Bayesian Variable Selection for Nowcasting Economic Time Series

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Abstract

We consider the problem of short-term time series forecasting (nowcasting) when there are more possible predictors than observations. Our approach combines three Bayesian techniques: Kalman filtering, spike-and-slab regression, and model averaging. We illustrate this approach using search engine query data as predictors for consumer sentiment.

1 Introduction

Choi and Varian [2009a,b, 2011] described how to use search engine data to forecast contemporaneous values of macroeconomic indicators. This type of contemporaneous forecasting, or "nowcasting," is of particular interest to central banks, and there have been several subsequent research studies from researches at these institutions. See, for example, Arola and Galan [2012], McLaren and Shanbhoge [2011], Hellerstein and Middeldorp [2012], Suhoy [2009], Carrière-Swallow and Labbé [2011]. Choi and Varian [2011] contains several other references to work in this area.

In these studies, the researchers selected predictors using their judgment of relevance to the particular prediction problem. For example, it seems natural that search engine queries in the "Vehicle Shopping" category would be good candidates for forecasting automobile