

Adaptive Inference on Pure Spatial Models

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Abstract

In a general class of semiparametric pure spatial models allowing nonlinearity in the parameters and/or the weight matrix, in addition to unknown distribution, we propose adaptive tests and estimates which are asymptotically efficient in the presence of unknown, nonparametric, distributional form. Feasibility of adaptive estimation is verified and its efficiency improvement over Gaussian pseudo maximum likelihood is shown to be either less than, or more than, for models with explanatory variables, depending on the properties of the spatial weight matrix. An adaptive Lagrange Multiplier testing procedure for lack of spatial dependence is proposed and extended to cover regression models..