



MASTER OF RESEARCH IN ECONOMICS, FINANCE AND MANAGEMENT

RESEARCH SEMINAR: APPLIED

31587

COURSE

TERM 1

COMPULSORY

WORKLOAD: 75H

This information is for the 2026/27 session.

Professor

Prof. Albrecht Glitz

Teaching guide

Introduction

The main challenge for microeconomic policy evaluation is to establish a causal link between interventions and outcomes. The objective of this course is to introduce the main econometric approaches used in the evaluation of public policies: randomized controlled trials, regression discontinuity designs, selection on observables, dynamic difference-in-differences, synthetic control methods, and shift-share instruments. The course presents strengths and weaknesses of each approach.

Contents

This course provides an overview of the following quantitative methods:

1. Randomized Controlled Trials
2. Regression Discontinuity Designs
3. Selection on Observables (Linear Regression, Matching)
4. Dynamic Difference-in-Differences
5. Synthetic Control Methods
6. Shift-share Instruments
7. Weak Instruments



Literature

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Randomized Controlled Trials

Duflo, E., R. Glennerster and M. Kremer, 2007, “Using Randomization in Development Economics Research: A Toolkit,” in *Handbook of Development Economics*, 4, Chapter 61, 3895-3962.

Katz L. F., J. R. Kling and J. B. Liebman, 2007, “Experimental Analysis of Neighborhood Effects,” *Econometrica*, 75 (1): 83-119.

Krueger, A. B., 1999, “Experimental Estimates of Education Production Functions,” *Quarterly Journal of Economics*, 114 (2): 497-562.

Miguel, E. and M. Kremer, 2004, “Worms: Identifying Impacts on Education and Health in the Presence of Treatment Externalities,” *Econometrica*, 72 (1): 159-217.

Regression Discontinuity Designs

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Imbens, G. W., and K. Kalyanaraman, 2012, "Optimal Bandwidth Choice for the Regression Discontinuity Estimator," *Review of Economic Studies*, 79(3): 933 – 959.

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Pei Z., D. Lee, D. Card and A. Weber, 2022, "Local Polynomial Order in Regression Discontinuity Designs," *Journal of Business & Economic Statistics*, Vol. 40 (3): 1259-1267.

Ludwig, J. and D. L. Miller, 2007, "Does Head Start Improve Children's Life Chances? Evidence from a Regression Discontinuity Design," *Quarterly Journal of Economics*, 122 (1): 159-208.

Selection on Observables (Linear Regression, Matching)

Abadie A. and G. W. Imbens 2008, "On the Failure of the Bootstrap for Matching Estimators", *Econometrica*, Vol. 76 (6), pp. 1537-1557.

Angrist, J.D. and J.-S. Pischke, 2009, *Mostly Harmless Econometrics*, An Empiricist's Companion, Princeton University Press.

Becker, S. and A. Ichino, 2002, "Estimation of Average Treatment Effects Based on Propensity Scores," *The Stata Journal*, 2(4): 358-377.

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Oster E., 2019, "Unobservable Selection and Coefficient Stability: Theory and Evidence," *Journal of Business & Economics Statistics*, 37 (3): 187- 204.

Rosenbaum, P. R. and D. B. Rubin 1983, "The Central Role of the Propensity Score in Observational Studies for Causal Effects", *Biometrika*, Vol. 70, pp. 41-55.



Dynamic Difference-in-Differences

Ashenfelter, O., 1978, "Estimating the Effect of Training Programs on Earnings," *Review of Economics and Statistics*, 60 (1): 47-57.

Bilinski, A. and L. A. Hatfield, 2018, "Seeking Evidence of Absence: Reconsidering Tests of Model Assumptions", arXiv:1805.03273.

Borusyak, K., Jaravel, X. and J. Spiess (2024), "Revisiting Event-Study Designs: Robust and Efficient Estimation", *Review of Economic Studies*, 91, pp. 3253–3285.

Callaway, B. and P. H.C. Sant'Anna, 2021, "Difference-in-Differences with Multiple Time Periods", *Journal of Econometrics*, 225: 200–230.

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Dette, H. and M. Schumann, 2024, "Testing for Equivalence of Pre-Trends in Difference-in-Differences Estimation", *Journal of Business & Economic Statistics*, 42 (4), pp. 1289-1301.

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Roth, J., Sant'Anna, P. H. C., Bilinski, A. and J. Poe, 2023, "What's Trending in Difference-in-Differences? A Synthesis of the Recent Econometrics Literature", *Journal of Econometrics*, 235, pp. 2218–2244.

Sun, L. and S. Abraham, 2021, "Estimating Dynamic Treatment Effects in Event Studies with Heterogeneous Treatment Effects", *Journal of Econometrics*, 225 (2): 175-199.

Synthetic Control Methods

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Abadie, A., Diamond, A. and J. Hainmueller, 2010, "Synthetic Control Methods for Comparative Case Studies: Estimating the Effect of California's Tobacco Control Program", *Journal of the American Statistical Association*, 105 (490): 493–505.

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Abadie, A. and J. Gardeazabal, 2003, "The Economic Costs of Conflict: A Case Study of the Basque Country", *American Economic Review*, 93 (1): 112–132.

Abadie, A. and J. Vives-i-Bastida, 2026, "Synthetic Controls in Action", in: Chernozhukov V, Hörner J, La Ferrara E, Werning I, eds. *Advances in Economics and Econometrics: Twelfth World Congress*, Econometric Society Monographs. Cambridge University Press: 195-224.

Arkhangelsky, D., S. Athey, D. A. Hirshberg, G. W. Imbens, and S. Wager, 2019, "Synthetic Difference in Differences", *American Economic Review*, 111(12): 4088-4118.

Ben-Michael, E., A. Feller and J. Rothstein, 2021, "The Augmented Synthetic Control Method", *Journal of the American Statistical Association*, 116 (536): 1789-1803.

Chernozhukov, V., K. Wüthrich, and Y. Zhu, 2021, "An Exact and Robust Conformal Inference Method for Counterfactual and Synthetic Controls. *Journal of the American Statistical Association*, 116 (536): 1849-1864.



Teaching methodology

The teaching methodology will comprise lectures, class discussions and paper presentations.

Assessment and Grading System

Assessment will be based on a set of homework assignments (which can be completed in groups of max. 2 people) and class participation.

Attendance is a compulsory requirement for this course. In the event of an absence, students must communicate it to the professor(s) and provide an appropriate justification. Unjustified absences may ultimately imply that a student cannot be evaluated for the course.