SHUTONG DING (b. 1985) is a Ph.D. candidate in Statistics at Örebro university. His main research interests include Bayesian econometrics, modeling in high-dimensional data and efficient statistical computations.

Vector autoregression (VAR) models, in particular in their Bayesian flavor, have been routinely used for macroeconomic forecasting and impulse response analysis. In both cases the results can be highly dependent on the model specification, the choice of modeled variables and their lags.

This thesis studies the model specification issues in Bayesian VAR models with a particular focus on forecasting in a data rich environment. To perform Bayesian model averaging and variable selection in VAR models, the marginalized marginal likelihoods for a core subset of variables is proposed as a basis for a meaningful comparison between models. Unlike the usual symmetric lag settings, two types of unequal lag-length specifications in VAR models are developed using Bayesian sparse priors. The thesis also advocates a different parameterization of the reduced rank VAR model which leads to a natural interpretation in terms of a dynamic factor model.

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