FEEM
FONDAZIONE ENI ENRICO MATTEI

Autumn School on

# Spatial Analysis and Policy Evaluation

**Dates:** October, 8-9-15-16, 2020

**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

8 and 9 October: 9:30-13:30. 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. MGWR-SAR
    ii. P-Spline spatial autoregressive models
4. Notions of spatial statistics
5. Lab-class with R

## b) Policy evaluation and treatment effects with spatial data

15 and 16 October: 9:30-13:30. Instructor: Prof. Marusca De Castris

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. Propensity score for panel data
    ii. Difference-in-differences (DiD) for panel data
    iii. RDD for cross-sectional data
5. SUTVA violations
    i. Spatial effects and propensity score
    ii. Spatial effects and DiD
    iii. Spatial effects and RDD
6. Lab-class with R

# Main references

Basile R., Mìnguez, J.M. (2017), "Advances in spatial econometrics: parametric vs. semiparametric spatial autoregressive models", in Commendatore Pasquale, and Kubin Ingrid (Eds.), Springer
De Castris M., Pellegrini G., (2012) "Evaluation of Spatial Effects of Capital Subsidies in the South of Italy". *Regional Studies* 46 (4), 525-538.

Dehejia, R. H., and S. Wahba. (2002) "Propensity Score-matching Methods for Nonexperimental Causal Studies." *Review of Economics and Statistics* 84:151–61.

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.

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

LeSage J. and Pace R.K. (2009), Introduction to Spatial Econometrics, Taylor & Francis Group, LLC.

Pellegrini, G., Terribile, F., Tarola, O., Muccigrosso, T., & Busillo, F. (2013). Measuring the effects of European Regional Policy on economic growth: A regression discontinuity approach. *Papers in Regional Science*, 92(1), 217-233.