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Refinements in Maximum Likelihood Inference on Spatial Autocorrelation in Panel Data

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Abstract

In a panel data model with fixed effects, possible cross-sectional dependence is investigated in a spatial autoregressive setting. An Edgeworth expansion is developed for the maximum likelihood estimate of the spatial correlation coefficient. The expansion is used to develop more accurate interval estimates for the coefficient, and tests for cross-sectional independence that have better size properties, than corresponding rules of statistical inference based on first order asymptotic theory. Comparisons of finite sample performance are carried out using Monte Carlo simulations.

JEL Classifications: C12, C21, C31

Keywords: Panel data, fixed effects, spatial autoregression, Edgeworth expansion, interval estimates, tests for cross-sectional independence.

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