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## **Authorities' Fiscal Forecasts in Latin America: Are They Optimistic?**

Metodij Hadzi-Vaskov, Luca Antonio Ricci, Alejandro  
Werner and Rene Zamarripa

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## Abstract

Do governments in Latin America tend to be optimistic when preparing budgetary projections? We address this question by constructing a novel dataset of the authorities' fiscal forecasts in six Latin American economies using data from annual budget documents over the period 2000-2018. In turn, we compare such forecasts with the outturns reported in the corresponding budget documents of the following years to understand the evolution of fiscal forecast errors. Our findings suggest that: (i) for most countries, there is no general optimistic bias in the forecasts for the fiscal balance-to-GDP ratio (though there may be for the components); (ii) fiscal forecasts have improved for some countries over time, albeit they have worsened for others; (iii) in terms of drivers, we show that forecast errors for the fiscal balance-to-GDP ratio are positively correlated with GDP growth and terms of trade changes and negatively with GDP deflator surprises; (iv) forecast errors for public debt-to-GDP ratios are negatively associated with surprises to GDP growth; (v) lastly, budget balance rules seem to help contain the size of the fiscal forecast errors.

JEL Classification: E62, H50

Keywords: Forecast error, fiscal balance, fiscal forecasts

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**Metodij Hadzi-Vaskov, Luca Antonio Ricci, Alejandro Werner, and Rene Zamarripa\*\***

**June 2021**

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## I. INTRODUCTION

The accuracy of official fiscal forecasts is a relevant issue with wide-ranging implications for macroeconomic policies, fiscal performance and sustainability, and policy advice.

A systematic bias in the authorities' fiscal forecasts generally weakens policy credibility, complicates the policymaking process, and may persistently worsen public finances.

Therefore, it is essential to understand the governments' fiscal forecast errors and their underlying drivers to improve macroeconomic forecasts and strengthen policy guidance. In the context of COVID-19, a better understanding of the official fiscal forecast errors would help sharpen the IMF's advice, given the central role of fiscal policy in response to the pandemic.

This paper investigates the following questions to better understand the authorities' fiscal forecasts and forecast errors in the six largest economies in Latin America (LA6: Argentina, Brazil, Chile, Colombia, Mexico, and Peru). First, have the authorities' fiscal forecasts been over-optimistic? The evidence from empirical papers seems to suggest that governments are frequently unable to reduce their budget deficits as a result of an over (under) estimation of fiscal revenues (expenditures). We contribute to this literature by examining the case of Latin America. Second, what are the fundamental factors explaining the official fiscal forecast errors (is there space to improve their efficiency)? Although different variables have been commonly identified as drivers of the authorities' fiscal forecast errors<sup>1</sup>, we center our analysis on those concerning the state of the economy, i.e. official forecast errors of macroeconomic variables. Lastly, we verify if fiscal rules have been helpful to reduce the size of forecast errors.

To address these questions, we construct a novel dataset of the authorities' fiscal forecasts in LA6 by collecting data from annual budget documents over the period 2000-2018. These documents were collected from the Ministry of Finance of each country, correspondingly. Specifically, we construct our dataset using 117 annual budget documents on authorities' fiscal and macroeconomic forecasts. We then compare the fiscal forecasts from the official documents published in year  $t-1$  for the budget of year  $t$  with the outturns reported in the next year's corresponding documents (published in  $t+1$ , thus containing outturns for year  $t$ )<sup>2</sup>. Our analysis aims to: (i) understand the evolution and drivers of the fiscal forecast errors; (ii) describe their evolution over time and across countries; and (iii) assess the impact on fiscal forecast errors from forecast errors for real GDP growth, inflation (GDP deflator changes), and terms of trade (ToT) changes.

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<sup>1</sup> We discuss this further in the literature review.

<sup>2</sup> Complemented with WEO or official national sources, when necessary.

## II. LITERATURE

The empirical literature on fiscal forecast errors suggests that most countries' preliminary official data releases tend to be optimistic when forecasting their fiscal and macroeconomic variables. This literature is limited and has mainly focused on the authorities' fiscal forecasts for advanced economies, in particular European countries.<sup>3</sup>

Indeed, several empirical studies find over-optimism in the authorities' fiscal forecasts of EU economies. Bruck and Stephan (2006) use official data on budget deficit forecasts from 15 Eurozone and two non-Eurozone countries and find substantial evidence of political influence on the budget forecasts since the introduction of the Stability and Growth Pact. Larch and Jonung (2006) examine the accuracy of fiscal projections from four EU economies and conclude that government agencies are systematically optimistic in their growth predictions in the budget planning phase. Similarly, Beetsma et al. (2009) use data on 14 EU economies from the Stability and Convergence Programs and find empirical evidence that planned budget balances differ in an over-optimistic manner from the *ex-post* budget estimates. Beetsma et al. (2011) explore the determinants of deviations of the *ex-post* budget from first-release outcomes and finds that revision errors are mainly caused by over-optimism on revenues at the first-release stage. Regarding the US experience, Croushore and Van Norden (2018) use fiscal policy forecasts prepared for the Federal Open Market Committee to understand and predict changes in fiscal variables. By assembling a new data set on Greenbook fiscal forecasts, their results suggest that an improvement in fiscal forecasts are correlated with improvements in forecasting macroeconomic variables, such as the unemployment rate and the output gap. Kliesen and Thornton (2012) study the properties of forecasts prepared by the Congressional Budget Office (CBO) and find that they perform worse in recessions than in expansions. Similarly, Auerbach (1994) examines the quality of forecasts of the CBO and the Office of Management and Budget (OMB) and shows that both have been overoptimistic.

Part of this literature has also focused on assessing the performance of fiscal forecasts offered by multilateral organizations, pointing towards systematic biases in budgetary forecasts. For instance, Merola and Perez (2013) contrast the fiscal forecasts prepared by European national governments, the European Commission, and the OECD, and attain evidence that international agencies' forecasts present an optimistic bias the year prior to elections.

An effort has also been made to expand the literature and include emerging market economies when analyzing the official budget balance projections from national sources. Frankel (2011), Frankel (2013), and Frankel and Schreger (2013) work with a broader sample that includes 33 countries, of which three are emerging market economies (Chile, Mexico, and South Africa). The results are mainly in line with previous studies on advanced economies (official budget forecasts of advanced economies have an upward bias). For instance, the paper finds a significant association between the forecast errors of GDP growth

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<sup>3</sup> European countries are generally required to submit their fiscal forecasts, and therefore the data is often more readily available.

and inflation and those of the budget balance. Our study extends the attention to emerging markets, focusing on Latin American countries, on the basis of a new dataset that we assemble.

### III. DATA AND METHODOLOGY

#### A. Dataset

The dataset is constructed by collecting the data series on official forecasts (and outturns) from the budget documents publicly available in each country's Ministry of Finance. Our sample spans over the period 2000-2018, with the starting date chosen following the availability of the budgetary documents. The forecasts for year  $t$  are retrieved from the documents published in year  $t-1$ , while the outturns for the corresponding variables in year  $t$  are collected from the official documents published in year  $t+1$ . Fiscal variables correspond to the general government (GG) for Peru, to the central government for (CG) Brazil<sup>4</sup>, Chile, and Colombia, and to the public sector (PS) for Argentina and Mexico.<sup>5</sup> We focus on collecting the following fiscal data series (in nominal terms and as percent of GDP): the overall fiscal balance;<sup>6</sup> expenditure; revenues; and public debt.<sup>7</sup> As for the macroeconomic variables, we focus on: nominal GDP; real GDP growth; GDP deflator; CPI inflation; and the exchange rate. The data series on terms-of-trade (forecasts and outturns) come from corresponding WEO vintages.<sup>8</sup>

#### B. Data sources

Our data collection consists of reviewing 117 budget documents sent to Congress for approval in each year for each of the six countries. These official documents are the most updated set of comprehensive macroeconomic forecasts provided by the Government/Ministry of Finance to the legislative bodies.<sup>9</sup> Nonetheless, in some cases, the approved budget may differ from this set of forecasts, but pulling together the final comprehensive set of fiscal forecasts from the legal documents would be a significantly more daunting task. We provide an overview of the data sources in Table 1.

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<sup>4</sup> The annual budget bill documents for Brazil only include figures for the primary balance, which are the ones used in this paper.

<sup>5</sup> We tried to maintain the same level of government for all the economies. However, we could only construct a complete dataset of actuals and projections with the levels described above for each country.

<sup>6</sup> It would be interesting to explore the role of possible surprises in primary balances and primary expenditures and highlight the effects of countries with high debt (and a high share of foreign exchange debt). However, it was an unattainable task to assemble a consistent and comprehensive dataset on primary balances.

<sup>7</sup> For Brazil, Colombia, and Mexico, we used the total net debt.

<sup>8</sup> Projections and outturns for terms of trade were not consistently reported in the official documents.

<sup>9</sup> Although the fiscal forecasts are prepared by the fiscal authorities in each country, it is not always explicitly mentioned which is the source of the underlying macroeconomic assumptions.



<b>Table 1. Data Sources of Authorities Forecasts</b>	
<b>Country</b>	<b>Sources (budget documents and links)</b>
Argentina	Presupuestos de la Administración Pública Nacional [ <a href="#">link</a> ] (English: <i>Budget of the National Public Administration</i> )
Brazil	Projeto de Lei Orçamentária Anual [ <a href="#">link</a> ] (English: <i>Annual Budget Bill</i> )
Chile	Informe de Finanzas Públicas del Proyecto de Ley de Presupuestos del Sector Público [ <a href="#">link</a> ] (English: <i>Public Finance Report on the Public Sector Budget Bill</i> )
Colombia	Marco Fiscal de Mediano Plazo [ <a href="#">link</a> ] (English: <i>Medium Term Fiscal Framework</i> )
Mexico	Criterios Generales de Política Económica [ <a href="#">link</a> ] (English: <i>General Criteria of Economic Policy</i> )
Peru	Marco Macroeconómico Multianual [ <a href="#">link</a> ] (English: <i>Multiannual Macroeconomic Framework</i> )

### C. Dataset Example

In Table 2, we illustrate the collected dataset with the example of Chile. The upper panel presents the authorities' forecasts either retrieved from official budget documents (white cells), calculated on the basis of data in these documents<sup>10</sup> (yellow), calculated using special definition for the corresponding variable<sup>11</sup> (orange), retrieved from charts/graphs in official documents (light blue), or collected from another official national source (green). The entries that were not available are marked in dark blue. In general, most entries about the authorities' forecasts were retrieved directly from the official budget documents or using a simple calculation or transformation of the data contained therein. Data on outturns was also collected from the official budget documents, and when not available, outturn series were complemented with official sources, such as national statistical agencies and central banks. The corresponding tables for all LA6 economies are presented in the Annex.

<sup>10</sup> For example, in some cases the fiscal balance was not reported explicitly, but it was easily calculated on the basis of total expenditures and total revenues.

<sup>11</sup> For instance, switching from average inflation to end-of-period inflation as that was the only one reported for some years.

Table 2. Dataset Example (Chile)

Authorities' forecasts

Units	(million pesos)	%	(million pesos)	%	(million pesos)	%	(million pesos)	%	(million pesos)	%	(million pesos)	%	(% change)	(% average)	pesos/dollar. average
	Fiscal balance	(% of GDP)	Expenditures	(% of GDP)	Revenues	(% of GDP)	Public Debt	(% of GDP)	nominal GDP	real GDP growth	GDP deflator	CPI Inflation	Exchange rate		
2000	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2001	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2002	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2003	327,229.00	-0.70	11,373,869.00	23.60	11,046,639.00	22.90	na	na	48,216,479.21	4.00	na	3.40	711.50		
2004	-432,031.00	-0.80	11,916,579.00	22.40	11,484,548.00	21.60	na	na	53,184,108.55	4.40	5.65	2.40	660.00		
2005	739,401.00	1.20	12,371,724.00	20.50	13,111,123.00	21.80	6,627,095.16	11.00	60,246,319.61	5.20	7.68	2.50	625.00		
2006	1,568,127.00	2.30	13,866,971.00	20.60	15,435,098.00	22.90	5,388,702.72	8.00	67,358,783.94	5.50	5.98	3.00	540.00		
2007	3,715,730.00	4.40	15,618,443.00	18.70	19,334,173.00	23.10	4,514,907.71	5.40	83,609,402.09	5.70	17.43	3.50	555.00		
2008	4,239,816.00	4.80	17,730,150.00	18.50	21,969,965.00	23.30	3,897,672.05	4.10	95,065,171.96	5.30	7.98	4.20	532.00		
2009	3,599,763.00	3.70	20,673,642.00	21.40	24,273,405.00	25.10	4,156,220.83	4.30	96,656,298.28	4.00	-2.24	4.50	538.00		
2010	-1,030,692.00	-1.10	23,381,081.00	24.50	22,350,388.00	23.40	8,306,214.61	8.70	95,473,731.15	5.00	-5.93	2.80	560.10		
2011	-923,834.00	-0.80	26,693,480.00	23.00	25,769,646.00	22.20	12,152,429.28	10.47	116,069,047.59	6.10	14.58	3.30	500.00		
2012	-510,875.00	-0.40	28,388,389.00	22.70	27,877,514.00	22.30	15,416,445.12	12.33	125,035,127.96	5.00	2.60	2.80	472.00		
2013	999,346.00	-0.70	30,631,555.00	22.30	29,632,209.00	21.60	18,629,264.00	13.57	137,273,692.98	4.80	4.76	2.90	496.00		
2014	-1,399,763.00	-0.90	32,240,551.00	21.30	30,840,787.00	20.40	21,580,002.00	14.27	151,272,208.82	4.90	5.05	3.00	522.00		
2015	-3,034,215.00	-1.90	36,391,119.00	23.30	33,356,904.00	21.30	27,313,065.00	17.46	156,395,121.59	3.60	-0.21	3.00	585.00		
2016	-5,418,239.00	-3.20	40,277,024.00	24.10	34,858,785.00	20.90	36,753,500.00	22.01	166,956,512.94	2.75	3.90	3.80	700.00		
2017	-5,684,420.00	-3.30	42,212,891.00	24.30	36,528,470.00	21.00	45,284,400.00	26.05	173,830,348.03	2.25	1.83	3.00	700.00		
2018	-3,721,956.00	-1.90	45,198,536.00	23.60	41,476,580.00	21.70	48,760,400.00	25.49	191,327,766.85	3.00	6.86	2.60	650.00		
2019	-3,588,521.00	-1.70	47,742,991.00	22.90	44,154,469.00	21.20	na	na	208,380,237.01	3.80	4.93	3.00	650.00		
Level	Gobierno Central Total														
Source:	<a href="http://www.dipres.gob.cl/598/w3-propertyvalue-2129.htm">http://www.dipres.gob.cl/598/w3-propertyvalue-2129.htm</a>														

Outturns

Units	(million pesos)	%	(million pesos)	%	(million pesos)	%	(million dollars)	%	(million pesos)	%	(% change)	(% average)	pesos/dollar. average		
	Fiscal balance	(% of GDP)	Expenditures	(% of GDP)	Revenues	(% of GDP)	Public Debt	(% of GDP)	nominal GDP	real GDP growth	GDP deflator	CPI Inflation	Exchange rate		
2000	267,082.00	-0.64	8,863,559.00	21.10	8,596,477.00	20.47	9,677.00	13.20	42,005,194.29	5.33	na	3.83	538.87		
2001	232,747.00	-0.52	9,705,943.00	21.54	9,473,196.00	21.02	9,928.90	14.50	45,067,992.92	3.30	na	3.57	634.43		
2002	574,623.00	-1.20	10,354,499.00	21.55	9,779,674.00	20.36	10,228.10	15.20	48,044,478.87	3.11	na	2.48	689.24		
2003	-230,468.00	-0.44	10,804,507.00	20.66	10,574,039.00	20.22	11,095.40	12.70	52,299,888.13	4.09	4.58	2.83	691.54		
2004	1,244,468.00	2.06	11,605,137.00	19.19	12,849,605.00	21.25	11,126.30	10.30	60,471,710.76	7.21	7.85	1.07	609.55		
2005	3,021,744.00	4.39	12,751,889.00	18.53	15,773,633.00	22.92	9,373.40	7.00	68,831,705.43	5.74	7.64	3.05	559.86		
2006	5,998,216.00	7.31	14,070,952.10	17.14	20,069,168.17	24.45	7,666.40	5.00	82,080,219.85	6.32	12.16	3.40	530.26		
2007	7,051,177.16	7.77	16,059,187.84	17.71	23,110,365.00	25.48	7,094.00	3.90	90,702,903.28	4.91	5.34	4.39	522.69		
2008	3,647,023.09	3.89	19,087,190.91	20.34	22,734,214.00	24.22	7,335.00	4.90	93,854,108.40	3.53	-0.05	8.73	521.79		
2009	-4,196,869.09	-4.34	22,565,747.09	23.34	18,368,878.00	19.00	11,095.80	5.80	96,686,356.86	-1.56	4.65	-1.40	559.67		
2010	-503,448.45	-0.45	24,410,920.95	21.89	23,907,472.49	21.44	20,357.90	8.60	111,508,610.68	5.84	8.96	3.00	510.38		
2011	1,559,424.32	1.28	26,002,667.47	21.31	27,562,091.79	22.59	25,927.60	11.10	122,006,090.35	6.11	3.11	3.34	483.36		
2012	727,667.16	0.56	28,042,490.91	21.58	28,770,158.07	22.14	32,422.90	11.90	129,947,342.30	5.32	1.13	3.01	486.75		
2013	-823,739.67	-0.60	29,704,285.61	21.54	28,880,545.94	20.95	33,514.80	12.70	137,876,215.77	4.05	3.98	1.79	495.00		
2014	-2,410,946.23	-1.62	33,015,427.15	22.22	30,604,480.92	20.60	36,586.50	15.00	148,599,453.87	1.77	5.91	4.38	570.01		
2015	-3,410,578.36	-2.14	37,001,366.15	23.19	33,590,787.80	21.05	38,963.10	17.30	159,553,348.31	2.30	4.95	4.34	654.25		
2016	-4,596,868.62	-2.71	39,842,575.98	23.50	35,245,707.37	20.79	53,365.40	21.00	169,537,387.72	1.71	4.47	3.79	676.83		
2017	-4,947,378.74	-2.75	42,643,353.81	23.72	37,695,975.07	20.97	68,936.20	23.60	179,756,125.80	1.19	4.78	2.20	649.33		
2018	-3,153,337.55	-1.65	45,184,687.34	23.62	42,031,349.80	21.98	70,247.50	25.60	191,265,952.07	3.95	2.36	2.43	640.29		
2019	-5,621,103.31	-2.83	48,152,605.58	24.27	42,531,502.27	21.43	74,391.20	27.90	198,440,706.83	1.05	2.67	2.24	702.63		
Level	Gobierno Central Total														
Source:	<a href="http://www.dipres.gob.cl/598/w3-propertyvalue-15494.htm">http://www.dipres.gob.cl/598/w3-propertyvalue-15494.htm</a>														
	Banco Central de Chile Banco Central de Chile, BDE Banco Central de Chile Banco Central de Chile														

Legend

na	Official budget report
na	Calculation / Transformation
na	Special definition
na	Taken from a graph (visually)
na	Not available
na	Official national source

## D. Methodology

We define forecast errors (*FE*) as the authorities' forecast minus the actual outturn of the corresponding variable. Using this definition, our analysis of forecast errors encompasses three stages: (i) visual analysis of the evolution of fiscal forecast errors across countries and over time; (ii) correlation between fiscal forecast errors and a set of macroeconomic variables; and (iii) formal regression analysis.

