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Estimation and Inference in Functional-Coefficient Spatial Autoregressive Panel Data Models with Fixed Effects*

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Abstract

This paper develops an innovative way of estimating a functional-coefficient spatial autoregressive panel data model with unobserved individual effects which can accommodate (multiple) time-invariant regressors with a large number of cross-sectional units and a finite time periods. Our proposed methodology removes unobserved fixed effects from the model by transforming the latter into a semiparametric additive model, however avoids using backfitting technique. We derive the limiting results for the proposed estimators and construct a consistent nonparametric test to test for spatial endogeneity. A small Monte Carlo study shows that our proposed estimators and test statistic exhibit good finite-sample performance.

Keywords: First Difference, Fixed Effects, Hypothesis Testing, Local Linear Regression, Non-parametric GMM, Sieve Estimator, Spatial Autoregressive, Varying Coefficient

JEL Classification: C12, C13, C14, C23

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