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Fiscal forecasting performance in an emerging economy: An empirical assessment of Brazil

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ABSTRACT

This study makes use of Brazilian data to analyze government budget balance forecast errors. Besides the analysis of the quality and efficiency of budget balance forecasts, economic, political, and institutional and governance dimensions are explored. The findings show that the data forecasts have low quality and efficiency. Furthermore, it is observed that the budget forecast error is subject to a backward-looking effect, a bias in the economic growth forecasts, as well as cyclical fluctuations. Finally, electoral cycles represent a source of overestimated forecasts, and strong institutions and governance supported by the public are able to suppress opportunistic motivations in budget forecasts.

1. Introduction

The management of fiscal policy depends to a large extent on budget forecasts made by the government and private forecasters. Furthermore, fiscal forecast errors are an important factor in explaining public debt sustainability because low quality forecasts can represent a possible source of public deficit. In this context, it is an important issue whether budget forecasts are accurate. In particular, if the forecasts are efficient and there is a bias, what are the main determinants of this bias? This paper studies the quality of budget forecasts in an emerging economy, and in particular the factors that determine fiscal forecast errors. This is done by checking the bias conditions, efficiency, and precision of the fiscal forecast data, as well as the condition of asymmetry that captures the tendency to underestimation or overestimation of the forecasts. Moreover, the determinants of fiscal forecast errors are analyzed taking into account economic, political, and institutional dimensions. Data from Brazil are used in this study because the Central Bank of Brazil (CBB) makes market expectations available not only for fiscal variables but also for other variables for different time horizons, which in turn may affect fiscal forecast errors.

The present study presents a contribution to the literature on fiscal forecasting in several aspects. The two most important are, first, that the Brazilian case reflects a macroeconomic environment in an emerging economy that combines a floating exchange rate regime, inflation targeting, and the search for fiscal balance, which in turn permits checking whether fiscal forecast errors follow similar patterns of behavior in relation to other developed countries that have already been studied. Second, the empirical analysis in the present paper overcomes the limitation of data on fiscal forecast errors for emerging economies through information available from the Time Series Management System from CBB (TSMS/CBB).

The evidence presented in this paper suggests that forecasts on budget balance and economic growth are optimistic, which in turn represents a source of bad management of fiscal policy. Longer horizon forecasts tend to increase the bias in predictions and lower the

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quality of the data. Biased forecasts on economic growth are important in explaining fiscal forecasting errors. In particular, unlike in developed countries, cyclical fluctuations of the economy as well as electoral cycles have an impact on fiscal forecasts. At the institutional level, accountability, which measures the power of transparency and the influence of the population on the government, is relevant for budget projections to be unbiased.

The rest of the paper is organized as follows. Section 2 presents a brief review of the literature on fiscal forecasting errors. Section 3 presents a measurement for government budget balance forecast errors and GDP growth errors for the Brazilian economy based on current year, year ahead, and two years ahead. Section 4 analyzes the quality and efficiency of the forecasts. Section 5 provides an analysis of the main determinants of fiscal forecast errors in Brazil. Section 6 concludes the paper.

2. A brief review of the literature on government budget balance forecast errors

Several scholars have studied government budget balance forecast errors.¹ In general, the literature on this subject has been divided into three main strands: (i) one is concerned with the best methods and tools for forecasting (e.g., Bretschneider et al., 1989; Baguestani and Mcnown, 1992; Willman et al., 2000); (ii) a second analyzes the assumption of weak rationality based on data accuracy (unbiasedness and efficiency) (e.g., Nordhaus and Durlauf, 1984; Nordhaus, 1987; Feenberg et al., 1989; Holden and Peel, 1990; Campbell and Ghysels, 1995; Meliss and Whittaker, 1998; Pons, 2000; & ller and Barot, 2000); and (iii) a third strand investigates the assumption of strong rationality based on the determinant factors of government budget balance forecast errors (e.g., Plesko, 1988; Gentry, 1989; Auerbach, 1994, 1995, 1999; Jennes and Arabackjy, 1998; Strauch et al., 2004; Brück and Stephan, 2006; Pina and Venes, 2011).

One point of analysis on fiscal forecasting is related to the comparison of forecasts made by different forecasters. Artis and Marcellino (2001) analyzed the accuracy of short-term forecasts of budget deficit ratios by the IMF, the OECD, and the EC, and observed that the differences are not in general statistically significant. In order to remedy the forecast bias in the budgetary process, Jonung and Larch (2006) proposed that forecasting should be assigned to an authority that is independent from the ministry of finance and the government. However, Merola and Pérez (2013) present evidence that the use of independent forecasts in a fiscal domain, like the European Commission in Europe, does not support the idea that the forecast performance record of governments is worse than that of international organizations. Jalles et al. (2015) analyzed the quality of private sector forecasts of the budget balance for advanced and emerging countries, and the results show that the forecasts for advanced countries are more accurate than those for emerging countries.

In addition to the above-mentioned literature, ex post revised data and real-time data methodologies are also used to examine fiscal forecasting errors (e.g. Beetsma et al., 2011; Cimadomo, 2012). Indeed, data revisions have worried economists for many years now (see Croushore, 2011; for a recent survey) and policymakers have to base their decisions on preliminary (timely estimates based on limited information) and partially revised data, since the most recent data are usually the least reliable, as they simply translate a noisy indicator for final values (Koening et al., 2003). Forecast studies should reflect the true forecasting performance by using real-time data instead of final data (Stark and Croushore, 2002). However, one of the main difficulties for the use of real-time data is that this information is not available in most emerging economies.

It is important to note that a comprehensive analysis of the literature on fiscal forecast errors should take into account the European surveillance process as a consequence of the Stability and Growth Pact under the Treaty of Maastricht. The wide availability of data for the Eurozone countries facilitates the development of work in this area. Recent studies such as Merola and Pérez (2013) and de Deus and de Mendonça (2015) focus on the European framework. While the former is concerned with verifying that international agencies' forecast errors are to some extent affected by the same determinants of forecast bias as those of governmental institutions, the second offers evidence of new determinants of forecast errors from four different database sources. Unlike other studies, Lledó and Poplawski-Ribeiro (2013) investigate economic and institutional constraints to fiscal policy and its implementation in sub-Saharan Africa, with their conclusions leading to distinct evidence for developed countries.

3. Measuring budget forecast errors and GDP growth forecast errors in Brazil

Fiscal forecast errors are essential for explaining public debt sustainability and thus for the success of economic policy.² In particular, the fiscal forecast error is a tool to evaluate the government's commitment to fiscal balance.³ In general, the government budget balance forecast error (e) is a result of the difference between the budget balance outcome for the year t (B_t) and the budget balance forecast (B_t^F), that is:

$$e_t = B_t - B_t^F \quad (1)$$

A positive forecast error indicates a case where the forecasts underestimate the current value in the case of surplus, or overestimate it in the presence of a deficit. In short, there is fiscal prudence when the implemented budget performs better than expected. In this context, a negative fiscal error indicates a lack of prudence.

¹ A review of the literature is presented in Wallis (1989) and Leal et al. (2008).

² For an analysis regarding public debt sustainability and economic policy, see Blanchard (1984), Hamilton and Flavin (1986), Auerbach et al. (1994), Bohn (1998), Blanchard and Perotti (2002), and Ghosh et al. (2013).

³ On the relevance of fiscal forecast errors, see Artis and Marcellino (2001), Leal et al. (2008), Pina and Venes (2011), Merola and Pérez (2013), and de Deus and de Mendonça (2015).

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