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The accuracy assessment of macroeconomic forecasts based on econometric models for Romania

Mihaela Simionescu^{a*}

^a*Institute for Economic Forecasting of the Romanian Academy, Bucharest, 050711, Romania*

Abstract

The forecasts accuracy evaluation became a constant preoccupation of specialists in forecasting, because of the failure of predictions that caused the actual economic crisis. The objective of this research is to model and predict some economic variables corresponding too few macroeconomic blocks for Romanian economy. The forecast method is represented by econometric models. Moreover, the accuracy of these predictions is assessed, VARMA models generating more accurate short-run forecasts for inflation, real GDP and interest rate in Romania (horizon: 2012-2013) compared to VAR and AR models. The econometric models proposed for unemployment rate, exchange rate and rate of monetary supply determined better forecasts than random walk.

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1. Introduction

The actual economic crisis that was explained only by arguments related to forecasts uncertainty determined a more interest in assessing predictions accuracy. Actually, this evaluation is a mirror of the forecasting process quality. The econometric model is one of the most utilized forecasting methods. There is an important relationship

* Corresponding author. Tel.: 004 021-760-4241; fax: 004 021-760-4241.
E-mail address: mihaela_mb1@yahoo.com

between the econometric model and the prediction based on it. Actually, the accuracy assessment helps us in improving the econometric model, but also the forecasting process itself. For example, an overestimated forecast is a clear key that our econometric model did not consider the shocks in the economy.

The original contribution of this research is related to the proposal of some econometric models for describing the evolution of some macroeconomic indicators in Romania, but also for making predictions. On the other hand, the assessment of forecasts accuracy was made, some of the models proving to generate better predictions than the naïve ones.

2. Literature

The high forecasts accuracy is an important objective for many specialists in forecasting. Our objective is to evaluate the accuracy in order to apply a suitable strategy for growing the degree of predictions performance. In economic crisis the accuracy decreases, the necessity of assessing the accuracy growing. The forecasts accuracy is a very large domain of research, an exhaustive presentation of it being impossible. But, some of the recent results will be described.

Bratu (2013) proved that the filters, but also Holt Winters procedure could be used as strategies to get more accurate predictions for inflation rate in USA, when the initial expectation are provided by SPF. The Holt-Winters method gave better results. According to Bratu (Simionescu) (2012), the combined forecasts are a suitable way of improving the unemployment forecasts in Romania.

The authors Bianchi and Deschamps (2012) concluded that there are large differences between macroeconomic forecasts for China regarding the accuracy measures for consumption and investment, GDP and inflation.

Allan (2012), who used quantitative and qualitative techniques to assess the forecasts accuracy, proved that combined forecasts are a suitable way to improve the OECD predictions for GDP in G7 countries.

Abreu (2011) evaluated the performance of macroeconomic forecasts made by European Commission, International Monetary Fund and Organization for Economic Cooperation and Development and two private institutions, which are The Economist and the Consensus Economics. The author analyzed the directional accuracy and the ability of predicting an eventual economic crisis.

In Netherlands, experts made predictions starting from the macroeconomic model used by the the institution specialized in policy analysis known as CPB. For the period 1997-2008 was reconstructed the model of the experts macroeconomic variables evolution and it was compared with the base model. The conclusions of Franses et al. (2011) were that the CPB model forecasts are in general biased and with a higher degree of accuracy.

Reeve and Vigfusson (2011) compared the performance of forecasts based on futures, choosing as a reference model the autoregressive model of order one and the autoregressive model of order one with constant.

Kurita (2010) showed that his predictions based on an autoregressive fractionally integrated moving average model of the unemployment rate outperformed the naïve predictions in what concerns the performance.

In their study, Shittu and Yaya (2009) evaluated the performance of exchange rate forecasts in England and USA, their predictions being based on ARIMA and ARFIMA models. The authors recommended the use in predictions of the ARFIMA models in both countries.

Edge et al. (2009) evaluated the performance of forecasts made by Federal Reserve staff and of those based by a time-series model and a DSGE model. Gorr (2009) recommended the use of classical accuracy measures when a normal evolution of the economy is expected, while the ROC curve is more suitable for crisis times.

Lam et al. (2008) made a comparison of exchange rate forecasts' degree of performance, showing that combined forecasts are better than the predictions that used only one model.

The authors Heilemann and Stekler (2007) gave the following arguments for the lack of high accuracy for G7 macroeconomic predictions: unsuitable forecasting methods and unsuitable expectations regarding the degree of performance.

In the research of Meese and Rogoff (1983), the authors proved that random walk process generates better forecasts than structural models.

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