

Tutorial on
Spatial Econometrics

Arcavacata, 19.10.2017

Organized by

SIE (Società Italiana degli Economisti)

Description of the tutorial

Spatial statistics and econometrics include techniques and methods to model spatial data taking into account interaction (spatial spillover) effects and spatial heterogeneity. It is an active and fast-growing area of research, spurred by the increasing availability of spatial data, i.e. geo-referenced data. These techniques, many of which are still in their early development, use different analytic approaches and are applied in fields as different as economics, sociology, epidemiology and geology.

This tutorial aims at **introducing the techniques of spatial statistics and econometrics**, along with the main issues posed by the statistical treatment of geo-referenced data and by the construction and estimation of spatial econometric models.

Learning Outcomes

Students participating in the tutorial will gain an up-to-date and accessible overview of the relevant theory as well as exposure to empirical applications of spatial econometric models in economics. A statistical software (R) will be used to analyze European and Italian regional data on growth and unemployment.

The tutorial is open to a maximum of **30** participants. **Please, enroll as soon as possible.**

Lecturer

Roberto Basile (Department of Economics, Università degli Studi della Campania “Luigi Vanvitelli”, Capua, Italy, roberto.basile@unicampania.it)

Program

Introduction to spatial econometrics: Motivating examples and notions of spatial statistics

Modeling spatial dependence: Models for cross-sectional data

Modeling spatial dependence and spatial heterogeneity: Models for spatial panel data

Modeling spatial dependence, spatial heterogeneity and nonlinearities: Spatio-Temporal Autoregressive Semiparametric Model for the analysis of regional economic data

Bibliography

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- Anselin L. (2003), Spatial Externalities, Spatial Multipliers and Spatial Econometrics. *International Regional Science Review*, 26, 153-166
- Elhorst, P. (2014), *Spatial Econometrics: From Cross-sectional Data to Spatial Panels*. Springer, London
- Basile R., Minguez, J.M. (2017), “Advances in spatial econometrics: parametric vs. semiparametric spatial autoregressive models”, in Commendatore Pasquale, and Kubin Ingrid (Eds.), Springer
- Basile R., Minguez R. and Durban M. (2017), *Spatio-Temporal Autoregressive Semiparametric Models for the analysis of regional economic data*, mimeo
- Basile, R., M. Durbán, R. Mínguez, J. M. Montero, and J. Mur (2014), Modeling regional economic dynamics: Spatial dependence, spatial heterogeneity and nonlinearities, *Journal of Economic Dynamics and Control*, 48, 229 – 245

Software used:

- R (<http://www.r-project.org/>)

Recommendations:

Install the complete version of R on your laptop.

Knowledge required: statistics, econometrics, notions of regional economics