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On the applicability of dynamic factor models for forecasting real GDP growth in Armenia

In this paper, we are trying to find out whether large-scale factor-augmented models can be successfully used for forecasting real GDP growth rate in Armenia. We compare the forecasting performance of factor-augmented models such as FAAR, FAVAR and Bayesian FAVAR with their small-scale benchmark counterpart models like AR, VAR and Bayesian VAR. Based on the ex-post out-of-sample recursive and rolling forecast evaluations and using RMSFE's, we conclude that large-scale factor-augmented models outperform small-scale benchmark models. However, the differences in forecasts among the models are not statistically significant when we apply statistical test.

Keywords: factor-augmented models; static and dynamic factors; recursive and rolling regression; out-of-sample forecast; RMSFE; Armenia.

JEL classification: E17; E37; C11; C15; C32; C53; C55.

1. Introduction

One of the main activities of the central banks is the use of modern forecasting methodology to conduct effective monetary policy. In the forecasting framework of the Central Bank of Armenia (hereafter CBA), the medium and long term forecasts of the key macroeconomic variables are based on the information obtained from the short-term forecasts (mainly one or two quarter ahead). Therefore, it is essential to the CBA to make the short-term forecasts as accurate as possible. For that, the CBA must constantly improve forecasting methodology. From this point of view, models with large datasets (or factor models) have become a popular tool for central banks for producing short-term forecasts. One of the important advantages of factor models is that potentially significant information is not neglected. There are many applications of dynamic factor models to forecasting macroeconomic and financial variables (Stock, Watson, 2002; Schumacher, 2007; Artis et al., 2005; Angelini et al., 2011; Matheson, 2006). The main finding of these applications is that the forecasts generated from the models with large datasets are superior to traditional small-scale benchmark models, like AR and VAR. In this paper, we want to consider the applicability of the large dataset models to real GDP growth rate forecasting in Armenia. We specifically assess real GDP growth forecast, because GDP is one of the most important indicator of economic activity and it is the main variable of interest that providing information about effectiveness in economic policy-making process.

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