

# Forecasting with Dimension Switching VARs

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This paper develops methods for Bayesian VAR forecasting when the researcher is uncertain about which variables enter the VAR and the dimension of the VAR may be changing over time. It considers the case where there are  $N$  variables which might potentially enter a VAR and the researcher is interested in forecasting  $N^*$  of them. Thus, the researcher is faced with  $2^{N-N^*}$  potential VARs. If  $N$  is large, conventional Bayesian methods can be infeasible due to the computational burden of dealing with a huge model space. Allowing for the dimension of the VAR to change over time only increases this burden. In light of these considerations, this paper uses computationally practical approximations adapted from the dynamic model averaging literature so as to develop methods for dynamic dimension selection (DDS) in VARs. In an inflation forecasting application, we show the benefits of DDS. In particular, DDS switches between different parsimonious VARs and forecasts appreciably better than various small and large dimensional VARs.