

Dates: October 7-8-14-15-22 2021

Number of attendants: 30

Selection criteria: Preference for PhD students and master students, with a background on spatial economic analysis

Level: Introductory PhD courses

Contents:

a) Main issues in modelling spatial data

7-8 october: 09:30-14:30 - Instructor: Prof. Roberto Basile

1. Notions of spatial dependence and spatial heterogeneity
2. Parametric Spatial Autoregressive Models
 - i. Spatial autoregressive models for cross-sectional data
 - ii. Static and dynamic spatial panel data models
 - iii. Spatial autoregressive models for large panel data
3. Semiparametric spatial autoregressive models
 - i. P-Spline spatial autoregressive models
4. Notions of spatial statistics
5. Lab-class with R

b) Policy evaluation and treatment effects with spatial data

14-15 october: 09:30-14:30 - Instructor: Prof. Marco Ventura

1. The idea of counterfactual: treatment and control groups
2. Challenges of counterfactual evaluations: selection bias and common trend
3. Designs for counterfactual impact evaluation: randomized and Quasi-experimental data
4. Quasi-experimental evaluation designs
 - i. Instrumental variables
 - ii. Difference-in-differences (DiD) for panel data
 - iii. RDD for cross-sectional data
 - iv. Synthetic Control Method (SCM)
5. SUTVA violations
 - i. Spatial effects and DiD
 - ii. Spatial effects and RDD
 - iii. Spatial effects and SCM
6. Lab-class with STATA

c) Guest seminar

22 october: 14:00-18:00 - Instructor: Prof. Brantly Callaway

DiD with multiple time periods and staggered adoption, based on “*Difference-in-Difference with multiple time periods*” (Brantly Callaway with Pedro H.C. Sant’Anna, Forthcoming at Journal of Econometrics)

Main references

- Abadie A., 2020. Using synthetic controls: Feasibility, data requirements, and methodological aspects. *Journal of Economic Literature*, forthcoming.
- Abadie, A., Diamond, A., Hainmueller, J., 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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- Angrist, J.D., Pischke, J.S., 2009. *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton University Press, Princeton.
- Basile R., Mìnguez, J.M. (2017), "Advances in spatial econometrics: parametric vs. semiparametric spatial autoregressive models", in Commendatore Pasquale, and Kubin Ingrid (Eds.), Springer.
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- Calonico S., Cattaneo M.D., Farrell M.H., Titiunik R., 2017. rdrobust: Software for regression-discontinuity designs. *The Stata Journal*, 17(2), 372–404.
- Delgado, M. S., and R. J. G. M. Florax. (2015) "Difference-in-differences Techniques for Spatial Data: Local Autocorrelation and Spatial Interaction." *Economics Letters* 137: 123–26.
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- Elhorst, P. (2014), *Spatial Econometrics: From Cross-sectional Data to Spatial Panels*, Springer, London.
- Keele, L. J., and R. Titiunik. (2015) "Geographic Boundaries as Regression Discontinuities." *Political Analysis* 23:127–55.
- Kolak M. and Anselin L. (2020) A Spatial Perspective on the Econometrics of Program Evaluation *International Regional Science Review*, Vol. 43(1-2) 128-153.
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