Abstract

In Bayesian vector autoregressive models, the Litterman or Minnesota Prior is widely used. However, in some cases, the Minnesota prior is not the best prior distribution that can be used. Thus, other prior distributions can also be applied. In this paper, as well as the Minnesota prior, four other prior distributions have been studied. Based on these prior distributions, five different Bayesian vector autoregressive models have been built to forecast the Turkish unemployment rate and the industrial production index for the two periods of the year 2008. Finally, the five priors have been compared with each other according to the forecasting performances of the models that they are used in.

Keywords: Bayesian vector autoregressive models, Vector autoregressive models, Prior Distributions, Bayes’ Theorem, Bayesian approach.


1. Introduction

Multivariate time series models such as vector autoregressive (VAR) and Bayesian vector autoregressive (BVAR) models have been widely used in many areas of economics.

BVAR models were first proposed by Litterman [11] as an alternative to the VAR models due to their some advantages such as solving the overparameterization of VAR models and giving better forecasts. Litterman [11] in his study used the Minnesota prior which has been traditionally used in BVAR analysis. Many computer programs that build BVAR models use the Minnesota prior as the default prior distribution. However, although the Minnesota prior is an important prior distribution, it is not the only prior

*Department of Statistics, Muğla University, 48000, Kötekli, Muğla, Turkey. E-mail: volkansevinc@yahoo.com
†Department of Statistics, Hacettepe University, 06800 Beytepe, Ankara, Turkey. E-mail: gul@hacettepe.edu.tr