PhD course in Econometrics II - Spring 2023

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Course Program (Updated 23/5/23)

1. Shift-share instrumental variables

Reference: papers.

  1.1 What is a shift-share IV? Examples

  1.2 Identification by share exogeneity.

  1.3 Identification by shocks exogeneity.

  1.4 Practical issues and inference.

2. Synthetic control methods

*For diff-in-diff recap: **AP**, ch. 2,5. For synthetic control: papers.*

  2.1 Recap on diff-in-diffs and potential outcomes notation.

  2.2 Synthetic control.

3. Standard errors topics: clustering and bootstrap

*Paper by CM; additional references: **AP** ch. 8. **CT** ch. 11*

  3.1 Clustered data and standard errors. Two-way clustering and panel data. Few clusters.

  3.2 Bootstrap and bootstrapped s.e.

4. Nonparametric and semiparametric estimation

***CT**, ch. 9*

  4.1 Nonparametric and semiparametric models: advantages and drawbacks. Kernels. Problems with multivariate extensions.

  4.2 Nonparametric regression. Local linear regression.

  4.3 Dimension reduction techniques (Lasso, Ridge).

5. Regression-discontinuity design

Papers

  5.1 Regression-discontinuity as an empirical design; assumptions; estimation; advantages and caveats; validation.

  5.2 Fuzzy RDD.

6. Bayesian econometrics

***TL**, ch. 1 (full); ch. 3 and 4 (parts); additional reference: **CT**, ch. 13*

6.1 Bayes' rule; likelihoods, priors, and posteriors. Applications.

6.2 Monte Carlo methods for posteriors: Gibbs sampling; Metropolis-Hastings.

7. Randomized experiments

List of useful books

1. **CT** : **C. Cameron and P. Trivedi**, *Microeconometrics* (Cambridge University Press, 2005)

2. **W**: **J. Wooldridge**, *Econometric Analysis of Cross Section and Panel Data* (MIT Press 2nd ed. 2010)

3. **AP**: **J. Angrist and J.S. Pischke**, *Mostly Harmless Econometrics* (Princeton University Press, 2008).

4. **TL: T. Lancaster**, *An Introduction to modern Bayesian econometrics* (Blackwell Publishing, 2004)

5. **S. Cunningham**, *Causal inference: The mixtape* (Yale university press, 2021).

List of papers

1. Shift-share instrumental variables

- *Borusyak, Kirill, Peter Hull, and Xavier Jaravel. "Quasi-experimental shift-share research designs." The Review of Economic Studies 89.1 (2022): 181-213.

- *Goldsmith-Pinkham, Paul, Isaac Sorkin, and Henry Swift. "Bartik instruments: What, when, why, and how." American Economic Review 110.8 (2020): 2586-2624.

2. Synthetic control

- *Abadie, Alberto, and Javier Gardeazabal. "The economic costs of conflict: A case study of the Basque Country." *American economic review* 93.1 (2003): 113-132.

- Abadie, Alberto, Alexis Diamond, and Jens Hainmueller. "Comparative politics and the synthetic control method." *American Journal of Political Science* 59.2 (2015): 495-510.

- Alberto Abadie, Alexis Diamond, and Jens Hainmueller "Synthetic Control Methods for Comparative Case Studies: Estimating the Effect of Californias Tobacco Control Program", *Journal of the American Statistical Association*, 105:490, (2010) 493-505.

- Abadie, Alberto. "Using synthetic controls: Feasibility, data requirements, and methodological aspects." Journal of Economic Literature 59.2 (2021): 391-425.

3. Standard error topics: clustering and bootstrap

- *C. Cameron and D. Miller (2015), A Practitioners Guide to Cluster-Robust Inference, Journal of Human Resources.

- MacKinnon, James G., Morten Ørregaard Nielsen, and Matthew D. Webb. "Cluster-robust inference: A guide to empirical practice." Journal of Econometrics 232.2 (2023): 272-299.

- Hagemann, Andreas. "Inference with a single treated cluster." arXiv preprint arXiv:2010.04076 (2020).

5. RDD

- *David S. Lee and Thomas Lemieux (2010). Regression Discontinuity Designs in Economics, *Journal of Economic Literature 48 (June 2010): 281355*

- Imbens, Guido W., and Thomas Lemieux (2008). "Regression discontinuity designs: A guide to practice." *Journal of Econometrics* 142.2: 615-635.

- Hahn, Jinyong, Petra Todd, and Wilbert Van der Klaauw (2001). "Identification and estimation of treatment effects with a regression-discontinuity design." *Econometrica* 69.1: 201-209.