



Department of Decision Sciences

Statistics Seminar

On matrix exponential specification for spatial correlation structures

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Abstract

This paper investigates the adequacy of the matrix exponential spatial specification (MESS) as an alternative to the widely used spatial autoregressive model (SAR). We first analyze the partial and marginal covariance structures, finding similar behavior for the MESS and SAR models in particular cases. We then propose a new implementation of Bayesian parameter estimation for the MESS model with vague prior distributions, which is shown to be precise and computationally efficient, and whose predictive accuracy is comparable to that of the SAR model. Our further proposal of a model including spatial splines among the regressors increases the predictive accuracy of the matrix exponential specification with regard to the modeling of the covariance matrix.

Joint with:

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