Abstract
In the econometric field, spatio-temporal data is often modeled by means of spatial dynamic panel data models (SDPD). In the last decade, several versions of the SDPD model have been proposed, each one based on different assumptions for the spatial parameters and different properties of the estimators. In particular, the classic version of the model is the one that assumes spatial parameters are homogeneous over location. Another one, more recent, assumes that spatial parameters are adaptive over location. Many other versions can be classified as intermediate between these two.

We propose a strategy to identify the particular structure of the spatial dynamic panel data model, by means of a multiple testing procedure that allows to choose between a generalized version of the spatial model and some specific versions derived from the general one by imposing restrictions on the parameters. The theoretical properties of the testing procedure are derived in the high dimensional setup, where the number of locations may grow to infinity with the time series length. A thorough simulation study and an application example on real data will give empirical evidence of the performance of the proposed testing procedure.

Maria Lucia Parrella is Associate Professor of Statistics at the University of Salerno, Italy, where she teaches Statistics, Probability, Inference and Data Mining in several courses at undergraduate and postgraduate level. Her research interests are: local polynomial estimation, bootstrap methods for dependent data; variable selection; econometric spatio-temporal models. She is a member of the Italian Statistical Society (SIS), the International Society of NonParametric Statistics (ISNPS) and the International Environmetrics Society (TIES)