

Bayesian Analysis of Latent Threshold Dynamic Models

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Abstract

We discuss a general approach to dynamic sparsity modeling in multivariate time series analysis. Time-varying parameters are linked to latent processes that are thresholded to induce zero values adaptively, providing natural mechanisms for dynamic variable inclusion/selection. We discuss Bayesian model specification, analysis and prediction in dynamic regressions, time-varying vector autoregressions and multivariate volatility models using latent thresholding. Application to a topical macroeconomic time series problem illustrates some of the benefits of the approach in terms of statistical and economic interpretations as well as improved predictions.

KEY WORDS: Macroeconomic time series; Multivariate volatility; Sparse time-varying VAR models; Time-varying variable selection.

*Views expressed in this paper are those of the authors and do not necessarily reflect those of the Bank of Japan.