Econometric Evaluation of Public Policies

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Course: 24 hours – Exercises/Tutorials: 0 hours

Description and Goals

This course presents an overview of econometric methods used for causal inference, i.e., methods designed to estimate the impact of a potential cause (usually a policy intervention or other institutional change) on an outcome of interest. Selection effects can impede attempts to infer causality. Causes and consequences are discussed relying on the counterfactual framework used in the program evaluation approach. The course will be largely based on critical reading of empirical articles, putting emphasis on the identification issues.

The course covers a variety of identification designs, including randomized experiments, matching, difference-in-difference, instrumental variables, and regression discontinuity designs. In addition, it presents recent advanced statistical methods such as quantile regression analysis. It also discusses the appropriateness of the underlying assumptions of these estimators, as well as the interpretation of the results obtained by those methods.

By the end of the course, students should be able to:

- explain the counterfactual framework, and use it to interpret the concept of selection.
- understand the leading quantitative methods for causal inference, and apply them to a variety of policy designs and available data
- compare the strengths and weaknesses of these estimators in a given research context
- recognize and interpret the conditions under which these estimators possess desirable statistical properties
- explain the consequences of the violation of their identifying assumptions

Prerequisites

The course assumes a good knowledge of basic statistics and linear econometrics (linear regression model, estimation and testing).

Outline

1 – Bruno Crépon: The Rubin Causal Model

2 – Anett John: Randomized Experimentation

3 – Anett John: Difference in Differences

4 – Bruno Crépon: Matching

5 – Bruno Crépon: Applications: RCTs and Matching

6 – Anett John: Instrumental Variables I

7 – Anett John: Instrumental Variables II

8 – Bruno Crépon: Standard Errors and Power Calculations

9 – Anett John: Regression Discontinuities

10 – Anett John: Quantile Regressions

11 – Bruno Crépon: Targeting

12 – Bruno Crépon: Equilibrium Effects

Related books

- Imbens Guido and Donald Rubin: *Causal Inference for Statistics Social and Biomedical Sciences*, Cambridge University Press
- Angrist, Joshua and Jörn-Steffen Pischke: *Mastering Metrics*, Princeton University Press.
- Angrist, Joshua and Jörn-Steffen Pischke: *Mostly Harmless Econometrics*: An Empiricist's Companion, Princeton University Press.
- Glennerster, R., Takavarasha K. *Running Randomized Evaluations: A Practical Guide*, Princeton University Press

Main references (to be completed)

- General
    - Imbens, Guido W. and Jeffrey M. Wooldridge (2009): "Recent Developments in the Econometrics of Program Evaluation," *Journal of Economic Literature* 47(1), pp. 5--86.
    - Duflo, Esther, Rachel Glennerster and Michael Kremer (2008): "Using Randomization in Development Economics Research: A Toolkit," in: *Handbook of Development Economics*.
- Example using RCTs
    - Special issue of American Economic Journal : Applied devoted to microcredit
    - Banerjee AV, Duflo E, Glennerster R, Kothari D. 2010 Improving immunisation coverage in rural India: clustered randomised controlled evaluation of immunisation campaigns with and without incentives., BMJ
    - Meyer, B. D. (1995): "Lessons from the US unemployment insurance experiments," Journal of economic literature, 91–131.
- Example using matching
    - Jalan, Jyotsna and Martin Ravallion (2003): "Does Piped Water Reduce Diarrhea for Children in Rural India*," Journal of Econometrics* 112(1), pp. 153--173.
    - Other cited in Imbens Rubin book
- Example using Difference in Difference
    - Bertrand, Marianne, Esther Duflo, and Sendhil Mullainathan, (2004): "How Much Should We Trust Differences-in-Differences Estimates?", *Quarterly Journal of Economics* 119, pp. 249-275.
    - Card, David and Alan Krueger (1994): "Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania", *American Economic Review* 84(4), pp. 772--793.
- Example using RDD
    - Lemieux, Thomas and Kevin Milligan (2008): "Incentive Effects of Social Insurance: A Regression Discontinuity Approach," *Journal of Econometrics* 142(2), pp. 807--828.
    - Lee, David S. and Thomas Lemieux (2010): "Regression Discontinuity Designs in Economics," *Journal of Economic Literature* 48(2), pp. 281--355.

- Example using IV
    - Angrist, Joshua and Alan Krueger (2001) "Instrumental Variables and the Search for Identification: From Supply and Demand to Natural Experiments", *Journal of Economic Perspectives*, 15(4), 69-85.
    - Angrist, Joshua and William Evans (1998) "Children and Their Parents' Labor Supply: Evidence from Exogenous Variation in Family Size", *American Economic Review*, 88(3), 450-477.
    - Behaghel, L., B. Crepon, and M. Gurgand (2014): "Private and Public Provision of Counseling to Job Seekers: Evidence from a Large Controlled Experiment," *American Economic Journal: Applied Economics*, 142–74.
- Targeting
    - Bhattacharya, D. and P. Dupas (2012): "Inferring welfare maximizing treatment assignment under budget constraints*," Journal of Econometrics*, 167, 168–196.
- Equilibrium Effects
    - Crepon, B., E. Duflo, M. Gurgand, R. Rathelot, and P. Zamora (2013): "Do Labor Market Policies have Displacement Effects? Evidence from a Clustered Randomized Experiment," *The Quarterly Journal of Economics*, 128, 531–580.
    - Angellucci, M. and V. Di Maro (2015): "Program Evaluation and Spillover Effects," Working Paper 9033, IZA.
    - Ferracci, M., G. Jolivet, and G. J. van den Berg (2014): "Evidence of treatment spillovers within markets," *Review of Economics and Statistics*, 96, 812–823.
    - Miguel, Edward and Michael Kremer (2004): "Worms: Identifying Impacts on Education and Health in the Presence of Treatment Externalities," *Econometrica* 72(1), pp. 159—217.