For the latter, we employ the following two regression specifications:

$$FE Y_{it} = \beta_0 + \beta_1 FE \Delta Real GDP_{it} + \beta_2 FE \Delta GDPdef_{it} + \varepsilon_{it} \quad (1)$$

$$FE Y_{it} = \beta_0 + \beta_1 FE \Delta Real GDP_{it} + \beta_2 FE \Delta GDPdef_{it} + \beta_3 FE \Delta ToT_{it} + \varepsilon_{it} \quad (2)$$

Where  $Y_{it}$  is a fiscal variable for country  $i$  at time  $t$  (fiscal balance, total expenditure, total revenue, or public debt), expressed as a share of GDP;  $FE Y_t$  is the forecast error for the corresponding fiscal variable,  $FE \Delta Real GDP_t$  stands for the forecast error of the growth rate for real GDP,  $FE \Delta GDPdef_t$  stands for the forecast error of the change in the GDP deflator, and  $FE \Delta ToT_t$  stands for the forecast error in the change of the WEO Terms of Trade.<sup>12</sup>

We run panel data regressions on specifications (1) and (2), allowing for country-specific fixed effects (FE) and random effects (RE). We also run Hausman specification tests to check which of the two methods (FE and RE) is the preferred one in each specification<sup>13</sup>.

## IV. ASSESSING THE FORECAST BIAS

### A. Visualizing the Forecast bias

Figures 1–4 describe the evolution of the forecast errors for fiscal balance, revenues, expenditure, and public debt in LA6 over the period 2000-2018.<sup>14</sup> These figures present the authorities' forecasts, the actual outturns, and the forecast errors (defined as forecasts minus outturns). In addition, we display the introduction of fiscal rules horizontal lines, mainly to detect if these rules have resulted in changes regarding the accuracy<sup>15</sup> of the fiscal forecasts.

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<sup>12</sup> We include the Terms of Trade in our analysis as our sample encompasses commodity exporter economies. Terms of Trade are expected to improve fiscal accounts through higher revenues when this variable increases.

<sup>13</sup> In alternative specifications, we also added the forecast error for the exchange rate as a regressor, but the regression coefficients turned out not to be significant.

<sup>14</sup> For a more comprehensive and extensive discussion on the fiscal policy history of the countries in our sample, we refer the reader to Kehoe, Nicolini, and Sargent (2019).

<sup>15</sup> Illustrated as a reduction of the forecast errors bars.

Figure 1 shows that the authorities' forecasts for the fiscal balance-to-GDP ratios have been optimistic (positive forecast errors) for Argentina and Brazil<sup>16</sup>, especially during 2012–2016, but not for the other economies in general. In fact, the authorities's forecasts for the fiscal balance in Chile and Colombia have improved over time, especially in the past decade, while those for Mexico have been quite accurate for most years. In Peru, it is not obvious to identify a consistent pattern in the forecasts errors for the fiscal balance.

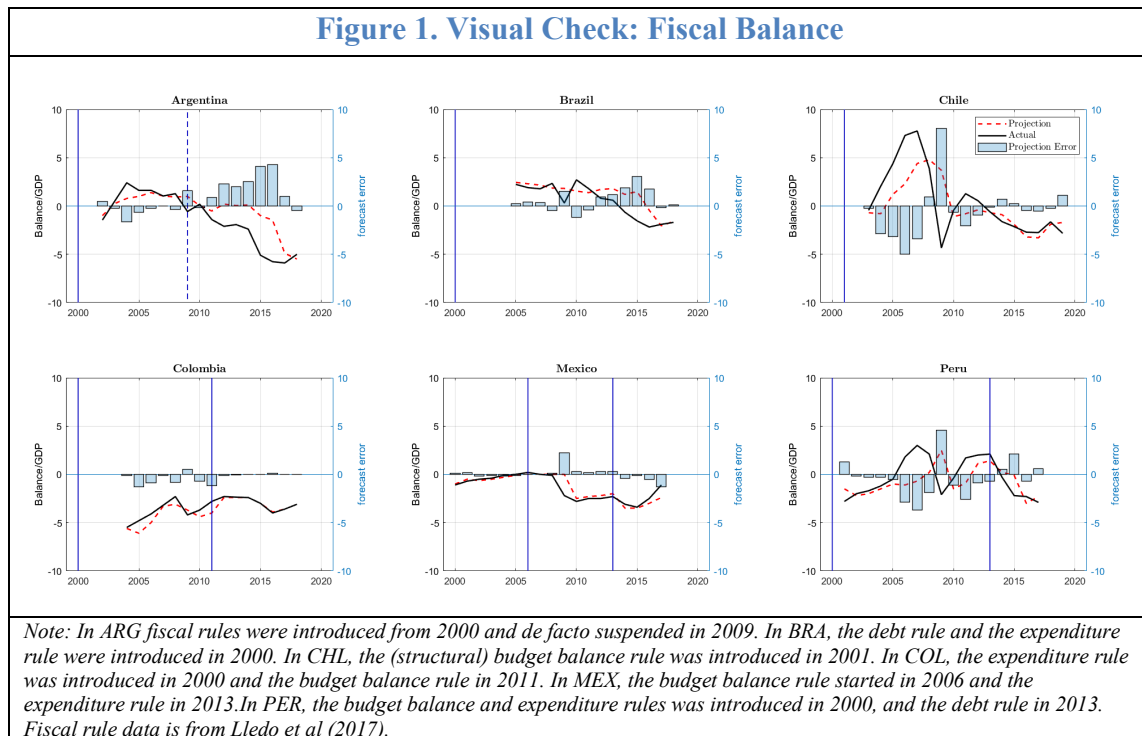
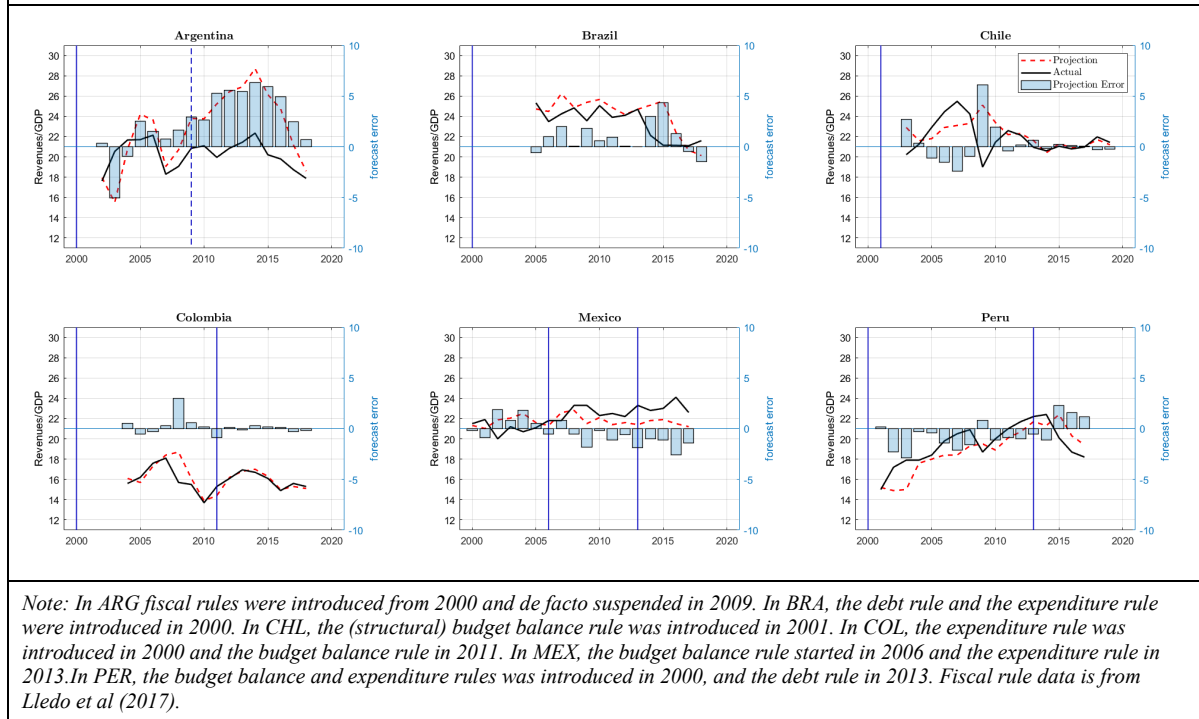


Figure 2 provides a similar picture but for the revenues-to-GDP ratios. Specifically, it points out that the optimistic forecasts for revenue have been large in Argentina the past decade<sup>17</sup>, declined over time (in absolute value) in Chile and Colombia, and reversed into an underestimation for Mexico roughly after 2009. For Brazil, the overestimation has recently reversed, while Peru has seen the opposite pattern with underestimation of revenues that have turned into an overestimation in recent years.

<sup>16</sup> One possible explanation of the persistently overestimated fiscal balances in Argentina and Brazil could be related to possible spending rigidities (i.e., mandatory provincial transfers, wage, pension spending).

<sup>17</sup> To some extent, a possible explanation of the overestimation of revenues in countries like Argentina could be due to a disappointing recovery in trade volumes since the Global Financial Crisis (well below GDP growth), or optimism on the terms of trade and exchange rate fronts.

Figure 2. Visual Check: Revenues



The pattern of forecast errors for the expenditure-to-GDP ratio is presented in Figure 3. The charts show similarities with the patterns for revenue-to-GDP ratio shown in Figure 2. For instance, the overestimation of expenditure has been large in Argentina, roughly over the same period in which Figure 2 showed overestimation for revenues. Similar to the case of revenues, the overestimation of expenditure has declined in Chile and Colombia, while it has reversed into an underestimation in Mexico. For Brazil and Peru, there are no clear signs of bias, although the forecasts for the expenditure-to-GDP ratios seem to be linked to the outturns in the previous years.

Figure 3. Visual Check: Expenditure

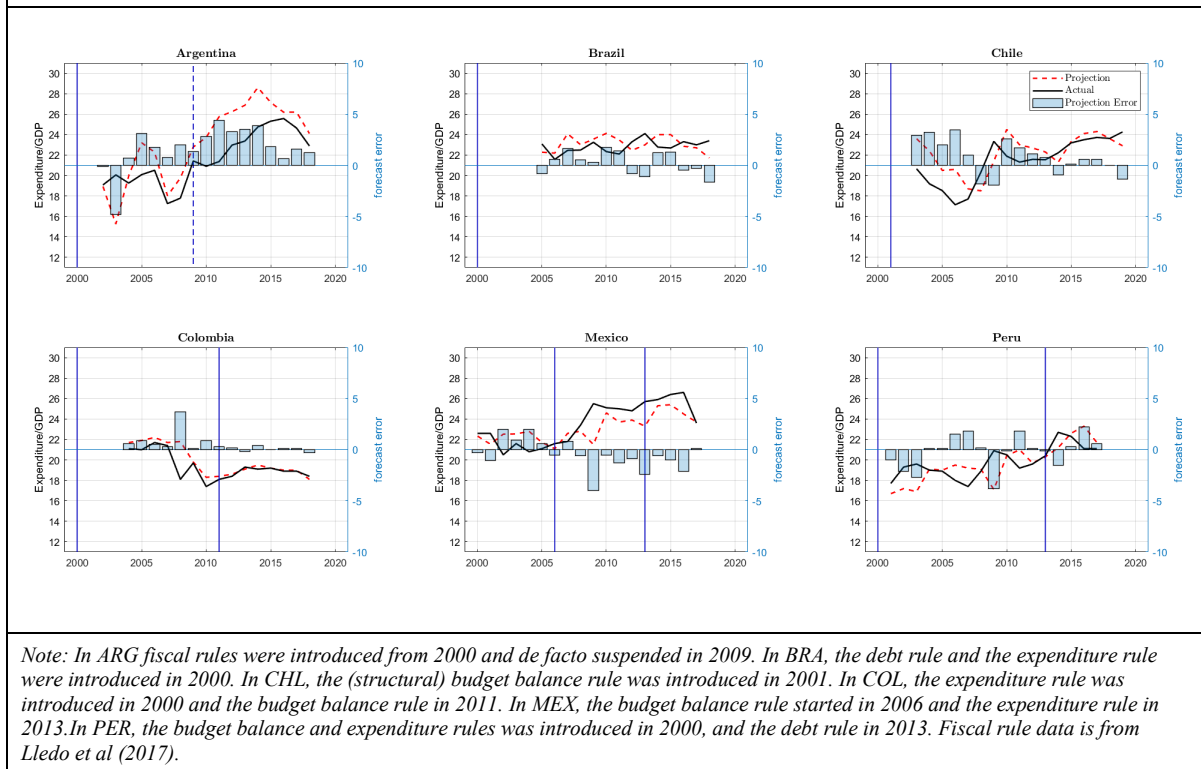
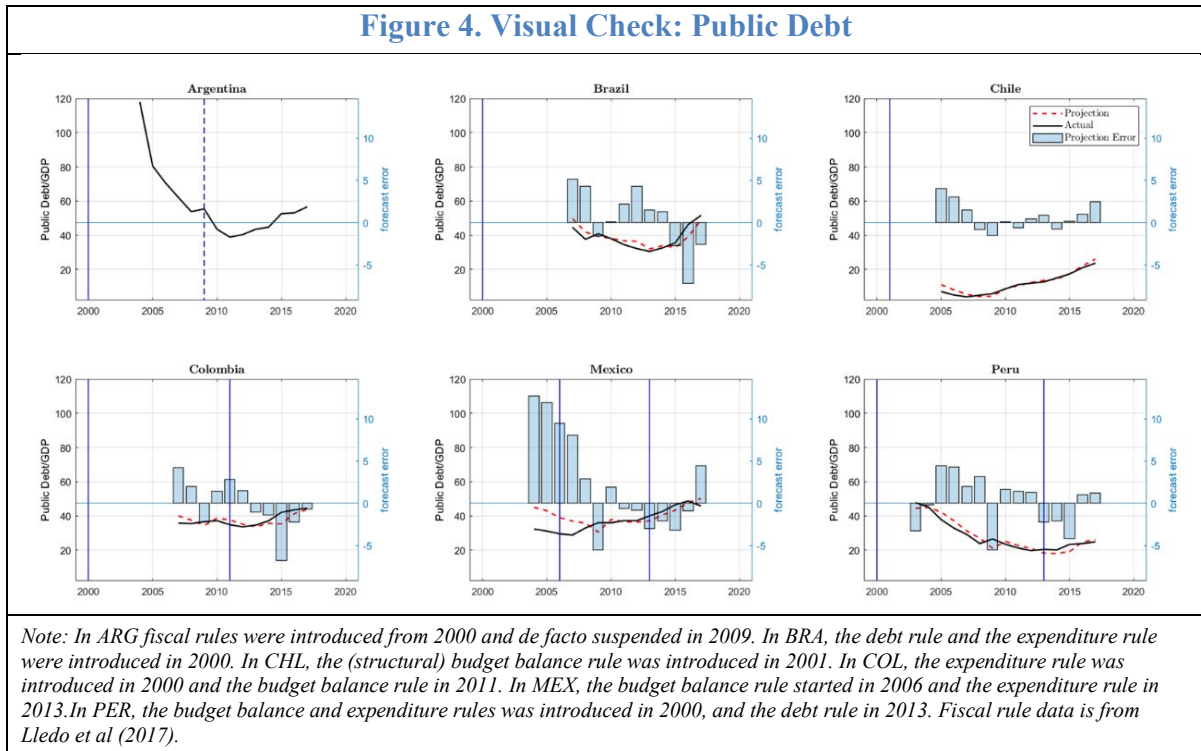


Figure 4 presents the evolution of the authorities' forecasts, outturns and forecast errors for the public debt-to-GDP ratio. The figure shows that forecasts started pessimistic (positive forecast errors for debt-to-GDP ratio) in all countries<sup>18</sup>, then started turning optimistic in the 2010s and are reversing in recent years.

<sup>18</sup> No official forecasts for public debt are provided consistently in Argentina.



Overall, Figures 1–4 provided several important insights in the evolution of fiscal variable forecasts. For instance, the visual evidence does not suggest a general (optimistic) bias in the authorities' fiscal forecasts for most countries. In fact, the optimistic forecasts for the fiscal balance mainly applied in Argentina and Brazil in the 2010s, but not to the other economies. In Argentina, the overestimation of revenues has been larger than the overestimation of expenditure, leading to optimistic forecasts for the fiscal balance, especially in recent years. For Mexico, both expenditure and revenues seem overestimated pre-GFC and underestimated post-GFC by a similar magnitude, resulting in quite accurate overall balance forecasts; this seems to suggest an expenditure control that is anchored to revenue outcomes, which would be a sign of fiscal discipline. Meanwhile, in Chile and Colombia, all forecasts improved significantly in the post-GFC period, while in Peru (and to a lesser extent in Brazil), revenue and expenditure forecasts seem backward-looking, linked to the outturns from previous years. Turning to stock variables, the forecasts for the public debt-to-GDP ratio started pessimistic in all economies, i.e. authorities were anticipating a higher public debt than the outcome (with positive forecast errors, possibly due to the scars from the previous decades of debt problems), but then turned more optimistic (negative forecast errors, i.e. a debt forecast below the outcome) over time, albeit this trend is reversing in most recent years.

