffrey Wooldridge.** 2009. "Recent Developments in the Econometrics of Program Evaluation", *Journal of economic Literature*, vol. 47(1), pp. 5-86.