Accepted Manuscript

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PII: S0304-4076(17)30145-8
DOI: http://dx.doi.org/10.1016/j.jeconom.2017.05.019
Reference: ECONOM 4404

To appear in: *Journal of Econometrics*

Received date : 23 October 2015
Revised date : 26 April 2017
Accepted date : 30 May 2017

Please cite this article as: Gupta A., Robinson P.M., Pseudo maximum likelihood estimation of spatial autoregressive models with increasing dimension. *Journal of Econometrics* (2017), http://dx.doi.org/10.1016/j.jeconom.2017.05.019

Pseudo Maximum Likelihood Estimation of Spatial Autoregressive Models with Increasing Dimension

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August 17, 2017

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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