We also consider previous evidence on the association of fiscal rules with the levels of debt and fiscal deficits (a topic discussed for example in Debrun et al. (2008), IMF (2009), Eyraud et al. (2018), and Cardenas et al. (2021)). In particular, Celasun et al. (2015) report that rules/institutions have shaped the pattern of deviations of fiscal forecasts from outcomes, albeit this effect has varied across countries. We investigate the impact of fiscal rules on fiscal forecast errors in our sample using simple regression specifications that we present in the Annex Table 14, where fiscal rule data is from the IMF dataset prepared by Lledo et al

(2017). A graphical representation of the introduction of these rules can also be found in Figures 1-4, via vertical lines.<sup>19</sup> In general, the results suggest that budget balance rules seem to be effective at containing the size of fiscal forecast errors, potentially as they can be associated with better information sets and forecasting techniques, improved data quality, and reduced uncertainty.

### B. Testing for unbiasedness

In this section, we examine whether the fiscal forecasts are biased, by performing the Mincer-Zarnowitz (1969) test. Under the null, forecasts are unbiased (i.e., forecast errors have a zero mean) and efficient (consistently underestimating high values and overestimating low values). Specifically, we regress the actual data ( $Y$ ) on the authorities' forecasts ( $Y^F$ ) for each fiscal variable and test the joint null hypothesis that the constant term is null ( $\alpha = 0$ ) and the slope coefficient is equal to one ( $\beta = 1$ ):

$$Y_{i,t} = \alpha + \beta Y_{i,t}^F + e_{i,t} \quad (3)$$

**Table 3. Test of forecast unbiasedness**

Table 3. Test of forecast unbiasedness												
Variable	Balance-to-GDP ratio			Fixed Effects				Random Effects				
	Pooled Estimation			alpha	beta	R <sup>2</sup>	p-value	alpha	beta	R <sup>2</sup>	p-value	
alpha	beta	R <sup>2</sup>	p-value	alpha	beta	R <sup>2</sup>	p-value	alpha	beta	R <sup>2</sup>	p-value	
	-0.188 (0.222)	0.875 (0.101)	0.495	0.410	-0.187 (0.087)	0.899 (0.129)	0.406	0.503	-0.190 (0.295)	0.882 (0.109)	0.495	0.517
Variable	Expenditure-to-GDP ratio			Fixed Effects				Random Effects				
	Pooled Estimation			alpha	beta	R <sup>2</sup>	p-value	alpha	beta	R <sup>2</sup>	p-value	
alpha	beta	R <sup>2</sup>	p-value	alpha	beta	R <sup>2</sup>	p-value	alpha	beta	R <sup>2</sup>	p-value	
	4.533 (1.531)	0.770 (0.069)	0.621	0.000	5.722 (1.738)	0.716 (0.079)	0.537	0.000	5.454 (1.704)	0.728 (0.075)	0.621	0.001
Variable	Revenues-to-GDP ratio			Fixed Effects				Random Effects				
	Pooled Estimation			alpha	beta	R <sup>2</sup>	p-value	alpha	beta	R <sup>2</sup>	p-value	
alpha	beta	R <sup>2</sup>	p-value	alpha	beta	R <sup>2</sup>	p-value	alpha	beta	R <sup>2</sup>	p-value	
	7.299 (1.372)	0.629 (0.063)	0.564	0.000	12.417 (1.812)	0.388 (0.085)	0.227	0.000	11.299 (1.795)	0.440 (0.079)	0.564	0.000
Variable	Debt-to-GDP ratio			Fixed Effects				Random Effects				
	Pooled Estimation			alpha	beta	R <sup>2</sup>	p-value	alpha	beta	R <sup>2</sup>	p-value	
alpha	beta	R <sup>2</sup>	p-value	alpha	beta	R <sup>2</sup>	p-value	alpha	beta	R <sup>2</sup>	p-value	
	0.847 (1.276)	0.947 (0.038)	0.908	0.096	3.616 (2.270)	0.861 (0.072)	0.709	0.000	1.059 (1.413)	0.941 (0.042)	0.908	0.133

*Note: The table shows the coefficient estimates of Equation (3). The p-values refer to the test of the null hypothesis that the forecast is unbiased ( $\alpha=0, \beta=1$ ), where (light) red indicates the rejection of the null at 10% significance level. Standard errors are denoted in parenthesis. For Fixed Effects, the test is performed using the average constant term.*

The results are summarized in Table 3. Altogether, at a 10 percent significance level, the joint p-value indicates that the null is rejected for the GDP ratios of expenditure, revenues, and debt in some specifications, suggesting that such forecasts are biased. Interestingly, the forecasts for the fiscal balance appear to be unbiased, implying that, on average, systematic

<sup>19</sup> It is important to recognize that a different degree of implementation of fiscal rule across countries may play a role.

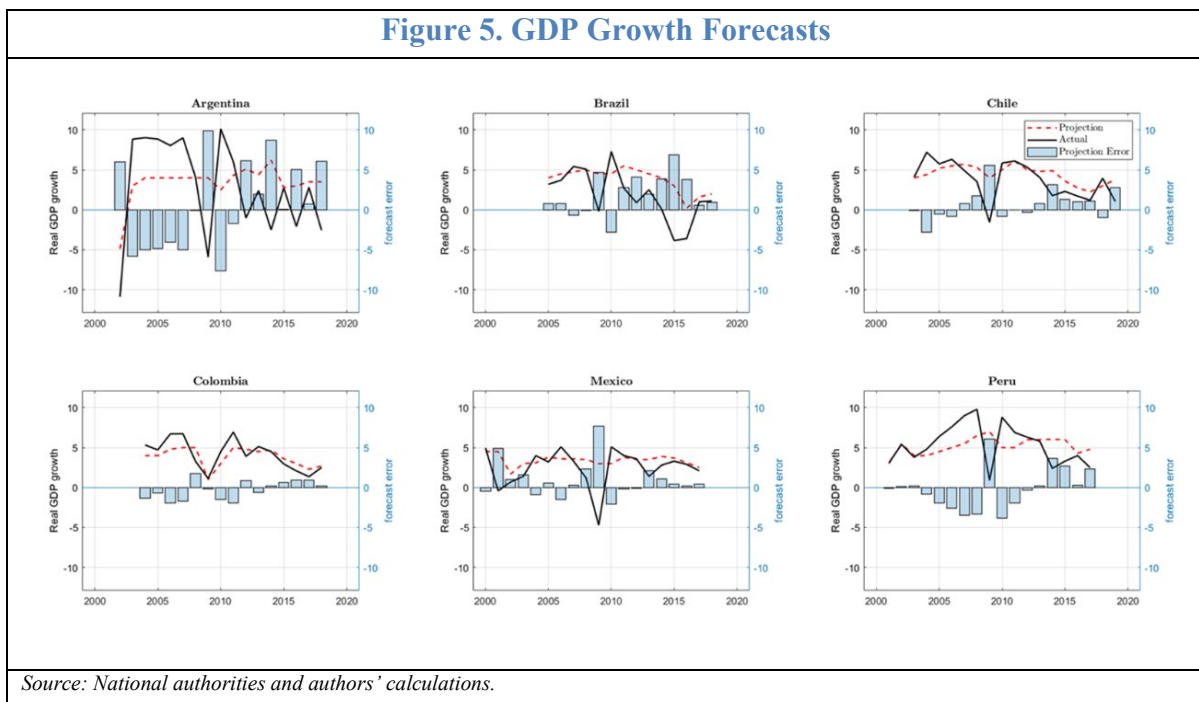


biases in forecasts for expenditure and revenue ratios may tend to offset each other, resulting in more precise forecasts for the fiscal balance than for its components.

### C. Forecast Errors of Key Macroeconomic Variables

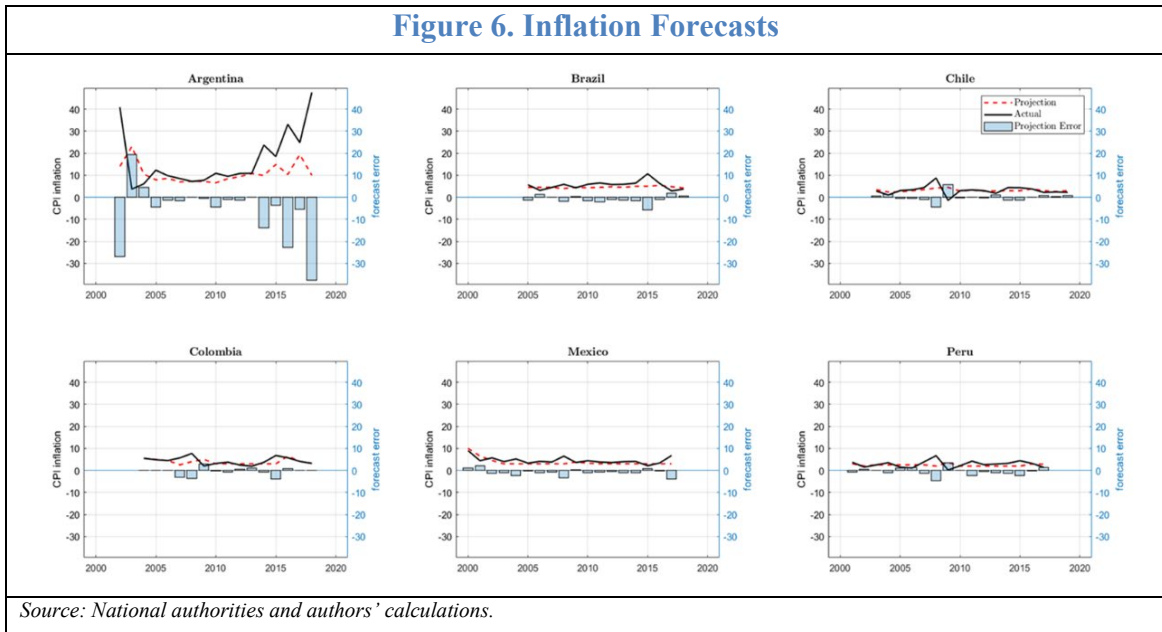
After providing an overview of the authorities' fiscal forecasts errors, we now turn our focus to the authorities' forecast errors for the main macroeconomic variables, such as real GDP growth, inflation, GDP deflator changes, and exchange rates. The objective of this exercise is to help provide insights about the (dis)similarities in the pattern of the two sets of forecast errors, and show preliminary evidence about possible interdependence.

Figure 5 plots the collected data on real GDP growth rates. In particular, the figure displays that actual growth rates for Argentina have been much more volatile than the forecasts, which have been generally optimistic over the last decade. Moreover, the growth forecast errors for Argentina have been larger than in other LA6 economies. The figure also shows that there has been a tendency to overestimate growth in Brazil post-GFC<sup>20</sup>, while Chile, Colombia, Mexico, and Peru tend to have somewhat smaller (or less persistent) forecast errors.



The authorities' forecasts and forecast errors for inflation are presented in Figure 6. The main finding in the figure refers to Argentina, where actual CPI inflation has consistently exceeded the authorities' forecasts since 2014. On the other hand, inflation forecast errors do not show similar bias in any of the other LA6 economies.

<sup>20</sup> It is worth mentioning that Brazil underwent one of its deepest recessions during 2015-2016, comparable in size to the Covid-19 shock.



The authorities' GDP deflator forecasts in Figure 7 convey a similar story to the one for CPI inflation. In fact, the authorities have consistently underestimated the GDP deflator in Argentina over the past decade and a half, and these forecast errors have widened over time. In the other LA6 economies, the forecast errors were either very small (Brazil and Mexico) or did not show any persistent pattern (Chile, Colombia, and Peru).

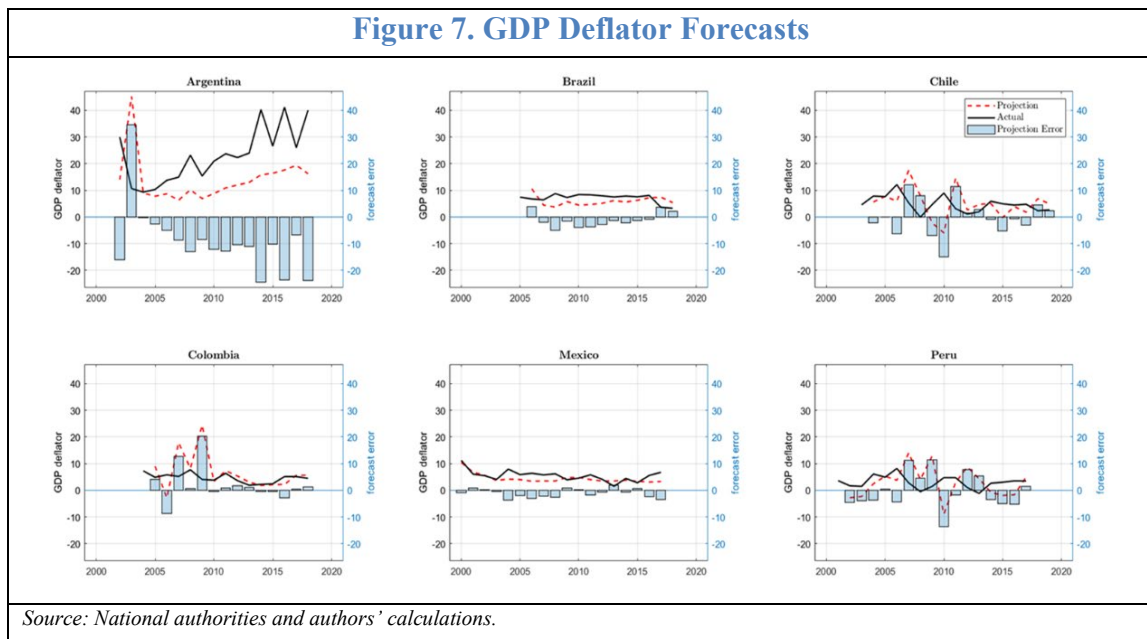
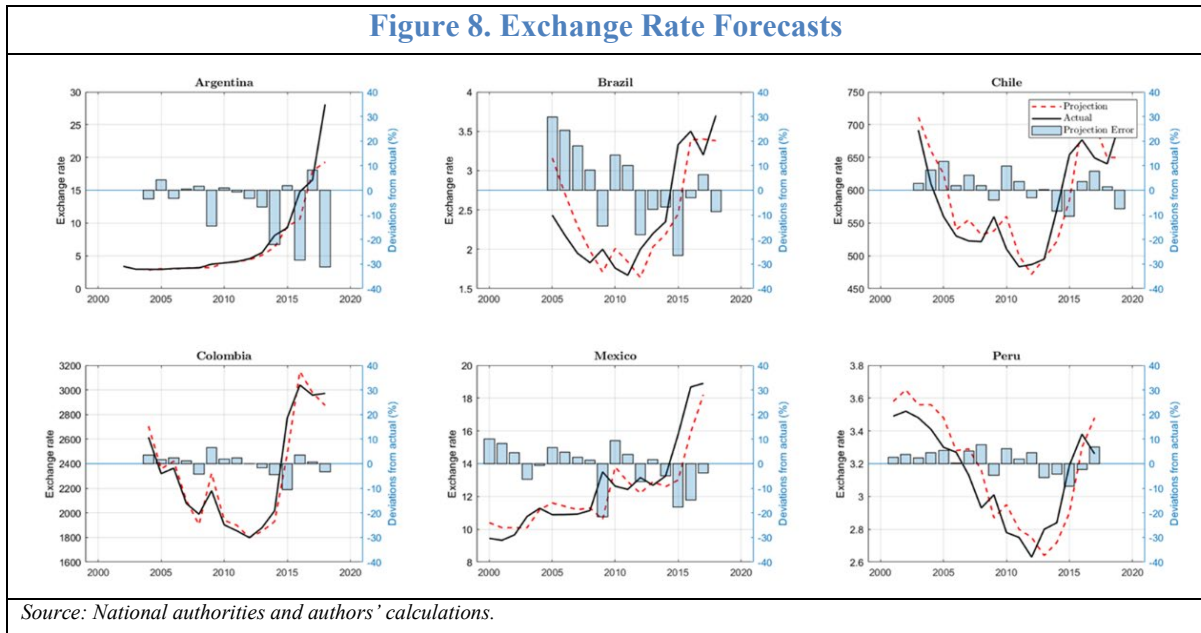


Figure 8 provides a visual inspection of the authorities' exchange rate forecasts. Overall, the charts show that the rate of depreciation tended to be underestimated post-GFC in Argentina and Brazil, with the magnitude of the forecast errors increasing in some recent years in Argentina. To a lesser extent, the depreciation rate also tended to be underestimated in

Mexico in most recent years. On the other hand, the forecast errors have been substantially smaller and without a visible pattern for Chile, Colombia, and Peru.



## V. UNDERSTANDING THE DRIVERS OF FORECAST ERRORS

Having provided visual evidence of the evolution of the authorities' forecasts and forecast errors over time, in this section we focus our analysis on explaining the underlying drivers of fiscal forecast errors. We proceed in two steps: we first provide descriptive evidence of the correlations between forecast errors of fiscal and macroeconomic variables<sup>21</sup>; and then, we use panel data regressions to formally assess these relationships.

### A. Bivariate relationships

The bivariate relationships between forecast errors for fiscal variables and the forecast errors for real GDP growth rates are presented in Figure 9. The top panel shows the relationship for the overall sample, while the bottom panel shows the country-specific relationships. The charts in the top panel suggest that optimistic GDP growth forecasts (positive forecast errors) are associated with overestimated fiscal balance-to-GDP and revenues-to-GDP ratios, as shown by the positive correlation in the first and the third chart. Conversely, they are associated with underestimated expenditure and public debt ratios, as shown by the negative correlations in the second and the fourth chart. The charts in the bottom panel show that most country-specific relationships are in line with these general correlations, with a few limited exceptions.

<sup>21</sup> Although this paper mainly assumes that the fundamental factors that explain the forecast errors of fiscal variables are the surprises in variables such as growth and inflation, it is also important to highlight that fiscal forecast errors could also be explained by uncertainty in the models or elasticities used by the authorities (e.g., by how much revenue increases with GDP).

