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Pseudo Maximum Likelihood Estimation of Spatial Autoregressive Models with Increasing Dimension

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Abstract

Pseudo maximum likelihood estimates are developed for higher-order spatial autoregressive models with increasingly many parameters, including models with spatial lags in the dependent variables both with and without a linear or nonlinear regression component, and regression models with spatial autoregressive disturbances. Consistency and asymptotic normality of the estimates are established. Monte Carlo experiments examine finite-sample behaviour.

JEL classifications: C21, C31, C36

Keywords: Spatial autoregression; increasingly many parameters; consistency; asymptotic normality; pseudo Gaussian maximum likelihood; finite sample performance

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