Bayesian Structure Selection for Vector Autoregression Model

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Abstract

A vector autoregression (VAR) model is powerful for economic data analysis because it can be used to simultaneously analyze data from several different time series. However, in the VAR model, we need to address the substantial coefficient dimensionality, which would cause some computational problems for coefficient inference. To reduce this dimensionality, we could take model structures into account based on prior knowledge. In this paper, group structures of the coefficient matrices are considered. Due to the different types of VAR structures, corresponding MCMC algorithms are proposed to generate posterior samples for performing inference of the structure selection. Simulation studies and a real example are used to demonstrate the performances of the proposed Bayesian approaches. Finally the possible extensions of the proposed methods are mentioned.