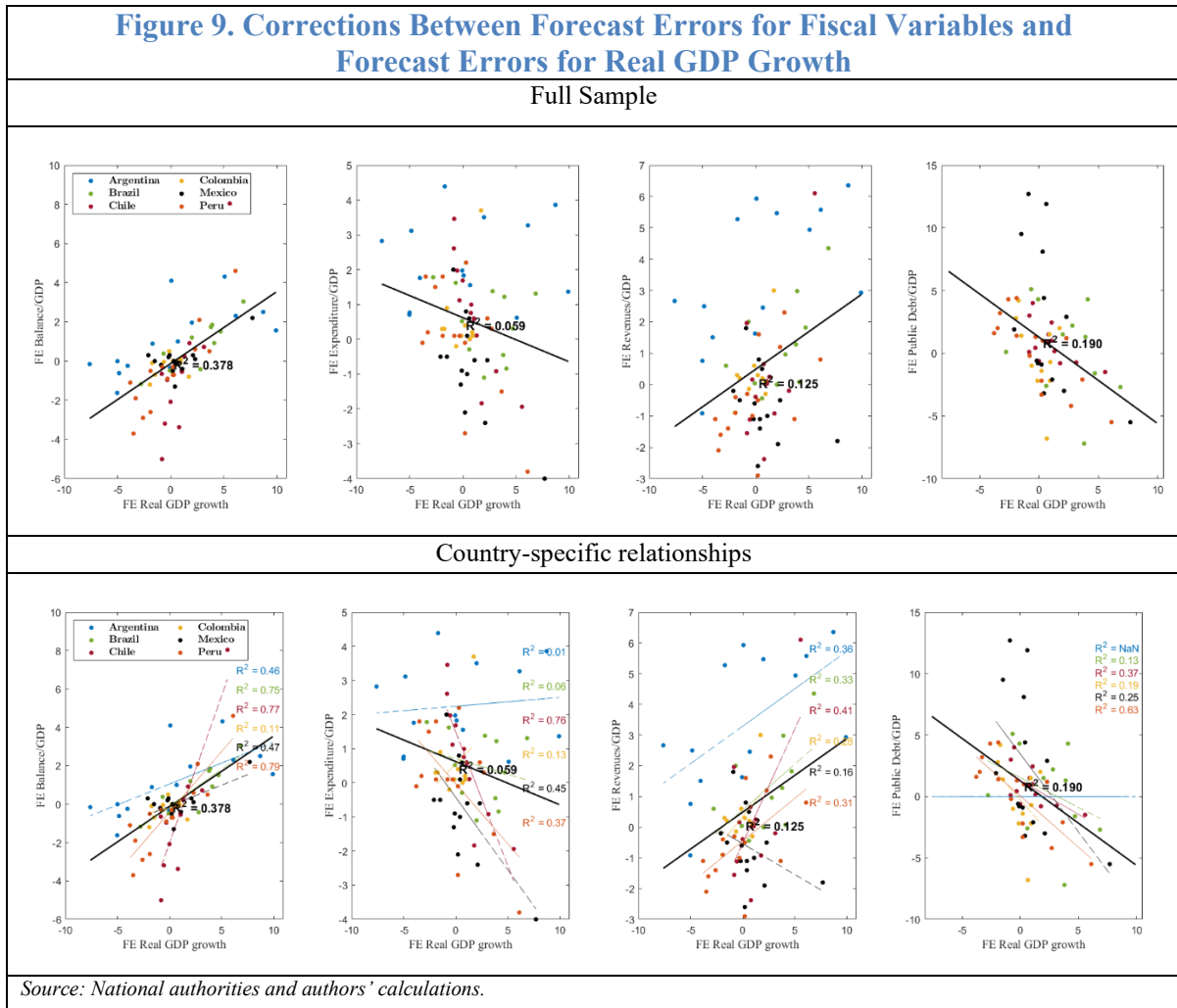


Figure 10 shows correlations between the forecast errors for the same set of fiscal variables and the forecast errors for the GDP deflator. The negative relationships in the upper-panel charts suggest that optimistic forecasts for the GDP deflator (positive forecast errors) are associated with underestimated fiscal ratios (negative forecast errors). Nonetheless, the bottom-panel charts show heterogeneity across economies, with some of them displaying country-specific correlations that are opposite to the general one.

The negative relationships in Figure 10—which suggest that overestimation of the GDP deflator is associated with an underestimation of the fiscal balance or revenues—may sound counterintuitive at first. However, it is worth underlying that all fiscal variables here are expressed as ratios to GDP. Hence, the negative relationship is explained by the smaller (and therefore not enough to compensate for) positive effect that the GDP deflator holds on the nominal fiscal values (in the numerator) vs. the direct positive effect on GDP (in the denominator).<sup>22</sup>

<sup>22</sup> The positive association between forecast errors for the nominal values of the fiscal variables with those for the GDP deflator, are shown in Section C of the Annex.

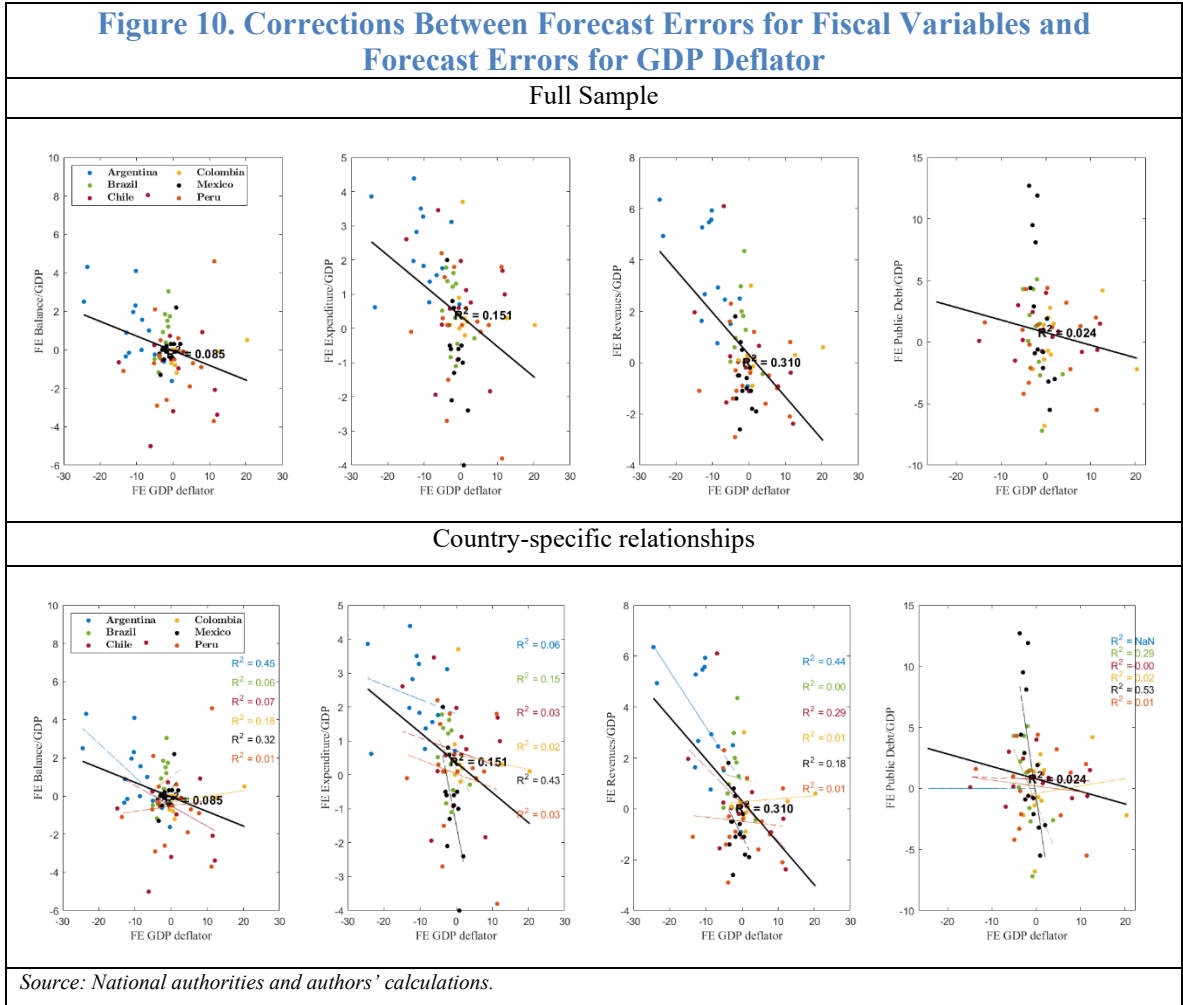
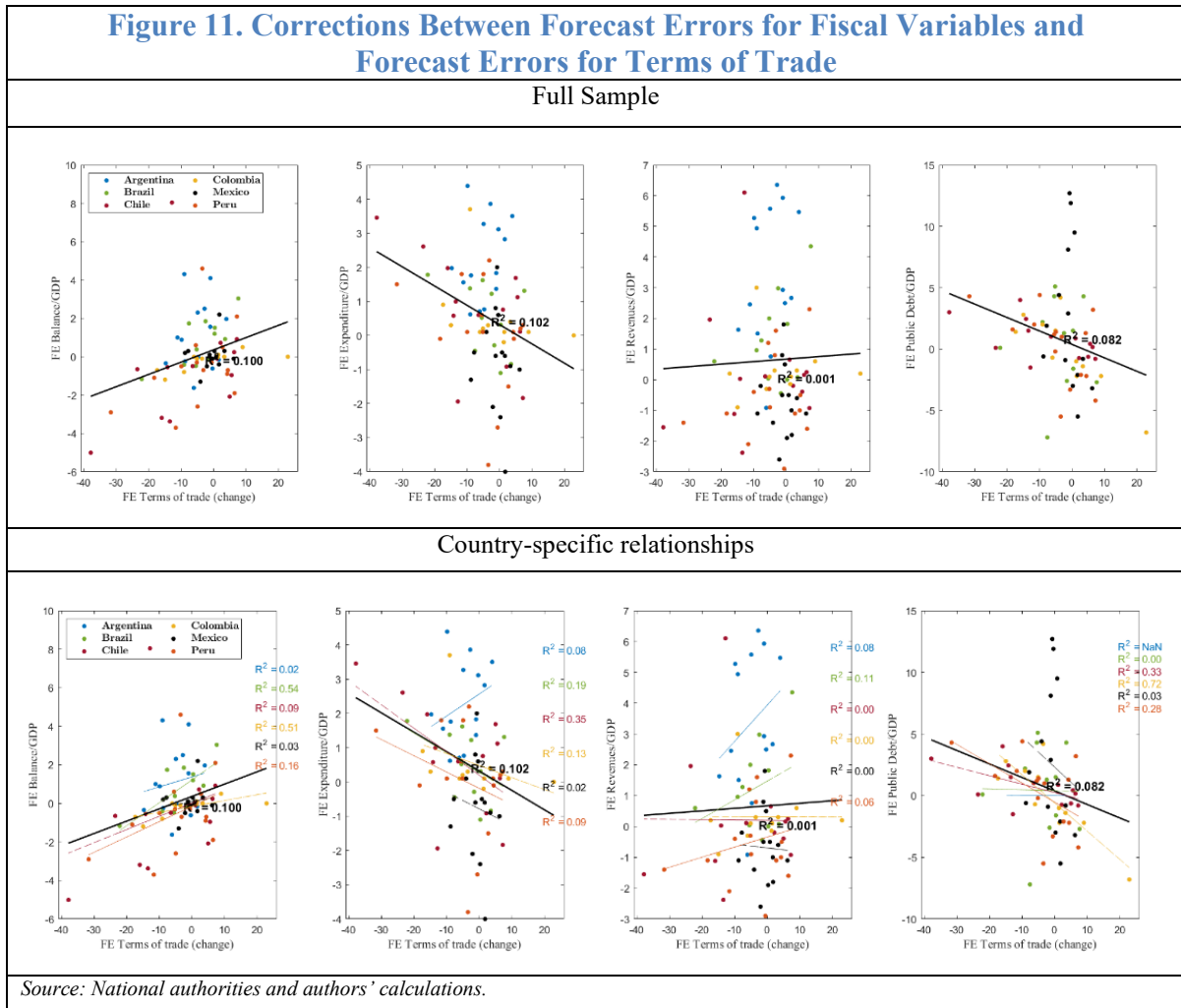


Figure 11 displays the correlations between the forecast errors of fiscal variables and those of the terms of trade percentage changes. The top panel shows that positive surprises to the ToT percentage changes are associated with positive surprises in the fiscal balance-to-GDP ratios. It is worth noting that such a result reflects the combination of an increase in revenues that is somewhat stronger than the increase in GDP (as depicted by the slightly positive slope of the third chart), and an increase in expenditure that is smaller than the increase in GDP (as shown by the negative slope in the second chart). In line with the effect on the fiscal balance-to-GDP ratio, positive ToT surprises are associated with smaller debt-to-GDP ratios (as shown in the fourth chart).



## B. Regression Results

The results from the formal panel regression analysis are presented in Tables 4-7. These tables aim to explain the forecast errors of the different fiscal variables. For each specification, we present results from FE and RE panel regression estimations, along with the corresponding results from the Hausman specification tests.<sup>23</sup>

In particular, Table 4 shows that the forecast errors for the fiscal balance-to-GDP ratio are positively associated with positive forecast errors (negative outcome surprises, i.e., actuals turning out to be higher than the projections) for GDP growth and ToT percentage changes, and negatively associated with positive forecast errors for the GDP deflator changes.<sup>24</sup> Put differently, higher forecasts for growth and ToT changes as well as lower forecasts for GDP deflator inflation are positively related to optimistic forecasts for the fiscal balance-to-GDP ratio.

<sup>23</sup> We show cross-country differences of fixed effects in Section D of the Annex.

Y Var	(1)	(2)	(3)	(4)
FE Bal/GDP	F.E.	R.E.	F.E.	R.E.
FE RGDP g	0.366 (0.054) [0.000]	0.352 (0.053) [0.000]	0.322 (0.055) [0.000]	0.306 (0.052) [0.000]
FE GDP defl g	-0.021 (0.028) [0.470]	-0.054 (0.023) [0.021]	-0.047 (0.029) [0.113]	-0.079 (0.023) [0.001]
FE ToT (change)	- - -	- - -	0.048 (0.019) [0.015]	0.057 (0.018) [0.002]
Constant	-0.168 (0.058) [0.005]	-0.224 (0.180) [0.214]	-0.001 (0.088) [0.994]	-0.021 (0.176) [0.904]
Observations	78	78	78	78
Countries	6	6	6	6
R-squared	0.414	0.424	0.462	0.491
Adjusted R-squared	0.355	0.409	0.4	0.47
Hausman's test of specification				
H-stat:		4.358		3.08
p-value		[0.113]		[0.379]
Standard errors in parenthesis p-value in brackets				

*Note: Figures highlighted in (light) red depict lack of significance at the 10 percent level.*

The findings in Table 4 about the factors that explain the forecast errors for the fiscal balance-to-GDP ratios are underpinned by the set of results for the expenditure-to-GDP and revenue-to-GDP ratios presented in Tables 5 and 6, respectively.

The results in Table 5 imply a negative relationship between the forecast errors for the expenditure-to-GDP ratio and those for GDP growth, and the GDP deflator (the latter being insignificant when ToT are included in the specification). In turn, Table 6 presents results from specifications that aim to explain the forecast errors for the revenue-to-GDP ratio. These results suggest a positive relationship between the forecast errors for the revenue-to-GDP ratio and the GDP growth and ToT (albeit the latter not significant), and a negative relationship between the forecast errors for the revenue-to-GDP ratio and the GDP deflator. Hence, positive surprises to GDP growth are associated with lower expenditure and higher revenue forecasts than the respective outcome, which explain the optimistic fiscal balance

forecast. Positive surprises to GDP deflator are associated with both lower expenditure and revenue forecasts than the outcome, the latter effect being dominant and driving a negative fiscal balance forecast error.

<b>Table 5. Regression Results: Explaining Forecast Errors for the Expenditure-to-GDP Ratio</b>				
Y Var	(1)	(2)	(3)	(4)
FE Exp/GDP	F.E.	R.E.	F.E.	R.E.
FE RGDP g	-0.148 (0.049) [0.004]	-0.15 (0.049) [0.002]	-0.123 (0.052) [0.020]	-0.126 (0.051) [0.013]
FE GDP defl g	-0.06 (0.026) [0.024]	-0.069 (0.025) [0.006]	-0.045 (0.028) [0.109]	-0.053 (0.026) [0.042]
FE ToT (change)	- - -	- - -	-0.028 (0.018) [0.131]	-0.027 (0.018) [0.126]
Constant	0.539 (0.054) [0.000]	0.52 (0.360) [0.149]	0.442 (0.083) [0.000]	0.427 (0.385) [0.268]
Observations	78	78	78	78
Countries	6	6	6	6
R-squared	0.151	0.23	0.179	0.248
Adjusted R-squared	0.066	0.21	0.084	0.217
Hausman's test of specification				
H-stat:		1.026		1.169
p-value		[0.599]		[0.761]
Standard errors in parenthesis p-value in brackets				

*Note: Figures highlighted in (light) red depict lack of significance at the 10 percent level.*



<b>Table 6. Regression Results: Explaining Forecast Errors for the Revenue-to-GDP Ratio</b>				
Y Var	(1)	(2)	(3)	(4)
FE Rev/GDP	F.E.	R.E.	F.E.	R.E.
FE RGDP g	0.217 (0.053) [0.000]	0.213 (0.053) [0.000]	0.198 (0.056) [0.001]	0.194 (0.055) [0.000]
FE GDP defl g	-0.081 (0.028) [0.005]	-0.095 (0.027) [0.000]	-0.093 (0.030) [0.003]	-0.103 (0.029) [0.000]
FE ToT (change)	- - -	- - -	0.021 (0.020) [0.278]	0.023 (0.019) [0.237]
Constant	0.364 (0.057) [0.000]	0.338 (0.428) [0.430]	0.438 (0.089) [0.000]	0.426 (0.516) [0.409]
Observations	78	78	78	78
Countries	6	6	6	6
R-squared	0.298	0.369	0.31	0.383
Adjusted R-squared	0.228	0.353	0.23	0.358
Hausman's test of specification				
H-stat:		4.291		1.706
p-value		[0.117]		[0.636]
Standard errors in parenthesis p-value in brackets				

*Note: Figures highlighted in (light) red depict lack of significance at the 10 percent level.*

Finally, in Table 7 we present the results that refer to the only stock fiscal variable in our analysis—the public debt-to-GDP ratio. In line with our priors and the description findings presented earlier, negative surprises to GDP growth forecasts (positive forecast errors) are associated with negative forecast errors for the public debt-to-GDP ratio. Hence, overestimating GDP growth implies underestimating public debt-to-GDP ratios, mainly through a denominator effect (higher GDP), but also through the numerator (better fiscal balance). The other factors included in Table 7—the forecast errors for the GDP deflator and the ToT changes—are insignificant.

