Topics in Applied Econometrics and Development

Course title - Intitulé du cours	Topics in Applied Econometrics
Level / Semester - Niveau /semestre	M2 / S1
School - Composante	Ecole d'Economie de Toulouse
Teacher - Enseignant responsable	SEABRIGHT Paul
Other teacher(s) - Autre(s) enseignant(s)	
Lecture Hours - Volume Horaire CM	30
TA Hours - Volume horaire TD	
TP Hours - Volume horaire TP	0
Course Language - Langue du cours	Anglais
TA and/or TP Language - Langue des TD et/ou TP	

Teaching staff contacts - Coordonnées de l'équipe pédagogique :

Students with questions about the course material are encouraged to ask them during or at the end of class before requesting a meeting with the lecturer. Meetings should be requested by email.

Prof. Paul Seabright, e-mail: Paul.Seabright@tse-fr.eu

Course's Objectives - Objectifs du cours :

This course covers some general principles of empirical investigation in development economics. The main topics are economic experiments, instrumental variables, panel data, regression discontinuity and propensity score matching. We will discuss both econometric theory and a selection of papers from the development literature. We will read the papers with a focus on how the authors have accomplished identification, and the advantages and disadvantages of the chosen empirical techniques.

We will also spend some time (more than in previous years' versions of this course) on recent con- troversies about replicability of statistical studies, p-hacking and so on. I will do my best to situate this in the context of a general Bayesian framework in which we have to think about multiple potential explanations for social phenomena - not just a choice between a single treatment and the alternative null.

Required readings (marked with *) will be covered in detail during lectures and I 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.

I 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.

Practical information about the sessions - Modalités pratiques de gestion du cours :

Within the constraints of the Zoom format, students are expected to participate actively in class discus- sions.

Grading system – Modalités d'évaluation :

A project assignment (which students may choose to undertake alone or in groups of 2 students) will constitute 50% of the grade. This will involve working on a data set, the details of which will be made available before the end of September. Also, there will be a final exam (50%).

I shall make the reading material available through a shared Dropbox folder. The logistics of this will be discussed in the first class.

Session planning - Planification des séances :

1 Experiments (September 18 - September 25)

1.1 Experiments I: September 18

Course introduction. Introduction to experiments. (No required reading.) However, we will briefly discuss some important recent controversies about hypothesis testing to which the following readings are relevant:

Wasserstein et al. 2019. "Moving to a world beyond 'p < 0.05"', The American Statistician.

Wasserstein et al 2019. "The ASA statement on p-values", The American Statistician.

Christensen, G. and E. Miguel "Transparency, Reproducibility, and the Credibility of Economics Research." Journal of Economic Literature, 56(3):920 80.

Brodeur A., N. Cook and A. Heyes 2020. "Methods Matter: P-hacking and Publication Bias in Causal Analysis in Economics, "American Economic Review.

Those interested in exploring a Bayesian approach might be itnerested in the following excellent text:

McElreath 2020. Statistical Rethinking: A Bayesian Course with Examples in R and Stan, Second edition.

1.2 Experiments II: September 25

***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.

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

Experiments: additional reading

Ashraf, Nava, Dean Karlan and Wesley Yin. 2006. "Tying Odysseus to the mast: Evidence from a commitment savings product in the Philippines", *The Quarterly Journal of Economics*, 635-672.

Banerjee, Abhijit V. and Esther Duflo. 2009. "The Experimental Approach to Development Economics",

Annual Review of Economics, April, Vol. 1: 151-178.

Deaton, Angus. 2010. "Instruments, Randomization and Learning about Development", *Journal of Economic Literature*, June, Vol. 48: 424-455.

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.

2 Panel Data (October 2nd - October 9th)

2.1 Panel Data I: October 2nd

***Wooldridge.** Chapters 10 & 11

2.2 Panel Data II: October 9th

***Banerjee, Abhijit, Paul J. Gertler, and Maitreesh Ghatak 2002.** "Empowerment and Efficiency: Tenancy Reform in West Bengal." Journal of Political Economy, 110(2), 239-280

***Glick, P., and Sahn, D. E. 2010.** "Early Academic Performance, Grade Repetition, and School Attainment in Senegal: A Panel Data Analysis." The World Bank Economic Review, 24(1), 93-120.

Panel Data: additional reading

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.

3 Instrumental Variables (October 16th-November 6th)

3.1 Instruments I: October 16th

***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.

3.2 Instruments II: October 23rd

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

***Nunn, Nathan and Nancy Qian. 2011.** "The Potato's Contribution to Population and Urbanization: Evidence from a Historical Experiment." Quarterly Journal of Economics, 126: 593-650.

I*yigun, Murat, Nathan Nunn and Nancy Qian. 2017. "The Long-run Effects of Agricultural Productivity on Conflict, 1400-1900." NBER Working Paper No. 24066.

Kelly, Morgan. 2020. Understanding Persistence, working paper, available at https://www.researchgate.net/publication/344044108.

