RoME

Policy Evaluation

2024-January/March

Instructor: Mounu Prem
Email: francisco.munoz@eief.it
Office hours: Friday 11.00am-12.00pm

1 Course Description

This class will cover the most popular approaches for conducting causal inference in microeconometrics, essential for the evaluation of policies in many realms: experiments, matching, instrumental variables, difference-in-differences, and regression discontinuity design. After reviewing the theory behind each approach, we will review a host of recent applications in the fields of labor, public, and development economics, as well as political economy.

2 Course material

No single textbook covers the material presented in this course. A number of the recommended readings will consist of journal articles. I will distribute the slides of each class through a shared DB folder.

Useful textbooks:

- Angrist, Joshua and Jorn-Steffen Pischke (2008). *Mostly Harmless Econometrics: An Empiricists's Companion*, Princeton University Press. (MHE)
- Cunningham, S. (2020) *Causal Inference. The Mixtape 1.* Yale University Press. (Early version available online on authors' page). (C)

Other References

- Cameron Colin and Pravin Trivedi (2009). *Microeconometrics using Stata*, Stata Press. (MUS)
- Cameron Colin and Pravin Trivedi (2007). *Microeconometrics: Methods and Applications*, Cambridge University Press. (C&T)
- Angrist and Pischke (2014), *Mastering Metrics: The Path from Cause to Effect,'* Princeton University Press
- NBER Summer Institute 2007 Methods Lectures: https://www.nber.org/minicourse3.html

3 Assessment

- Exam (30%).
  - Short written exam (25%)
  - Take home exam (75%). This would last 30 hours and is based on replicating and extending the analysis of an existing paper.
- Empirical problem sets (30%): Students will work with the data from an actual paper to replicate and discuss their results. These problem sets will cover empirical applications that we will discuss in the course. Students can work in groups but each student must present their one problem sets. There will be 3 problem sets (10% each). The problem sets must be emailed at 8am on February 9th, February 19th, and February 29th. I will grade them by randomly selecting one question and you will receive the grade based on that one.
- Presentation (10%): Each student must present one paper from the empirical applications. Presentations must be of 20 minutes ($\tilde{7}$ slides) with a clear statement of the research question and contribution (1), ideal experiment (1), empirical strategy (1), main results (2), and caveats and potential extensions to the empirical strategy proposed by the authors (1). Think that this is your paper and that you are in a seminar trying to convey the main message of the paper.
- Research paper (30%): Students will work individually or in pairs on a research paper in economics or related fields. Students will need to discuss with the teaching assistant about the topic of their paper early in the semester. Each group will complete two milestones and one fully-developed paper. Each paper will be graded on a scale from 0 to 100 points following this weight:
  - Milestone 1: Research question and idea for empirical analysis question (10 points). Due on *February 2nd*
  - Milestone 2: Final paper and presentation (20 points). The final paper must include an introduction and clear statement of the question, an empirical strategy, data description, and a preliminary analysis. (20 points). On *March 4th.*

3.1 Introduction

3.2 Experiments

- *MHE 1 and 2
- *Holland, P. (1986). "Statistics and Causal Inference", *Journal of the American Statistical Association* 81(396): 945-970 (with discussion)
- *C 4

- Duflo, E., R. Glennerster and M. Kremer (2008). "Using Randomization in Development Economics Research: A Toolkit", in P. Schultz and J. Strauss (ed.), *Handbook of Development Economics*, Vol. 4(5), Elsevier.

References from the additional textbooks

- C&T 3.3, 3.4 and 25.1 to 25.3

Empirical applications

- *Jensen, R. (2010). The (perceived) returns to education and the demand for schooling. The Quarterly Journal of Economics, 125(2), 515-548.
- *Dal Bó, E., Finan, F., & Rossi, M. A. (2013). Strengthening state capabilities: The role of financial incentives in the call to public service. The Quarterly Journal of Economics, 128(3), 1169-1218.
- †Chen, Y., & Yang, D. Y. (2019). The impact of media censorship: 1984 or brave new world?. American Economic Review, 109(6), 2294-2332.

3.3 Difference in Differences

- *MHE 5
- *C 9.1-9.5
- Roth, J., Sant'Anna, P. H., Bilinski, A., & Poe, J. (2023). What's trending in difference-in-differences? A synthesis of the recent econometrics literature. Journal of Econometrics.
- Rambachan, A., and Roth, J. (2023). "A more credible approach to parallel trends." *Review of Economic Studies,* rdad018.
- Roth, J. (2022). "Pretest with caution: Event-study estimates after testing for parallel trends." *American Economic Review: Insights,* 4(3), 305-322.
- Bertrand, M., E. Duflo, and S. Mullainathan, (2004). "How Much Should We Trust Differences-in-Differences Estimates?" *Quarterly Journal of Economics* 119: 249-275

References from the additional textbooks

- C&T 25.5

Empirical applications

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

- Prem, M., Vargas, J. F., & Namen, O. (2023). The human capital peace dividend. Journal of Human Resources, 58(3), 962-1002.

- † Giorgelli, M. (2019) "The long term effects of management and technology transfers," *American Economic Review*

- † Ang, D. "The Effects of Police Violence on Inner-City Students." *Quarterly Journal of Economics* 136.1 (February 2021): 115-168.