<b>Table 7. Regression Results: Explaining Forecast Errors for the Public Debt-to-GDP Ratio</b>				
Y Var	(1)	(2)	(3)	(4)
FE PDebt/GDP	F.E.	R.E.	F.E.	R.E.
FE RGDP g	-0.813 (0.187) [0.000]	-0.719 (0.179) [0.000]	-0.727 (0.201) [0.001]	-0.672 (0.193) [0.000]
FE GDP defl g	-0.056 (0.075) [0.465]	-0.092 (0.074) [0.216]	-0.024 (0.080) [0.770]	-0.052 (0.079) [0.509]
FE ToT (change)	- - -	- - -	-0.057 (0.050) [0.263]	-0.051 (0.049) [0.296]
Constant	1.349 (0.141) [0.000]	1.283 (0.514) [0.013]	1.078 (0.278) [0.000]	1.061 (0.652) [0.104]
Observations	64	64	64	64
Countries	5	5	5	5
R-squared	0.261	0.214	0.278	0.223
Adjusted R-squared	0.183	0.189	0.187	0.184
Hausman's test of specification				
H-stat:		2.521		3.232
p-value		[0.283]		[0.357]
Standard errors in parenthesis p-value in brackets				

*Note: Figures highlighted in red depict lack of significance at the 10 percent level.*

We also investigated the role of the authorities' forecast errors for the exchange rate as a possible explanatory factor, but the coefficients turned out to be insignificant for most fiscal variables. They are significant with the expected sign only for the public debt-to-GDP (larger-than-projected depreciation are associated with larger-than-projected increase in public debt, presumably due to a foreign currency debt effect in the numerator), albeit not robust to the inclusion of ToT in the same specification. These regressions are presented in the Annex Table 15.

## VI. CONCLUDING REMARKS

By constructing a novel dataset on official fiscal forecasts in Latin America, this paper provides both descriptive insights into the evolution of the authorities' fiscal forecast errors and formal analysis using panel data regressions regarding the importance of the various factors that explain these forecast errors for the LA6 economies.

In our descriptive analysis we compared the set of official forecasts to actual outturns and observed the following patterns. Optimistic forecasts for the fiscal balance seem to apply mainly to Argentina and Brazil, but not to other countries in LA6. In Argentina, this finding is due to the overestimation of revenues being larger than the overestimation of expenditure. For Mexico, both expenditure and revenues seem overestimated pre-GFC and underestimated post-GFC by a similar magnitude, resulting in quite accurate overall balance forecasts. Meanwhile, in Chile and Colombia, all forecasts improved significantly in the post-GFC period, while they seem backward-looking in Peru (and to a lesser extent, in Brazil). We offer preliminary evidence that the presence of budget balance rules may help contain the size of the fiscal forecast errors, but a proper assessment will require a larger sample of countries as fiscal rules do not change much over time.

A more formal test of forecast unbiasedness indicates that the fiscal balance forecasts are generally unbiased for our sample of countries, even though the forecasts for revenues and expenditure appear biased, thereby suggesting that the biases in the two components of the fiscal balance tend to offset each other. This could be due to an either explicit or implicit fiscal targeting, whereby the authorities aim to reach the fiscal balance target set at the budgetary stage: in this case, for example, the authorities would tend to offset, with expenditure adjustments, any deviation in actual revenues from forecasts (over time, as the year progresses). An interesting extension to our work could consider comparing authorities' fiscal forecasts against Consensus Forecast and investigate the possible fiscal (and macroeconomic) optimism or lack thereof across other forecasters.

The formal regression analysis helped shed light on key factors explaining the authorities' fiscal forecast errors. For instance, the fiscal balance forecast errors were found to be positively associated with negative surprises to GDP growth and ToT, and positively with GDP deflator surprises. In turn, we showed that this finding for the fiscal balance reflects the combination of: (i) the negative relationships between the forecast errors for expenditure and GDP growth and GDP deflator; and (ii) the positive relationships between revenue errors and those to GDP growth and ToT (albeit not significant), and the negative relationship of revenues with the GDP deflator (the latter being stronger than for expenditure). Moreover, the negative surprises to GDP growth were found to be associated with negative forecast errors for public debt-to-GDP, while the effect of GDP deflator and ToT are insignificant. It could be worthwhile for future studies to expand our analysis to employing forecast errors in nominal terms (rather than as ratios of GDP), which could help disentangle the dominator effect.

These findings imply that optimistic forecasts for growth or ToT changes drive optimistic forecasts for the fiscal balance-to-GDP ratio, both via optimistic or overestimated revenues ratios (too high) and underestimated expenditure ratios (too low).

In conclusion, it is important to underline the policy relevance of our analysis as well as point to some limitations. The analysis helps highlight the scope for improvement to the extent that the fiscal forecast errors are persistent and are strongly associated with the performance of macroeconomic forecasts. We offer mainly a positive analysis of the fiscal forecast gaps and do not solve the important issue of whether they change due to exogenous reasons or endogenous policy reactions. However, the analysis of the drivers of the forecast error gaps offers some hints about the exogenous component and policy response in line with the existing fiscal rules. For example, the Mexican case is perfectly consistent with a strong commitment to reaching the announced fiscal balance, so that any forecast error in revenues is then deliberately offset (i.e. via policy) by an adjustment in expenditure.

Further, it would be interesting to extend the current analysis to explore the possible repercussions of biased expenditure forecasts around election cycles (similar to Merola and Perez (2013)), or exploring possible asymmetric loss functions (comparable to Elliot et al. (2008)) by the fiscal authorities (e.g., larger losses in reputation due to the actual fiscal deficit exceeding what was forecasted in comparison to the actual resulting below the forecast), but such studies go beyond the scope of the current paper and are left for future research.

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Table A1. Dataset Example (Argentina)

Authorities' forecasts

Units	(million pesos)	%	(million pesos)	%	(million pesos)	%	(million dollars, ave. ex)	%	(million pesos)	%	% (change)	% (dec-dec)	pesos/dollar, average
	Fiscal balance	(% of GDP)	Expenditures	(% of GDP)	Revenues	(% of GDP)	Public Debt	(% of GDP)	nominal GDP	real GDP growth	GDP deflator	CPI Inflation	Exchange rate
2000	na	na	na	na	na	na	na	na	na	na	na	na	na
2001	na	na	na	na	na	na	na	na	na	na	na	na	na
2002	-2,868.40	-1.00	55,425.00	18.94	52,556.60	17.96	na	na	292,670.00	-4.90	14.00	14.00	na
2003	13,357.00	0.25	81,436.60	15.26	82,772.30	15.51	na	na	533,726.00	3.00	45.20	23.00	na
2004	32,387.00	0.78	83,257.50	19.97	86,496.20	20.75	na	na	416,865.00	4.00	9.00	10.50	2.84
2005	4,892.10	1.00	110,287.10	23.20	115,179.20	24.20	na	na	476,360.00	4.00	7.80	7.90	3.05
2006	8,188.20	1.38	132,314.40	22.28	140,902.60	23.65	na	na	593,974.00	4.00	8.70	8.60	2.97
2007	7,134.10	1.03	125,100.30	18.02	132,234.30	19.05	na	na	694,195.00	4.00	6.30	7.00	3.13
2008	8,330.70	0.93	177,209.00	19.76	185,539.70	20.69	na	na	896,730.00	4.00	10.20	7.30	3.21
2009	11,008.60	0.99	253,505.80	22.79	264,514.40	23.78	na	na	1,112,521.00	4.00	6.90	7.20	3.19
2010	431.90	0.03	296,760.40	23.73	297,192.30	23.76	na	na	1,250,783.00	2.50	8.80	6.60	3.95
2011	-8,429.20	-0.52	416,701.80	25.75	408,272.60	25.23	na	na	1,617,968.00	4.30	10.90	8.40	4.10
2012	4,208.20	0.20	547,074.60	26.24	551,282.80	26.44	na	na	2,085,281.00	5.10	12.00	9.40	4.40
2013	1,002.40	0.04	685,749.00	26.87	686,751.40	26.91	na	na	2,552,499.00	4.40	13.00	10.80	5.10
2014	3,540.10	0.11	927,624.20	28.60	931,164.30	28.70	na	na	3,243,974.00	6.20	15.80	9.90	6.33
2015	-49,562.40	-1.00	1,346,889.10	27.14	1,297,326.70	26.14	na	na	4,962,709.00	2.80	16.40	14.90	9.45
2016	-94,919.20	-1.46	1,705,792.10	26.19	1,610,872.90	24.74	na	na	6,511,959.00	3.00	17.60	10.40	10.60
2017	-482,099.10	-4.90	2,550,970.30	26.20	2,068,871.20	21.20	na	na	9,749,993.00	3.50	19.40	19.40	17.92
2018	-681,802.90	-5.50	2,982,023.60	24.10	2,300,220.70	18.60	na	na	12,363,404.00	3.50	16.20	10.00	19.30
2019	-596,064.80	-3.20	4,317,842.90	23.50	3,721,778.10	20.20	331,971.00	72.20	18,415,369.00	-0.50	34.20	23.00	40.10
Level	Sector Publico												
Source:	<a href="https://www.minhacienda.gob.ar/om/presupuestos/presupuestos">https://www.minhacienda.gob.ar/om/presupuestos/presupuestos</a>												

Outturns

Units	(million pesos)	%	(million pesos)	%	(million pesos)	%	(million dollars, ave. ex)	%	(million pesos)	%	% (change)	% (dec-dec)	pesos/dollar, average
	Fiscal balance	(% of GDP)	Expenditures	(% of GDP)	Revenues	(% of GDP)	Public Debt	(% of GDP)	nominal GDP	real GDP growth	GDP deflator	CPI Inflation	Exchange rate
2000	-6,701.60	-2.39	62,408.60	21.96	56,813.00	19.57	329,700.00	na	484,303.74	-0.70		-0.7	
2001	-8,719.10	-3.25	59,173.90	22.02	50,495.50	18.78	144,322.00	na	265,696.71	-5.41		-1.5	
2002	-4,549.30	-1.46	59,632.50	19.08	55,083.20	17.62	na	na	312,580.14	-10.89	29.99	40.9	3.40
2003	1,805.30	0.48	75,409.20	20.06	77,214.50	20.54	na	na	375,909.36	8.84	10.66	3.7	2.94
2004	11,657.80	2.40	93,448.20	19.26	105,106.00	21.67	192,294.00	118.10	485,115.19	9.03	9.33	6.1	2.94
2005	9,418.10	1.62	117,008.20	20.09	126,426.30	21.70	154,270.00	80.50	582,538.17	8.85	10.32	12.3	2.92
2006	11,623.00	1.62	146,898.10	20.52	158,521.10	22.14	165,111.00	70.60	715,904.27	8.05	13.74	9.8	3.07
2007	9,296.10	1.04	154,777.80	17.26	164,073.00	18.29	176,870.00	62.10	896,980.17	9.01	14.94	8.5	3.12
2008	14,654.80	1.27	204,479.60	17.79	219,134.40	19.06	179,133.00	53.80	1,149,646.09	4.06	23.17	7.2	3.16
2009	-7,131.10	-0.57	267,345.30	21.42	260,214.20	20.85	182,084.00	55.40	1,247,929.27	-5.92	15.38	7.7	3.73
2010	3,067.90	0.18	347,420.90	20.91	350,488.80	21.09	181,621.00	43.50	1,661,720.93	10.13	20.92	10.9	3.91
2011	-30,662.90	-1.41	465,906.10	21.36	434,843.20	19.96	197,154.00	38.90	2,179,024.10	6.00	23.70	9.5	4.13
2012	-55,563.40	-2.11	605,965.30	22.97	550,401.90	20.87	216,920.00	40.40	2,637,913.85	-1.03	22.31	10.8	4.55
2013	-64,477.40	-1.93	782,391.70	23.37	717,914.30	21.44	223,439.00	43.50	3,348,308.49	2.41	23.95	10.9	5.48
2014	-109,719.90	-2.40	1,132,939.00	24.74	1,023,219.10	22.35	239,326.00	44.70	4,579,086.43	-2.51	40.28	23.7	8.12
2015	-303,760.80	-5.10	1,507,155.90	25.31	1,203,395.10	20.21	240,665.00	52.60	5,954,510.90	2.73	26.58	18.5	9.27
2016	-474,785.50	-5.77	2,104,094.30	25.57	1,629,308.80	19.80	275,446.00	53.10	8,228,159.56	-2.08	41.12	33.1	14.72
2017	-629,049.50	-5.90	2,627,132.00	24.64	1,998,082.50	18.74	320,935.00	56.60	10,660,228.49	2.82	26.01	24.8	16.57
2018	-727,927.30	-5.01	3,328,486.90	22.89	2,600,559.60	17.88	332,192.00	86.00	14,542,722.15	-2.57	40.01	47.6	28.09
2019	-819,406.90	-3.82	4,756,480.40	22.18	3,937,073.50	18.36	na	na	21,447,249.86	-2.09	50.62	53.8	48.24
Level	Sector Publico												
Source:	<a href="https://www.minhacienda.gob.ar/om/ejecucion/2019">https://www.minhacienda.gob.ar/om/ejecucion/2019</a>												

Legend

Official budget report
Calculation / Transformation
Special definition
Taken from a graph (visually)
Not available
Official national source

Table A2. Dataset Example (Brazil)

Authorities' forecasts

Units	(million R)		(million R)		(million R)		(million R)		(million R)		real GDP growth	% (change) GDP deflator	% (dec-dec) CPI inflation	(R/dollar. average) Exchange rate
	Fiscal balance	% (% of GDP)	Expenditures	% (% of GDP)	Revenues	% (% of GDP)	Public Debt	% (% of GDP)	nominal GDP					
2000	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2001	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2002	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2003	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2004	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2005	45,300.00	2.45	412,000.00	22.28	457,400.00	24.73	na	na	1,849,383.76	4.00	na	na	4.50	3.16
2006	49,100.00	2.30	474,100.00	22.19	523,300.00	24.48	na	na	2,137,105.70	4.50	10.58	na	4.50	2.71
2007	49,721.00	2.16	553,689.60	24.08	603,410.60	26.24	1,142,834.60	49.70	2,299,466.00	4.75	26.24	na	4.46	2.30
2008	51,129.60	1.86	631,593.00	23.01	682,722.70	24.87	1,150,083.77	41.90	2,744,830.00	5.00	3.70	na	4.00	1.98
2009	57,957.90	1.82	750,926.40	23.56	808,888.40	25.38	1,252,351.49	39.30	3,186,645.00	4.50	5.77	na	4.50	1.71
2010	51,220.1	1.54	802,386.00	24.12	853,606.10	25.66	1,267,406.03	38.10	3,326,525.00	4.51	4.46	na	4.33	2.01
2011	53,748.10	1.38	913,878.00	23.48	967,626.10	24.86	1,428,538.69	36.70	3,892,476.00	5.50	4.69	na	4.50	1.84
2012	78,112.5	1.72	1,019,228.30	22.46	1,097,340.80	24.18	1,656,179.11	36.50	4,597,477.00	5.00	5.16	na	4.80	1.64
2013	87,173.50	1.80	1,142,328.20	23.00	1,229,512.70	24.70	1,591,554.24	32.00	4,973,607.00	4.50	6.16	na	4.50	2.05
2014	60,396.90	1.20	1,254,957.80	24.00	1,315,353.70	25.10	1,777,347.61	33.90	5,242,913.00	4.00	5.62	na	5.00	2.19
2015	86,232.50	1.50	1,379,591.90	24.00	1,465,824.50	25.50	1,898,894.09	32.90	5,756,517.00	3.00	6.28	na	5.00	2.45
2016	-27,430.70	-0.44	1,429,255.40	22.86	1,401,824.70	22.42	2,438,739.42	39.00	6,253,178.00	0.20	7.22	na	5.40	3.39
2017	-139,567.2	-2.05	1,549,202.70	22.71	1,409,635.50	20.66	3,342,720.71	49.00	6,821,879.00	1.60	7.40	na	4.80	3.40
2018	-113,901.20	-1.60	1,551,024.60	21.73	1,437,123.40	20.13	3,897,286.85	54.60	7,137,888.00	2.00	5.40	na	4.20	3.38
2019	-139,000.00	-1.90	1,713,860.90	23.00	1,574,860.90	21.20	4,365,370.49	58.70	7,436,747.00	2.50	4.70	na	4.20	3.62
Level	Governor Central													
Source:	<a href="https://www.gov.br/economia/pt-br/assuntos/planejamento/orcamento/orcamento-os-aneis">https://www.gov.br/economia/pt-br/assuntos/planejamento/orcamento/orcamento-os-aneis</a>													

