

SEMINARS ON SPATIAL ECONOMETRICS

Instructor:

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Contents:

The objective of the seminar is manifold. First it presents the various typologies of spatial data and some of the possible econometrics applications. Secondly it introduces the most common spatial econometrics regression techniques and their statistical foundations giving a flavour of some of the possible applications, assessing the current state of research and depicting some of the possible future developments in the field. Finally it offers some details on the R © procedures to estimate spatial econometrics models.

Detailed contents:

SEMINAR I: 17th February

1. Spatial econometrics: a brief history
2. Typologies of spatial data (point, areas, lines and surfaces)
3. Spatial statistical foundations (spatial dependence, spatial correlation, spatial concentration, Modifiable areal unit problem)
4. The definition of a weights' matrix and the notion of spatial lag
5. Measures of spatial correlation
6. Effects of spatial correlation on statistical inference

SEMINAR II: 18th February

1. Regional data regression modelling
2. Random field models. Markov random fields. Some particular random field Models.
3. Specification of spatial econometrics models in terms of random fields:
Spatial lag and spatial error model.
4. Examples based on the Barro-Sala i Martin model of regional growth.
5. A more general spatial econometrics specifications: the SARAR (1,1) model.
6. Alternative spatial econometrics models.
7. Modelling heteroskedasticity.
8. A short introduction to spatial panel modeling.
8. Introduction to the use of R for spatial econometric model estimation: the package spdep .

References:

Arbia, G. (2006) Spatial Econometrics, Springer Verlag, Heidelberg.

Cressie, N (1993) Statistics for spatial data, Wiley.

Diggle, P.J. (2003). Statistical Analysis of Spatial Point Patterns (second edition). London: Edward Arnold.

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