

Title: Testing different structures of Spatial Dynamic Panel Data models by a bootstrap multiple testing procedure

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**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 on the spatial parameters and different properties of the estimators. In particular, the classic version of the model is the one that assumes the spatial parameters to be homogeneous over location. Another version of the model, proposed recently and called Generalized SDPD, assumes that spatial parameters are adaptive over location.

In this work we propose a strategy for testing the particular structure of the spatial dynamic panel data model, by means of a multiple testing procedure that allow to choose between the generalized version of the model and some specific versions derived from the general one by imposing particular constraints on the parameters. The theoretical derivations of the testing procedure are made in the high dimensional setup, where the number of locations may grow to infinity with the time series length. This makes our proposal also a nonstandard application of the multiple testing approach, since the dimension of the multiple testing scheme grows to infinite with the sample size.