Outturns

Units	(million R)		(million R)		(million R)		(million R)		(million R)		real GDP growth	% (change) GDP deflator	% (dec-dec) CPI inflation	(R/dollar. average) Exchange rate
	Fiscal balance	% (% of GDP)	Expenditures	% (% of GDP)	Revenues	% (% of GDP)	Public Debt	% (% of GDP)	nominal GDP					
2000	na	na	na	na	na	na	na	na	1,199,092.07	na	5.61	5.97	1.33	
2001	na	na	na	na	na	na	na	na	1,315,753.47	na	8.23	7.67	2.33	
2002	na	na	na	na	na	na	na	na	1,488,787.26	na	9.8	12.53	2.93	
2003	na	na	na	na	na	na	na	na	1,717,950.40	na	14.09	9.90	3.07	
2004	na	na	na	na	na	na	na	na	1,857,931.31	na	7.76	7.60	2.63	
2005	43,394.50	2.24	447,432.30	23.09	490,736.80	25.33	1,117,851.02	51.90	2,170,584.50	3.20	7.43	5.69	2.43	
2006	44,031.20	1.90	501,383.40	21.58	545,414.50	23.48	1,081,843.01	44.90	2,409,449.92	3.70	6.77	3.14	2.18	
2007	45,669.90	1.78	574,687.50	22.46	620,357.30	24.24	1,213,237.27	44.60	2,720,262.94	5.42	6.44	4.46	1.95	
2008	67,501.60	2.34	649,940.60	22.49	717,442.20	24.83	1,169,285.96	37.60	3,109,803.09	5.08	8.78	5.90	1.83	
2009	9,738.20	0.31	730,889.60	23.25	740,627.80	23.56	1,363,213.10	40.90	3,333,039.36	-0.20	7.31	4.31	2.00	
2010	99,726.50	2.71	821,328.50	22.34	921,054.90	25.06	1,476,621.86	38.00	3,885,847.00	7.30	8.42	5.90	1.76	
2011	75,544.30	1.80	915,493.80	22.10	991,037.90	23.90	1,509,851.79	34.50	4,376,382.00	2.70	8.32	6.50	1.67	
2012	35,777.20	0.80	1,024,467.80	23.30	1,060,245.00	24.10	1,550,352.72	32.20	4,814,760.00	0.90	7.94	5.80	2.00	
2013	28,341.50	0.60	1,150,646.30	24.10	1,178,987.70	24.70	1,626,143.80	30.50	5,331,619.00	2.50	7.50	5.90	2.20	
2014	-35,988.10	-0.65	1,257,453.70	22.78	1,221,465.60	22.12	1,883,938.68	32.60	5,778,953.00	0.10	7.85	6.41	2.35	
2015	-91,086.80	-1.54	1,339,731.20	22.69	1,248,644.30	21.15	2,134,500.17	35.60	5,995,787.00	-3.85	7.57	10.67	3.33	
2016	-135,331.30	-2.18	1,450,284.10	23.31	1,314,952.90	21.14	2,896,429.54	46.20	6,269,328.00	-3.60	8.10	6.30	3.50	
2017	-124,400.90	-1.90	1,507,482.60	23.00	1,383,081.60	21.1	3,396,992.60	51.60	6,583,319.00	1.00	3.64	2.90	3.20	
2018	-120,221.30	-1.70	1,608,480.40	23.40	1,484,238.10	21.60	3,727,044.26	54.10	6,889,176.08	1.10	3.29	3.70	3.70	
2019														
Level	Governor Central													
Source:	<a href="https://www.gov.br/economia/pt-br/assuntos/planejamento/orcamento/orcamentos-aneis">https://www.gov.br/economia/pt-br/assuntos/planejamento/orcamento/orcamentos-aneis</a>													

Legend

Official budget report
Calculation / Transformation
Special definition
Taken from a graph (visually)
Not available
Official national source

Table A3. Dataset Example (Chile)

Authorities' forecasts

Units	(million pesos)		(million pesos)		(million pesos)		(million pesos)		(million pesos)		(million pesos)		%		%		%		%	
	Fiscal balance	% of GDP	Expenditures	% of GDP	Revenues	% of GDP	Public Debt	% of GDP	nominal GDP	real GDP growth	GDP deflator	CPI Inflation	Exchange rate	% (change)	% (average)	pesos/dollar average				
2000	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2001	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2002	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2003	327,229.00	-0.70	11,373,869.00	23.60	11,046,639.00	22.90	na	na	48,216,479.21	4.00	na	3.40	711.50	na	na	na	na	na	na	na
2004	-432,031.00	-0.80	11,916,579.00	22.40	11,484,548.00	21.60	na	na	53,184,108.55	4.40	5.65	2.40	660.00	na	na	na	na	na	na	na
2005	739,401.00	1.20	12,371,724.00	20.50	13,111,123.00	21.80	6,627,095.16	11.00	60,246,319.61	5.20	7.68	2.50	625.00	na	na	na	na	na	na	na
2006	1,568,127.00	2.30	13,866,971.00	20.60	15,435,098.00	22.90	5,388,702.72	8.00	67,358,783.94	5.50	5.98	3.00	540.00	na	na	na	na	na	na	na
2007	3,715,730.00	4.40	15,618,443.00	18.70	19,334,173.00	23.10	4,514,907.71	5.40	83,609,402.09	5.70	17.43	3.50	555.00	na	na	na	na	na	na	na
2008	4,239,816.00	4.80	17,730,150.00	18.50	21,969,965.00	23.30	3,897,672.05	4.10	95,065,171.96	5.30	7.98	4.20	532.00	na	na	na	na	na	na	na
2009	3,599,763.00	3.70	20,673,642.00	21.40	24,273,405.00	25.10	4,156,220.83	4.30	96,656,298.28	4.00	-2.24	4.50	538.00	na	na	na	na	na	na	na
2010	-1,030,692.00	-1.10	23,381,081.00	24.50	22,350,388.00	23.40	8,306,214.61	8.70	95,473,731.15	5.00	-5.93	2.80	560.10	na	na	na	na	na	na	na
2011	-923,834.00	-0.80	26,693,480.00	23.00	25,769,646.00	22.20	12,152,429.28	10.47	116,069,047.59	6.10	14.58	3.30	500.00	na	na	na	na	na	na	na
2012	-510,875.00	-0.40	28,388,389.00	22.70	27,877,514.00	22.30	15,416,445.12	12.33	125,035,127.96	5.00	2.60	2.80	472.00	na	na	na	na	na	na	na
2013	999,346.00	-0.70	30,631,555.00	22.30	29,632,209.00	21.60	18,629,264.00	13.57	137,273,692.98	4.80	4.76	2.90	496.00	na	na	na	na	na	na	na
2014	-1,399,763.00	-0.90	32,240,551.00	21.30	30,840,787.00	20.40	21,580,002.00	14.27	151,272,208.82	4.90	5.05	3.00	522.00	na	na	na	na	na	na	na
2015	-3,034,215.00	-1.90	36,391,119.00	23.30	33,356,904.00	21.30	27,313,065.00	17.46	156,395,121.59	3.60	-0.21	3.00	585.00	na	na	na	na	na	na	na
2016	-5,418,239.00	-3.20	40,277,024.00	24.10	34,858,785.00	20.90	36,753,500.00	22.01	166,956,512.94	2.75	3.90	3.80	700.00	na	na	na	na	na	na	na
2017	-5,684,420.00	-3.30	42,212,891.00	24.30	36,528,470.00	21.00	45,284,400.00	26.05	173,830,348.03	2.25	1.83	3.00	700.00	na	na	na	na	na	na	na
2018	-3,721,956.00	-1.90	45,198,536.00	23.60	41,476,580.00	21.70	48,760,400.00	25.49	191,327,766.85	3.00	6.86	3.00	650.00	na	na	na	na	na	na	na
2019	-3,588,521.00	-1.70	47,742,991.00	22.90	44,154,469.00	21.20	na	na	208,380,237.01	3.80	4.93	3.00	650.00	na	na	na	na	na	na	na
Level	Gobierno Central Total																			
Source:	<a href="http://www.dipres.gob.cl/598/w3-propertyvalue-2129.html">http://www.dipres.gob.cl/598/w3-propertyvalue-2129.html</a>																			

Outturns

Units	(million pesos)		(million pesos)		(million pesos)		(million dollars)		(million pesos)		%		%		%		%		%	
	Fiscal balance	% of GDP	Expenditures	% of GDP	Revenues	% of GDP	Public Debt	% of GDP	nominal GDP	real GDP growth	GDP deflator	CPI Inflation	Exchange rate	% (change)	% (average)	pesos/dollar average				
2000	807,984.00	0.64	8,863,459.00	21.40	8,598,477.00	20.47	3,877.00	13.20	43,000,194.20	4.33	3.43	3.43	538.87	na	na	na	na	na	na	na
2001	432,747.00	0.52	9,795,943.00	21.54	9,472,196.00	21.02	3,928.90	14.50	45,067,992.92	3.30	3.57	3.57	634.43	na	na	na	na	na	na	na
2002	474,825.00	1.20	10,394,499.00	21.52	9,779,674.00	20.36	40,228.10	15.20	48,044,078.87	3.11	2.48	2.48	689.43	na	na	na	na	na	na	na
2003	-230,468.00	-0.44	10,804,507.00	20.66	10,574,039.00	20.22	11,095.40	12.70	52,299,888.13	4.09	4.58	2.83	691.54	na	na	na	na	na	na	na
2004	1,244,468.00	2.06	11,605,137.00	19.19	12,849,605.00	21.25	11,126.30	10.30	60,471,710.76	7.21	7.85	1.07	609.55	na	na	na	na	na	na	na
2005	3,021,744.00	4.39	12,751,889.00	18.53	15,773,633.00	22.92	9,373.40	7.00	68,831,705.43	5.74	7.64	3.05	559.86	na	na	na	na	na	na	na
2006	5,998,216.07	7.31	14,070,952.10	17.14	20,069,168.17	24.45	7,666.40	5.00	82,080,219.85	6.32	12.16	3.40	530.26	na	na	na	na	na	na	na
2007	7,051,177.16	7.77	16,059,187.84	17.71	23,110,365.00	25.48	7,094.00	3.90	90,702,903.28	4.91	5.34	4.39	522.69	na	na	na	na	na	na	na
2008	3,647,023.09	3.89	19,087,190.91	20.34	22,734,214.00	24.22	7,335.00	4.90	93,854,108.40	3.53	-0.05	8.73	521.79	na	na	na	na	na	na	na
2009	-4,196,869.09	-4.34	22,565,747.09	23.34	18,368,878.00	19.00	11,095.80	5.80	96,686,356.86	-1.56	4.65	-1.40	559.67	na	na	na	na	na	na	na
2010	-503,448.45	-0.45	24,410,920.95	21.89	23,907,472.49	21.44	20,357.90	8.60	111,508,610.68	5.84	8.96	3.00	510.38	na	na	na	na	na	na	na
2011	1,559,424.32	1.28	26,002,667.47	21.31	27,562,091.79	22.59	25,927.60	11.10	122,006,090.35	6.11	3.11	3.34	483.36	na	na	na	na	na	na	na
2012	727,667.16	0.56	28,042,490.91	21.58	28,770,158.07	22.14	32,422.90	11.90	129,947,342.30	5.32	1.13	3.01	486.75	na	na	na	na	na	na	na
2013	-823,739.67	-0.60	29,704,285.61	21.54	28,880,545.94	20.95	33,514.80	12.70	137,876,215.77	4.05	1.98	1.79	495.00	na	na	na	na	na	na	na
2014	-2,410,946.23	-1.62	33,015,427.15	22.22	30,604,480.92	20.60	36,586.50	15.00	148,599,453.87	1.77	5.91	4.38	570.01	na	na	na	na	na	na	na
2015	-3,410,578.36	-2.14	37,001,366.15	23.19	33,590,787.80	21.05	38,963.10	17.30	159,553,348.31	2.30	4.95	4.34	654.25	na	na	na	na	na	na	na
2016	-4,596,868.62	-2.71	39,842,575.98	23.50	35,245,707.37	20.79	53,365.40	21.00	169,537,387.72	1.71	4.47	3.79	676.83	na	na	na	na	na	na	na
2017	-4,947,378.74	-2.75	42,643,353.81	23.72	37,695,975.07	20.97	68,936.20	23.60	179,756,125.80	1.19	4.78	2.20	649.33	na	na	na	na	na	na	na
2018	-3,153,337.55	-1.65	45,184,687.34	23.62	42,031,349.80	21.98	70,247.50	25.60	191,265,952.07	3.95	2.36	2.43	640.29	na	na	na	na	na	na	na
2019	-5,621,103.31	-2.83	48,152,605.58	24.27	42,531,502.27	21.43	74,391.20	27.90	198,440,706.83	1.05	2.67	2.24	702.63	na	na	na	na	na	na	na
Level	Gobierno Central Total																			
Source:	<a href="http://www.dipres.gob.cl/598/w3-propertyvalue-15494.html">http://www.dipres.gob.cl/598/w3-propertyvalue-15494.html</a>																			

Legend

Official budget report
Calculation / Transformation
Special definition
Taken from a graph (visually)
Not available
Official national source



### Table A4. Dataset Example (Colombia)

#### Authorities' forecasts

Units	(billion pesos)	%	(billion pesos)	%	(billion pesos)	%	(billion pesos)	%	(billion pesos)	%	(billion pesos)	%	% (change)	% (dec-dec)	(TRM, average)
	Fiscal balance	(% of GDP)	Expenditures	(% of GDP)	Revenues	(% of GDP)	Public Debt	(% of GDP)	nominal GDP	real GDP growth	GDP deflator	CPI Inflation	Exchange rate		
2000	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2001	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2002	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2003	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
2004	-13,699.00	-5.60	53,294.00	21.70	39,595.00	16.10	na	na	245,813.00	4.00	na	5.50	2,705.10		
2005	-17,041.00	-6.10	60,892.00	21.90	43,851.00	15.70	na	na	278,675.70	4.00	9.01	5.00	2,358.27		
2006	-15,389.00	-5.00	69,076.00	22.20	53,687.00	17.30	na	na	283,848.00	4.80	-2.81	4.50	2,420.76		
2007	-11,679.00	-3.30	76,270.00	21.70	64,591.00	18.40	140,502.54	40.00	351,256.35	5.00	17.86	2.50	2,101.34		
2008	-12,297.00	-3.10	86,986.00	21.80	74,689.00	18.70	149,704.64	37.50	399,212.38	5.00	8.24	4.00	1,904.15		
2009	-18,799.00	-3.70	99,436.00	19.80	80,637.00	16.10	172,525.11	34.40	501,526.48	1.00	24.39	5.00	2,322.21		
2010	-23,250.00	-4.40	97,556.00	18.30	74,306.00	13.90	206,060.01	38.60	533,834.22	3.00	3.34	3.00	1,939.89		
2011	-23,994.00	-4.00	110,670.00	18.40	86,676.00	14.40	226,236.20	37.60	601,692.03	5.00	7.34	3.00	1,898.42		
2012	-15,977.00	-2.40	123,579.00	18.60	107,602.00	16.20	233,171.60	35.10	664,306.55	4.80	5.35	3.00	1,799.59		
2013	-17,051.00	-2.40	136,966.00	19.10	119,915.00	16.80	240,387.71	33.60	715,439.62	4.50	3.06	3.00	1,850.55		
2014	-18,462.00	-2.40	148,435.00	19.50	129,973.00	17.00	272,346.77	35.70	762,876.09	4.70	1.84	3.00	1,929.93		
2015	-23,881.00	-3.00	155,197.00	19.20	131,316.00	16.30	284,859.94	35.30	806,968.67	3.60	2.10	3.00	2,480.70		
2016	-33,319.00	-3.90	161,080.00	19.00	127,761.00	15.00	350,952.84	41.30	849,764.74	3.00	2.24	6.50	3,150.00		
2017	-33,442.00	-3.60	174,143.00	19.00	140,701.00	15.30	402,118.27	43.80	918,078.24	2.30	5.61	4.10	2,977.00		
2018	-30,354.00	-3.10	180,595.00	18.10	150,241.00	15.10	424,452.76	42.60	996,367.97	2.70	5.67	3.30	2,874.00		
2019	-24,935.00	-2.40	197,505.00	19.00	172,570.00	16.60	521,848.66	50.20	1,039,539.16	3.60	0.71	3.20	3,171.00		

Level: **Gobierno Nacional Central**  
Source: [https://www.minhacienda.gov.co/webcenter/portal/EntidadesFinancieras/pages\\_EntidadesFinancieras/PoliticaFiscal/MarcoFiscalMedianoPlazo/marcofiscalmedianoplazo2020](https://www.minhacienda.gov.co/webcenter/portal/EntidadesFinancieras/pages_EntidadesFinancieras/PoliticaFiscal/MarcoFiscalMedianoPlazo/marcofiscalmedianoplazo2020)

#### Outturns

Units	(billion pesos)	%	(billion pesos)	%	(billion pesos)	%	(billion pesos)	%	(billion pesos)	%	% (change)	% (dec-dec)	(TRM, average)
	Fiscal balance	(% of GDP)	Expenditures	(% of GDP)	Revenues	(% of GDP)	Public Debt	(% of GDP)	nominal GDP	real GDP growth	GDP deflator	CPI Inflation	Exchange rate
2000	na	na	na	na	na	na	na	na	na	na	na	na	na
2001	na	na	na	na	na	na	na	na	na	na	na	na	na
2002	na	na	na	na	na	na	na	na	na	na	na	na	na
2003	na	na	na	na	na	na	na	na	na	na	na	na	na
2004	-12,351.00	-5.40	46,997.00	20.90	74,445.00	15.40	na	na	223,668.83	na	na	na	na
2005	-13,983.00	-5.50	53,934.00	21.10	39,952.00	15.60	105,514.26	41.20	256,102.56	5.33	8.70	5.50	2,614.80
2006	-13,730.00	-4.80	59,606.00	21.00	45,876.00	16.20	136,197.07	40.30	337,958.00	4.71	26.09	4.84	2,319.26
2007	-13,094.00	-4.10	69,441.00	21.70	56,347.00	17.60	146,154.33	38.30	381,604.00	6.72	5.81	4.48	2,363.75
2008	-11,613.00	-3.20	76,318.00	21.40	64,705.00	18.10	153,405.15	35.80	428,506.00	6.74	5.20	5.69	2,076.57
2009	-11,067.00	-2.30	86,131.00	18.10	75,064.00	15.70	169,176.67	35.50	476,554.00	3.28	7.68	1,989.35	
2010	-20,715.00	-4.20	97,871.00	19.70	77,156.00	15.50	183,576.08	36.60	501,574.00	1.14	4.06	2.01	2,180.19
2011	-20,171.00	-3.70	95,128.00	17.40	74,957.00	13.70	202,390.32	37.20	544,060.00	4.49	3.80	3.16	1,902.50
2012	-17,507.00	-2.80	111,754.00	18.10	94,247.00	15.30	215,420.00	34.80	619,023.00	6.95	6.39	3.73	1,854.02
2013	-15,440.00	-2.30	122,507.00	18.40	107,067.00	16.10	223,946.35	33.60	666,507.00	3.91	3.62	2.44	1,798.73
2014	-16,645.00	-2.36	136,390.00	19.30	119,744.00	16.94	247,076.18	34.60	714,093.00	5.13	1.91	1.93	1,879.53
2015	-18,356.00	-2.40	144,260.00	19.10	125,904.00	16.70	283,037.01	37.10	762,903.00	4.50	2.24	3.66	2,017.85
2016	-24,269.00	-3.00	153,590.00	19.20	129,321.00	16.10	338,775.33	42.10	804,692.00	2.96	2.45	6.77	2,771.55
2017	-34,925.00	-4.00	163,293.00	18.90	128,367.00	14.90	375,745.17	43.50	863,782.00	2.09	5.15	5.75	3,040.09
2018	-33,636.00	-3.60	174,519.00	18.90	144,062.00	15.60	409,609.60	44.50	920,471.00	1.36	5.13	4.09	2,957.52
2019	-30,316.00	-3.10	179,608.00	18.40	149,292.00	15.30	473,246.88	48.00	985,931.00	2.52	4.48	3.18	2,972.04
2019	na	na	na	na	na	na	na	na	1,062,342.50	3.32	4.29	3.80	3,299.77