***Duflo, E. and Pande, R. 2007** "Dams". Quarterly Journal of Economics. 122(2), 601-646.

3.3 Instruments III: November 6th

***Paxson, Christina H. 1992.** "Using Weather Variability to Estimate the Response of Savings to Transitory Income in Thailand", American Economic Review, 82(1): 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, 109(3): 531-563.

*Brodeur, Abel, Nikolai Cook and Anthony Heyes. 2020. "Methods Matter: P-hacking and Pubication Bias in Causal Analysis in Economics." American Economic Review, forthcoming, https://www.aeaweb.org/content/file?id=12747.

Instruments: additional reading

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.

Conley, Timothy and Christian B. Hansen, and Peter E. Rossi. 2012. "Plausibly Exogenous.", *Review of Economics and Statistics*, 94(1): 260-272.

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 Econometrics- ric 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.

4 Regression Discontinuity (November 13th)

4.1

***Imbens, Guido W. and Thomas Lemieux. 2008.** "Regression discontinuity designs: A guide to practice",

Journal of Econometrics, 142, 615–635.

***Manacorda, M. 2012.** "The cost of grade retention," Review of Economics and Statistics, 94(2), pp. 596–606.

***Chen, Yuyu, Avraham Ebenstein, Michael Greenstone and Hongbin Li. 2013**. "Evidence on the impact of sustained exposure to air pollution on life expectancy from China's Huai River policy," PNAS, 110(32), pp. 12936–12941.

***Pope III, C. Arden and Douglas W. Dockery 2013.** "Air pollution and life expectancy in China and beyond," PNAS, 110(32), pp. 12861-12862.

Regression Discontinuity: additional reading

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. **Jacob, B. A., and Lefgren, L.** 2004."Remedial education and student achievement: A regression- discontinuity analysis." *Review of Economics and Statistics*, 86(1), pp. 226–244.

5 Propensity Score Matching (November 20th)

5.1

***Caliendo, Marco and Sabine Kopeinig. 2008.** "Some practical guidance for the implementation of propensity score matching." Journal of Economic Surveys, 22(1), pp. 31–72.

***Diaz, Juan Jose and Sudhanshu Handa. 2006.** "An Assessment of Propensity Score Matching as a Nonexperimental Impact Estimator: Evidence from Mexico's PROGRESA Program." Journal of Human Resources, 41(2), pp.319–345.

***Glewwe, Paul, Michael Kremer, Sylvie Moulin and Eric Zitzewitz**. 2004. "Retrospective vs. prospective analyses of school inputs: the case of flip charts in Kenya." Journal of Development Economics, 74, pp.251–268.

Propensity Score Matching: additional reading

Ñopo, Hugo. 2008. "Matching as a tool to decompose wage gaps." *Review of Economics and Statistics*, 90(2), pp. 290–299.

Maertens, Miet and Johan F.M. Swinnen. 2008. "Trade, Standards and Poverty: Evidence from Senegal."

World Development, 37(1), pp. 161–178.

6 Student Presentations (November 27th)

Presentation of projects will take place during the last class.

Additional references

Books:

***Wooldridge, Jeffrey,** "Econometric Analysis of Cross Section and Panel Data"

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

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

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 Microeconometric Approach to Development Policy "

Focusing on microeconometric 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.

Michalopoulos, Stelios and Elias Papaioannou, "Spatial Patterns of Development: a Meso Ap- proach", CEPR DP no. 12574

This discussion paper provides an overview of how luminosity data can help to supplement more tradi- tional economic measures of economic activity and well-being - and the new kinds of research questions these can open up.

Development and Applied Econometrics Blogs:

While far from exhaustive, below is a short list of blogs which regularly feature posts relevant to this course.

Development Impact

A World Bank blog which focuses on impact evaluations, including technical applied econometrics dis- cussions. During the Job Market season, the blog features guest posts by job market candidates working on relevant topics. blogs.worldbank.org/impactevaluations.

Let's Talk Development

A less technical World Bank blog which covers a broad range of development topics.

blogs.worldbank.org/developmenttalk

DevEconData

A blog which aggregates links to datasets which might be of interest to development economists. The blog format is not the easiest way to navigate such resources, but the site contains a wealth of information and, with a little patience and the keyword navigation, it works. devecondata.blogspot.fr

Bread

Website of the Bureau for Research and Economic Analysis of Development: look up their Data page in particular, but their Announcements and Conferences sections are worth keeping an eye on as well. ipl.econ.duke.edu/bread

Marginal Revolution

Probably familiar to many of you, this blog covers basically everything (through the lens of economics). However, given the volume of posts, it probably covers development topics as frequently as some more specialized blogs. marginalrevolution.com

Personal blogs

- Chris Blattman A general development economics blog which is updated regularly. Includes coverage of recent research. chrisblattman.com
- Mark Bellemare An agricultural economics-focussed blog which covers developing and developed- world issues. marcfbellemare.com
- Chris Auld A more general economics blog with some very good microeconometrics posts. chrisauld.com

Distance learning – Enseignement à distance :

Classes on Fridays, on Zoom, 14:00 - 15:30 and 16:00-17:30, beginning 18th September


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