3.4 Staggered Difference in Differences

- *C 9.6

- *Baker, A., D. F. Larcker, and C.CY Wang. (2021) "How Much Should We Trust Staggered Difference-In-Differences Estimates?."

- Goodman-Bacon, A. (2021). "Difference-in-differences with variation in treatment timing." *Journal of Econometrics,* 225(2), 254-277.

- Callaway, B., and Sant'Anna, P. H. (2021). "Difference-in-differences with multiple time periods." *Journal of Econometrics,* 225(2), 200-230.

- Borusyak, K., Jaravel, X., and Spiess, J. (2021). "Revisiting event study designs: Robust and efficient estimation." *Review of Economic Studies*

References from the additional textbooks

- C&T 25.5

Empirical applications

- *Prem, M., M. Purroy, and J. Vargas (2023) "Landmines: The local effects of demining."

3.5 Matching and Synthetic Controls

- *MHE 3.3.1

- *C 5.1, 5.2

- *Abadie, Alberto; Alexis Diamond and Jens Hainmueller (2010). "Synthetic Control Methods for Comparative Case Studies: Estimating the Effect of California's Tobacco Control Program," *Journal of American Statistical Association*, 105, 493-505.

- *Iacus, S. M., G. King, G. Porro, and J. N. Katz (2012) "Causal inference without balance checking: Coarsened exact matching." *Political analysis* (2012): 1-24.

- Ho, D., K. Imai, G. King and E. Stuart (2007). "Matching as Nonparametric Preprocessing for Reducing Model Dependence in Parametric Causal Inference," *Political Analysis* 15: 199-236

- Imbens, G., (2004). "Nonparametric Estimation of Average Treatment Effects under Exogeneity: A Review", *Review of Economics and Statistics* 86 (1): 4-30

References from the additional textbooks

- C&T 25.4

Empirical applications

- †Magness, P. W., & Makovi, M. (2023). "The Mainstreaming of Marx: Measuring the effect of the Russian Revolution on Karl Marx's influence". *Journal of Political Economy*, 131(6), 000-000.

3.6 Regression Discontinuity Design

- *MHE 6
- *C 6
- Imbens, G. and T. Lemieux (2008). "The regression discontinuity design–Theory and applications", *Journal of Econometrics* (Special Issue on Regression Discontinuity Design) 142 (2): 611-614
- Imbens, G. and T. Lemieux (2008). "Regression Discontinuity Designs: A Guide to Practice", *Journal of Econometrics* (Special Issue on Regression Discontinuity Design) 142 (2): 615-635
- Calonico, S., M. D. Cattaneo, and R. Titiunik (2014) "Robust Nonparametric Confidence Intervals for Regression-Discontinuity Designs." *Econometrica* 82.6: 2295-2326.

References from the additional textbooks

- C&T 25.6

Empirical applications

- *Colonnelli E., M. Prem, and E. Teso (2020) "Patronage and Selection in Public Sector Organizations," *American Economic Review*
- † Dell M., N. Lane, and P. Querubin (2019) "The Historical State, Local Collective Action, and Economic Development in Vietnam" *Econometrica*
- † Greenberg, K., Gudgeon, M., Isen, A., Miller, C., and Patterson, R. (2022). Army Service in the All-Volunteer Era. *Quarterly Journal of Economics*, 137(4), 2363-2418.
- † Johnson, M. S. 2020. "Regulation by Shaming: Deterrence Effects of Publicizing Violations of Workplace Safety and Health Laws." *American Economic Review*, 110 (6): 1866-1904.

3.7 Instrumental Variables

- *MHE 4.1 and 4.4
- *C 7
- *Angrist, J., G. Imbens and D. Rubin (1996). "Identification of Causal Effects Using Instrumental Variables", *Journal of the American Statistical Association* 91: 444-472 (with discussion)
- *Angrist, J. and A. 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, J. and G. Imbens (1994). "Identification and Estimation of Local Average Treatment Effects", *Econometrica* 61 (2): 467 - 476
- Heckman, J. (1997). "Instrumental Variables: A Study of Implicit Behavioral Assumptions Used in Making Program Evaluations", *Journal of Human Resources* 32 (3): 441-462

References from the additional textbooks

- C&T 4.8, 4.9 and 25.7

Empirical applications

- *Madestam, A., Daniel Shoag, and David Yanagizawa-Drott (2013) "Do political protests matter? Evidence from the tear party movement," *Quarterly Journal of Economics,* 128 (4): 1633-1685.
- † Dell, Melissa and Pablo Querubín (2019) "Nation Building Through Foreign Intervention: Evidence from Discontinuities in Military Strategies" *Quarterly Journal of Economics*
- † Fouka, V., Mazumder, S., & Tabellini, M. (2022). From immigrants to Americans: Race and assimilation during the Great Migration. *The Review of Economic Studies,* 89(2), 811-842.
- † Bhuller, M., G. Dahl, K. Loken and M. Mogstad (2020). "Incarceration, Recidivism, and Employment", Journal of Political EconomyVolume 128, Number 4