Level: **Gobierno Nacional Central**  
Source: [https://www.minhacienda.gov.co/webcenter/portal/EntidadesFinancieras/pages\\_EntidadesFinancieras/PoliticaFiscal/bgg/balancesfiscalobienocentral](https://www.minhacienda.gov.co/webcenter/portal/EntidadesFinancieras/pages_EntidadesFinancieras/PoliticaFiscal/bgg/balancesfiscalobienocentral) Banco Central de Colombia Banco Central de Colombia Banco Central de Colombia

#### Legend

	Official budget report
	Calculation / Transformation
	Special definition
	Taken from a graph (visually)
	Not available
	Official national source

Table A5. Dataset Example (Mexico)

Authorities' forecasts

Units	(millions pesos)		(million pesos)		(million pesos)		thousand million pesos		thousand million pesos		% (change)	% (dec-dec)	pesos/dollar, average
	Fiscal balance	% (% of GDP)	Expenditures	% (% of GDP)	Revenues	% (% of GDP)	Public Debt	% (% of GDP)	nominal GDP	real GDP growth			
2000	-52,502.00	-1.00	1,169,443.40	22.33	1,116,827.10	21.32	na	na	5,237.70	4.50	10.40	10.00	10.40
2001	-30,739.50	-0.50	1,321,202.40	21.54	1,289,427.10	21.02	na	na	6,133.10	4.50	6.80	6.50	10.10
2002	-40,194.10	-0.65	1,392,378.00	22.52	1,352,183.90	21.87	2,733.20	44.20	6,183.70	1.70	5.60	4.50	10.10
2003	32,867.50	-0.50	1,481,759.10	22.54	1,448,891.60	22.04	na	na	6,573.50	3.00	3.70	3.00	10.10
2004	24,093.00	-0.30	1,618,655.40	22.8	1,594,562.40	22.5	3,188.79	45.00	7,086.20	3.10	4.20	3.00	11.20
2005	-11,108.00	-0.10	1,724,370.60	21.7	1,713,262.60	21.6	3,411.79	43.00	7,954.40	3.80	4.00	3.00	11.60
2006	17,607.20	0.20	1,861,200.40	21.1	1,878,807.50	21.3	3,433.40	39.00	8,803.60	3.60	3.40	3.00	11.40
2007	0.00	0.00	2,214,374.70	22.6	2,214,374.70	22.6	3,619.04	35.90	9,807.70	3.60	3.50	3.00	11.20
2008	0.00	0.00	2,392,917.60	22.8	2,392,917.60	22.8	3,760.61	35.80	10,504.50	3.50	3.50	3.00	11.30
2009	0.00	0.00	2,820,697.00	21.5	2,820,697.00	21.5	3,993.64	30.50	13,093.90	3.00	4.80	3.80	10.60
2010	-323,369.90	-2.50	3,146,359.90	24.6	2,822,990.00	22.1	4,848.62	37.90	12,793.20	3.00	4.80	3.30	13.80
2011	-328,514.00	-2.30	3,351,305.90	23.7	3,022,791.30	21.4	5,175.46	36.60	14,140.60	3.80	4.00	3.00	12.90
2012	-337,944.50	-2.20	3,619,920.70	23.9	3,281,976.20	21.6	5,520.02	36.40	15,164.90	3.50	3.50	3.00	12.20
2013	-326,323.70	-2.00	3,902,323.60	23.3	3,575,999.90	21.4	6,184.77	37.00	16,715.60	3.50	3.50	3.00	12.90
2014	-620,415.20	-3.50	4,449,891.40	25.3	3,829,476.20	21.8	7,124.68	40.50	17,591.80	3.90	3.80	3.00	12.60
2015	-641,510.00	-3.50	4,645,152.10	25.4	4,003,642.10	21.9	7,931.52	43.30	18,317.60	3.70	3.40	3.00	13.00
2016	-577,192.00	-3.00	4,714,897.10	24.5	4,137,705.00	21.5	9,186.97	47.80	19,219.60	3.10	3.00	3.00	15.90
2017	-494,872.50	-2.40	4,804,406.10	23.7	4,309,533.60	21.2	10,190.75	50.20	20,300.30	2.50	3.30	3.00	18.20
2018	-466,684.50	-2.00	5,201,684.60	22.8	4,735,000.10	20.7	10,799.49	47.30	22,831.90	2.50	4.80	3.00	18.10
2019	-503,841.30	-2.00	5,778,261.60	23.2	5,274,420.30	21.1	11,298.77	45.30	24,942.10	2.00	3.90	3.40	20.00
Level	Sector Publico												

Source: [https://www.finanzaspublicas.hacienda.gob.mx/es/Finanzas\\_Publicas/Paquete\\_Economico\\_y\\_Presupuesto](https://www.finanzaspublicas.hacienda.gob.mx/es/Finanzas_Publicas/Paquete_Economico_y_Presupuesto)

Outturns

Units	(millions pesos)		(million pesos)		(million pesos)		thousand million pesos		thousand million pesos		% (change)	% (dec-dec)	pesos/dollar, average
	Fiscal balance	% (% of GDP)	Expenditures	% (% of GDP)	Revenues	% (% of GDP)	Public Debt	% (% of GDP)	nominal GDP	real GDP growth			
2000	-75,883.21	-1.10	1,559,055.09	22.60	1,483,171.88	21.50	211,093.30	30.60	6,898.47	4.94	11.18	9.00	9.44
2001	-49,762.93	-0.70	1,606,631.77	22.60	1,556,868.84	21.90	219,667.79	30.90	7,108.99	-0.40	6.06	4.40	9.33
2002	-38,492.63	-0.50	1,578,197.71	20.50	1,539,705.09	20.00	255,591.04	33.20	7,698.53	0.70	5.47	5.70	9.66
2003	-32,310.73	-0.40	1,744,779.45	21.60	1,712,468.72	21.20	281,103.36	34.80	8,077.68	1.40	4.07	4.00	10.78
2004	-9,240.20	-0.10	1,921,960.86	20.80	1,912,720.66	20.70	298,458.34	32.30	9,240.20	4.00	7.93	5.20	11.28
2005	0.00	0.00	2,103,964.24	21.10	2,103,964.24	21.10	310,110.37	31.10	9,971.39	3.20	5.88	3.30	10.89
2006	21,924.45	0.20	2,367,841.02	21.60	2,389,765.47	21.80	323,385.69	29.50	10,962.23	5.10	6.39	4.10	10.90
2007	0.00	0.00	2,634,992.89	21.80	2,634,992.89	21.80	348,109.15	28.80	12,087.12	3.30	5.78	3.80	10.93
2008	-12,427.48	-0.10	2,908,030.96	23.40	2,895,603.48	23.30	408,864.18	32.90	12,427.48	1.20	6.19	6.50	11.15
2009	-282,829.73	-2.20	3,278,253.65	25.50	2,995,423.92	23.30	462,812.28	36.00	12,855.90	-4.70	3.94	3.60	13.50
2010	-393,511.05	-2.80	3,527,545.50	25.10	3,134,034.45	22.30	505,942.78	36.00	14,053.97	5.10	4.55	4.40	12.63
2011	-393,378.52	-2.50	3,933,785.16	25.00	3,540,406.64	22.50	585,347.23	37.20	15,735.14	4.00	5.81	3.80	12.43
2012	-409,405.75	-2.50	4,061,305.03	24.80	3,635,523.05	22.20	609,195.75	37.20	16,376.23	3.60	5.12	3.57	13.15
2013	-389,589.64	-2.30	4,353,240.72	25.70	3,946,712.40	23.30	677,547.19	40.00	16,938.68	1.40	1.53	3.97	12.69
2014	-566,619.36	-3.10	4,734,013.37	25.90	4,167,394.01	22.80	778,644.67	42.60	18,278.04	2.80	4.43	4.08	13.24
2015	-656,793.30	-3.40	5,099,806.79	26.40	4,443,013.49	23.00	898,261.42	46.50	19,317.45	3.30	2.83	2.13	15.78
2016	-534,819.18	-2.50	5,690,476.12	26.60	5,155,656.93	24.10	1,041,827.77	48.70	21,392.77	2.90	5.58	3.36	18.68
2017	-251,782.04	-1.10	5,401,869.28	23.60	5,172,976.51	22.60	1,048,328.87	45.80	22,889.28	2.10	6.75	6.77	18.90
2018									24,319.71	2.20	4.94	4.83	19.16
2019									24,670.63	-0.30	3.36	2.83	19.24
Level	Sector Publico												

Source: [https://www.finanzaspublicas.hacienda.gob.mx/es/Finanzas\\_Publicas/Paquete\\_Economico\\_y\\_Presupuesto](https://www.finanzaspublicas.hacienda.gob.mx/es/Finanzas_Publicas/Paquete_Economico_y_Presupuesto)

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Table A6. Dataset Example (Peru)

Authorities' forecasts

Units	(million soles)	%	(million soles)	%	(million soles)	%	(million soles)	%	thousand million soles	%	% (change)	% (dec-dec)	(soles/dollar. average)
	Fiscal balance	(% of GDP)	Expenditures	(% of GDP)	Revenues	(% of GDP)	Public Debt	(% of GDP)	nominal GDP	real GDP growth	GDP deflator	CPI Inflation	Exchange rate
2000	na	na	na	na	na	na	na	na	na	na	na	na	na
2001	-3,005.00	-1.50	33,925.00	16.70	30,918.00	15.20	na	na	203.30	3.00	na	3.00	3.58
2002	-4,647.00	-2.20	35,820.00	17.20	31,173.00	14.90	na	na	208.50	5.50	-2.79	2.00	3.65
2003	-4,194.00	-2.00	35,889.00	16.90	31,694.00	15.00	94,039.30	44.40	211.80	4.00	-2.32	2.50	3.56
2004	-3,472.00	-1.50	43,162.00	19.10	39,690.00	17.60	101,565.00	45.00	225.70	4.00	2.46	2.50	3.56
2005	-2,539.00	-1.00	47,249.00	19.00	44,710.00	18.00	104,782.60	42.20	248.30	4.50	5.28	2.50	3.48
2006	-3,066.00	-1.10	52,769.00	19.50	49,704.00	18.40	100,355.50	37.10	270.50	5.00	3.75	2.50	3.28
2007	-2,359.00	-0.70	62,319.00	19.20	59,960.00	18.40	101,168.30	31.10	325.30	5.50	13.99	2.50	3.29
2008	900.00	0.20	68,745.00	19.10	69,645.00	19.30	97,362.00	27.00	360.60	6.50	4.09	2.00	3.16
2009	10,682.00	2.50	74,144.00	17.10	84,826.00	19.50	91,413.00	21.00	435.30	7.00	12.82	3.50	2.87
2010	-6,436.00	-1.50	85,184.00	20.40	78,748.00	18.90	104,125.00	25.00	416.50	5.00	-8.88	2.00	2.95
2011	-4,070.00	-0.90	94,383.00	21.00	90,313.00	20.10	101,745.20	22.60	450.20	5.00	2.94	2.00	2.80
2012	5,615.00	1.10	102,182.00	19.70	107,797.00	20.70	108,990.00	21.00	519.00	6.00	8.76	2.00	2.75
2013	7,980.00	1.40	116,563.00	20.30	124,543.00	21.70	104,338.00	18.20	574.00	6.00	4.34	2.00	2.64
2014	1,469.00	0.20	127,315.00	21.20	128,785.00	21.30	108,655.00	18.00	604.00	6.05	-0.78	2.00	2.72
2015	-955.00	-0.10	141,502.00	22.60	140,567.00	22.40	120,062.00	19.10	628.00	6.00	-1.91	2.00	2.90
2016	-19,309.00	-3.00	150,129.00	23.30	130,820.00	20.30	159,606.00	24.80	644.00	4.30	-1.68	2.90	3.30
2017	-16,637.00	-2.30	153,853.00	21.70	137,216.00	19.40	184,127.00	26.00	708.00	4.80	4.90	2.80	3.48
2018	-24,243.00	-3.20	163,994.00	22.00	139,750.00	18.70	208,076.00	27.80	748.00	4.00	1.59	2.80	3.35
2019	-19,543.00	-2.40	175,958.00	21.70	156,414.00	19.30	222,505.00	27.50	810.00	4.20	3.92	2.50	3.35
Level: <b>General Government</b>													
Source: <a href="https://www.mef.gob.pe/es/marco-macroeconomico/marco-macroeconomico-multianualimm">https://www.mef.gob.pe/es/marco-macroeconomico/marco-macroeconomico-multianualimm</a>													

Outturns

Units	(million soles)	%	(million soles)	%	(million soles)	%	Total (million soles)	%	thousand million soles	%	% (change)	% (dec-dec)	(soles/dollar. average)
	Fiscal balance	(% of GDP)	Expenditures	(% of GDP)	Revenues	(% of GDP)	Public Debt	(% of GDP)	nominal GDP	real GDP growth	GDP deflator	CPI Inflation	Exchange rate
2000	-4,804.00	-2.50	34,446.00	16.40	29,642.00	15.90	na	na	174.70	0.90	na	3.70	3.33
2001	-5,239.00	-2.80	33,593.00	17.70	28,354.00	15.00	na	na	186.60	3.10	3.60	3.70	3.49
2002	-4,347.00	-2.00	38,654.00	19.30	34,307.00	17.20	93,200.00	46.60	200.00	5.40	1.69	1.50	3.52
2003	-3,532.00	-1.70	41,173.00	19.60	37,641.00	17.90	100,503.90	47.70	210.70	3.80	1.49	2.50	3.48
2004	-2,720.00	-1.20	44,530.00	19.00	41,810.00	17.90	105,903.60	45.20	234.30	4.80	6.11	3.50	3.41
2005	-1,251.00	-0.50	49,452.00	18.90	48,201.00	18.40	98,884.80	37.80	261.60	6.40	4.94	1.50	3.30
2006	5,505.00	1.80	54,911.00	18.00	60,416.00	19.80	99,876.00	32.80	304.50	7.60	8.18	1.10	3.27
2007	10,255.00	3.00	59,586.00	17.40	69,842.00	20.50	99,289.20	29.10	341.20	9.00	2.80	3.90	3.13
2008	7,993.00	2.10	70,109.00	18.90	78,103.00	20.90	88,726.40	23.80	372.80	9.80	-0.49	6.70	2.93
2009	-8,077.00	-2.10	79,611.00	20.90	71,534.00	18.70	101,150.50	26.50	381.70	0.90	1.47	0.20	3.01
2010	-1,790.00	-0.40	88,653.00	20.50	86,864.00	20.00	101,790.00	23.40	435.00	8.80	4.75	2.10	2.78
2011	8,988.00	1.70	93,452.00	19.20	102,440.00	21.00	103,244.00	21.20	487.00	6.90	4.73	4.20	2.75
2012	10,772.00	2.00	103,383.00	19.60	114,155.00	21.70	103,031.00	19.70	523.00	6.30	1.03	2.60	2.63
2013	3,957.00	2.10	117,757.00	20.40	121,714.00	22.20	111,588.00	20.40	547.00	5.80	-1.14	2.90	2.80
2014	-1,519.00	-0.30	130,079.00	22.70	128,560.00	22.40	115,575.00	20.10	575.00	2.40	2.66	3.20	2.84
2015	-13,569.00	-2.20	136,366.00	22.30	122,797.00	20.10	142,996.00	23.30	612.00	3.30	3.03	4.40	3.19
2016	-15,436.00	-2.30	138,507.00	21.10	123,071.00	18.70	156,842.00	23.80	659.00	4.00	3.54	3.20	3.38
2017	-20,509.00	-2.90	148,313.00	21.10	127,804.00	18.20	173,352.00	24.80	699.00	2.50	3.48	1.40	3.26
2018													
2019													
Level: <b>General Government</b>													
Source: <a href="https://www.mef.gob.pe/es/marco-macroeconomico/marco-macroeconomico-multianualimm">https://www.mef.gob.pe/es/marco-macroeconomico/marco-macroeconomico-multianualimm</a>													

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## A. Descriptive Findings Overview Tables

Table A7. Authorities' Forecasts for Fiscal Balance-to-GDP Ratio

Fiscal Balance / GDP (Projection - Actual)									
	ARG	BRA	CHL	COL	MEX	PER	average	min	max
2000	-	-	-	-	0.10	-	0.10	0.10	0.10
2001	-	-	-	-	0.20	1.30	0.75	0.20	1.30
2002	0.46	-	-	-	-0.15	-0.20	0.04	-0.20	0.46
2003	-0.23	-	-0.26	-	-0.10	-0.30	-0.22	-0.30	-0.10
2004	-1.62	-	-2.86	-0.10	-0.20	-0.30	-1.02	-2.86	-0.10
2005	-0.62	0.21	-3.19	-1.30	-0.10	-0.50	-0.92	-3.19	0.21
2006	-0.24	0.40	-5.01	-0.90	0.00	-2.90	-1.44	-5.01	0.40
2007	-0.01	0.38	-3.37	-0.10	0.00	-3.70	-1.13	-3.70	0.38
2008	-0.34	-0.48	0.91	-0.80	0.10	-1.90	-0.42	-1.90	0.91
2009	1.56	1.51	8.04	0.50	2.20	4.60	3.07	0.50	8.04
2010	-0.15	-1.17	-0.65	-0.70	0.30	-1.10	-0.58	-1.17	0.30
2011	0.89	-0.42	-2.08	-1.20	0.20	-2.60	-0.87	-2.60	0.89
2012	2.31	0.92	-0.96	-0.10	0.30	-0.90	0.26	-0.96	2.31
2013	1.97	1.20	-0.10	-0.04	0.30	-0.70	0.44	-0.70	1.97
2014	2.51	1.85	0.72	0.00	-0.40	0.50	0.86	-0.40	2.51
2015	4.10	3.04	0.24	0.00	-0.10	2.10	1.56	-0.10	4.10
2016	4.31	1.74	-0.49	0.10	-0.50	-0.70	0.74	-0.70	4.31
2017	1.00	-0.15	-0.55	0.00	-1.30	0.60	-0.07	-1.30	1.00
2018	-0.49	0.10	-0.25	0.00	-	-	-0.16	-0.49	0.10
2019	0.62	-	1.13	-2.40	-	-	-0.22	-2.40	1.13
average	0.89	0.65	-0.51	-0.44	0.05	-0.39	0.04		
min	-1.62	-1.17	-5.01	-2.40	-1.30	-3.70		-5.01	
max	4.31	3.04	8.04	0.50	2.20	4.60			8.04

Source: National authorities and authors' calculations.

Table A8. Authorities' Forecasts for Expenditure-to-GDP Ratio

Expenditure / GDP (Projection - Actual)									
	ARG	BRA	CHL	COL	MEX	PER	average	min	max
2000	-	-	-	-	-0.27	-	-0.27	-0.27	-0.27
2001	-	-	-	-	-1.06	-1.00	-1.03	-1.06	-1.00
2002	-0.14	-	-	-	2.02	-2.10	-0.07	-2.10	2.02
2003	-4.80	-	2.94	-	0.94	-2.70	-0.90	-4.80	2.94
2004	0.71	-	3.21	0.60	2.00	0.10	1.32	0.10	3.21
2005	3.11	-0.81	1.97	0.90	0.60	0.10	0.98	-0.81	3.11
2006	1.76	0.61	3.46	0.50	-0.50	1.50	1.22	-0.50	3.46
2007	0.76	1.62	0.99	0.30	0.80	1.80	1.05	0.30	1.80
2008	1.97	0.52	-1.84	3.70	-0.60	0.20	0.66	-1.84	3.70
2009	1.37	0.31	-1.94	0.10	-4.00	-3.80	-1.33	-4.00	1.37
2010	2.82	1.78	2.61	0.90	-0.50	-0.10	1.25	-0.50	2.82
2011	4.39	1.38	1.69	0.30	-1.30	1.80	1.38	-1.30	4.39
2012	3.27	-0.84	1.12	0.20	-0.90	0.10	0.49	-0.90	3.27
2013	3.50	-1.10	0.76	-0.20	-2.40	-0.10	0.08	-2.40	3.50
2014	3.86	1.22	-0.92	0.40	-0.60	-1.50	0.41	-1.50	3.86
2015	1.83	1.31	0.11	0.00	-1.00	0.30	0.42	-1.00	1.83
2016	0.62	-0.45	0.60	0.10	-2.10	2.20	0.16	-2.10	2.20
2017	1.56	-0.29	0.58	0.10	0.10	0.60	0.44	-0.29	1.56
2018	1.21	-1.67	-0.02	-0.30	-	-	-0.20	-1.67	1.21
2019	1.32	-	-1.37	19.00	-	-	6.32	-1.37	19.00
average	1.62	0.26	0.82	1.66	-0.49	-0.15	0.62		
min	-4.80	-1.67	-1.94	-0.30	-4.00	-3.80		-4.80	
max	4.39	1.78	3.46	19.00	2.02	2.20			19.00

Source: National authorities and authors' calculations.

Table A9. Authorities' Forecasts for Revenue-to-GDP Ratio

Revenue / GDP (Projection - Actual)									
	ARG	BRA	CHL	COL	MEX	PER	average	min	max
2000	-	-	-	-	-0.18	-	-0.18	-0.18	-0.18
2001	-	-	-	-	-0.88	0.20	-0.34	-0.88	0.20
2002	0.34	-	-	-	1.87	-2.30	-0.03	-2.30	1.87
2003	-5.03	-	2.68	-	0.84	-2.90	-1.10	-5.03	2.68
2004	-0.92	-	0.35	0.50	1.80	-0.30	0.29	-0.92	1.80
2005	2.50	-0.60	-1.12	-0.50	0.50	-0.40	0.06	-1.12	2.50
2006	1.51	1.00	-1.55	-0.30	-0.50	-1.40	-0.21	-1.55	1.51
2007	0.76	2.00	-2.38	0.30	0.80	-2.10	-0.10	-2.38	2.00
2008	1.63	0.04	-0.92	3.00	-0.50	-1.60	0.27	-1.60	3.00
2009	2.93	1.82	6.10	0.60	-1.80	0.80	1.74	-1.80	6.10
2010	2.67	0.60	1.96	0.20	-0.20	-1.10	0.69	-1.10	2.67
2011	5.27	0.96	-0.39	-0.90	-1.10	-0.90	0.49	-1.10	5.27
2012	5.57	0.08	0.16	0.10	-0.60	-1.00	0.72	-1.00	5.57
2013	5.47	0.00	0.65	-0.14	-1.90	-0.50	0.60	-1.90	5.47
2014	6.35	2.98	-0.20	0.30	-1.00	-1.10	1.22	-1.10	6.35
2015	5.93	4.35	0.25	0.20	-1.10	2.30	1.99	-1.10	5.93
2016	4.94	1.28	0.11	0.10	-2.60	1.60	0.90	-2.60	4.94
2017	2.46	-0.44	0.03	-0.30	-1.40	1.20	0.26	-1.40	2.46
2018	0.72	-1.47	-0.28	-0.20	-	-	-0.31	-1.47	0.72
2019	1.84	-	-0.23	16.60	-	-	6.07	-0.23	16.60
average	2.50	0.90	0.31	1.22	-0.44	-0.56	0.65		
min	-5.03	-1.47	-2.38	-0.90	-2.60	-2.90		-5.03	
max	6.35	4.35	6.10	16.60	1.87	2.30			16.60

Source: National authorities and authors' calculations.

Table A10. Authorities' Forecasts for Public Debt-to-GDP Ratio

Public Debt / GDP (Projection - Actual)									
	ARG	BRA	CHL	COL	MEX	PER	average	min	max
2000	-	-	-	-	-	-	-	-	-
2001	-	-	-	-	-	-	-	-	-
2002	-	-	-	-	-	-	-	-	-
2003	-	-	-	-	-	-3.30	-3.30	-3.30	-3.30
2004	-	-	-	-	12.70	-0.20	6.25	-0.20	12.70
2005	-	-	4.00	-	11.90	4.40	6.77	4.00	11.90
2006	-	-	3.00	-	9.50	4.30	5.60	3.00	9.50
2007	-	5.10	1.50	4.20	8.10	2.00	4.18	1.50	8.10
2008	-	4.30	-0.80	2.00	2.90	3.20	2.32	-0.80	4.30
2009	-	-1.60	-1.50	-2.20	-5.50	-5.50	-3.26	-5.50	-1.50
2010	-	0.10	0.10	1.40	1.90	1.60	1.02	0.10	1.90
2011	-	2.20	-0.63	2.80	-0.60	1.40	1.03	-0.63	2.80
2012	-	4.30	0.43	1.50	-0.80	1.30	1.35	-0.80	4.30
2013	-	1.50	0.87	-1.00	-3.00	-2.20	-0.77	-3.00	1.50
2014	-	1.30	-0.73	-1.40	-2.10	-2.10	-1.01	-2.10	1.30
2015	-	-2.70	0.16	-6.80	-3.20	-4.20	-3.35	-6.80	0.16
2016	-	-7.20	1.01	-2.20	-0.90	1.00	-1.66	-7.20	1.01
2017	-	-2.60	2.45	-0.70	4.40	1.20	0.95	-2.60	4.40
2018	-	0.50	-0.11	-5.40	-	-	-1.67	-5.40	0.50
2019	-	-	-	-	-	-	-	-	-
average	-	0.43	0.70	-0.65	2.52	0.19	0.68		
min	-	-7.20	-1.50	-6.80	-5.50	-5.50		-7.20	
max	-	5.10	4.00	4.20	12.70	4.40			12.70

Source: National authorities and authors' calculations.

Table A11. Authorities' Forecasts for GDP Growth

Real GDP growth (Projection - Actual)									
	ARG	BRA	CHL	COL	MEX	PER	average	min	max
2000	-	-	-	-	-0.44	-	-0.44	-0.44	-0.44
2001	-	-	-	-	4.90	-0.10	2.40	-0.10	4.90
2002	5.99	-	-	-	1.00	0.10	2.36	0.10	5.99
2003	-5.84	-	-0.09	-	1.60	0.20	-1.03	-5.84	1.60
2004	-5.03	-	-2.81	-1.33	-0.90	-0.80	-2.17	-5.03	-0.80
2005	-4.85	0.80	-0.54	-0.71	0.60	-1.90	-1.10	-4.85	0.80
2006	-4.05	0.80	-0.82	-1.92	-1.50	-2.60	-1.68	-4.05	0.80
2007	-5.01	-0.67	0.79	-1.74	2.30	-3.50	-1.64	-5.01	0.79
2008	-0.06	-0.08	1.77	1.72	0.30	-3.30	0.39	-3.30	2.30
2009	9.92	4.70	5.56	-0.14	7.70	6.10	5.64	-0.14	9.92
2010	-7.63	-2.79	-0.84	-1.49	-2.10	-3.80	-3.11	-7.63	-0.84
2011	-1.70	2.80	-0.01	-1.95	-0.20	-1.90	-0.49	-1.95	2.80
2012	6.13	4.10	-0.32	0.89	-0.10	-0.30	1.73	-0.32	6.13
2013	1.99	2.00	0.75	-0.63	2.10	0.20	1.07	-0.63	2.10
2014	8.71	3.90	3.13	0.20	1.10	3.65	3.45	0.20	8.71
2015	0.07	6.85	1.30	0.64	0.40	2.70	1.99	0.07	6.85
2016	5.08	3.80	1.04	0.91	0.20	0.30	1.89	0.20	5.08
2017	0.68	0.60	1.06	0.94	0.40	2.30	1.00	0.40	2.30
2018	6.07	0.90	-0.95	0.18	0.30	-	1.30	-0.95	6.07
2019	1.59	-	2.75	0.28	2.30	-	1.73	0.28	2.75
average	0.67	1.98	0.69	-0.26	1.00	-0.16	0.63		
min	-7.63	-2.79	-2.81	-1.95	-2.10	-3.80		-7.63	
max	9.92	6.85	5.56	1.72	7.70	6.10			9.92

Source: National authorities and authors' calculations.

Table A12. Authorities' Forecasts for GDP Deflator Change

GDP deflator growth (Projection - Actual)									
	ARG	BRA	CHL	COL	MEX	PER	average	min	max
2000	-	-	-	-	-0.78	-	-0.78	-0.78	-0.78
2001	-	-	-	-	0.74	-	0.74	0.74	0.74
2002	-15.99	-	-	-	0.13	-4.48	-6.78	-15.99	0.13
2003	34.54	-	-	-	-0.37	-3.82	10.12	-3.82	34.54
2004	-0.33	-	-	-	-3.73	-3.64	-2.57	-3.73	-0.33
2005	-2.52	-	0.04	4.13	-1.88	0.34	0.02	-2.52	4.13
2006	-5.04	3.81	-6.19	-8.62	-2.99	-4.42	-3.91	-8.62	3.81
2007	-8.64	-1.98	12.09	12.65	-2.28	11.19	3.84	-8.64	12.65
2008	-12.97	-5.08	8.03	0.56	-2.69	4.58	-1.26	-12.97	8.03
2009	-8.48	-1.54	-6.89	20.32	0.86	11.34	2.60	-8.48	20.32
2010	-12.12	-3.96	-14.89	-0.46	0.25	-13.62	-7.47	-14.89	0.25
2011	-12.80	-3.63	11.47	0.96	-1.81	-1.78	-1.27	-12.80	11.47
2012	-10.31	-2.78	1.46	1.73	-0.62	7.73	-0.46	-10.31	7.73
2013	-10.95	-1.34	2.78	1.15	1.97	5.48	-0.15	-10.95	5.48
2014	-24.48	-2.23	-0.86	-0.39	-0.63	-3.43	-5.34	-24.48	-0.39
2015	-10.18	-1.29	-5.16	-0.35	0.57	-4.95	-3.56	-10.18	0.57
2016	-23.52	-0.88	-0.57	-2.91	-2.48	-5.22	-5.93	-23.52	-0.57
2017	-6.61	3.76	-2.96	0.48	-3.45	1.42	-1.23	-6.61	3.76
2018	-23.81	2.11	4.50	1.19	-0.14	-	-3.23	-23.81	4.50
2019	-16.42	-	2.26	-3.58	0.54	-	-4.30	-16.42	2.26
average	-9.48	-1.16	0.34	1.79	-0.94	-0.21	-1.81		
min	-24.48	-5.08	-14.89	-8.62	-3.73	-13.62		-24.48	
max	34.54	3.81	12.09	20.32	1.97	11.34			34.54

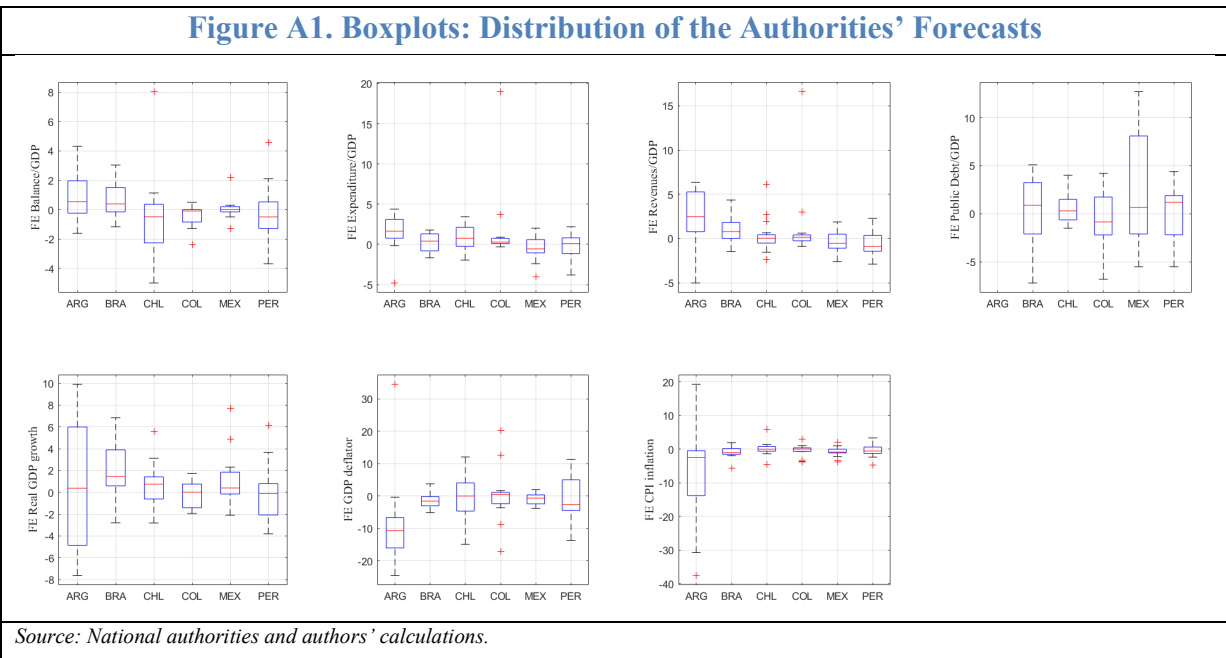
Source: National authorities and authors' calculations.

**Table A13. Authorities' Forecasts for CPI Inflation**

CPI Inflation (Projection - Actual)									
	ARG	BRA	CHL	COL	MEX	PER	average	min	max
2000	-	-	-	-	1.00	-	1.00	1.00	1.00
2001	-	-	-	-	2.10	-0.70	0.70	-0.70	2.10
2002	-26.90	-	-	-	-1.20	0.50	-9.20	-26.90	0.50
2003	19.30	-	0.58	-	-1.00	0.00	4.72	-1.00	19.30
2004	4.40	-	1.33	0.00	-2.20	-1.00	0.51	-2.20	4.40
2005	-4.40	-1.19	-0.55	0.16	-0.30	1.00	-0.88	-4.40	1.00
2006	-1.20	1.36	-0.40	0.02	-1.10	1.40	0.01	-1.20	1.40
2007	-1.50	0.04	-0.89	-3.19	-0.80	-1.40	-1.29	-3.19	0.04
2008	0.10	-1.90	-4.53	-3.68	-3.50	-4.70	-3.03	-4.70	0.10
2009	-0.50	0.19	5.90	2.99	0.20	3.30	2.01	-0.50	5.90
2010	-4.30	-1.57	-0.20	-0.16	-1.10	-0.10	-1.24	-4.30	-0.10
2011	-1.10	-2.00	-0.04	-0.73	-0.80	-2.20	-1.15	-2.20	-0.04
2012	-1.40	-1.00	-0.21	0.56	-0.57	-0.60	-0.54	-1.40	0.56
2013	-0.10	-1.40	1.11	1.07	-0.97	-0.90	-0.20	-1.40	1.11
2014	-13.80	-1.41	-1.38	-0.66	-1.08	-1.20	-3.25	-13.80	-0.66
2015	-3.60	-5.67	-1.34	-3.77	0.87	-2.40	-2.65	-5.67	0.87
2016	-22.70	-0.90	0.01	0.75	-0.36	-0.30	-3.92	-22.70	0.75
2017	-5.40	1.90	0.80	0.01	-3.77	1.40	-0.84	-5.40	1.90
2018	-37.60	0.50	0.18	0.12	-1.83	-	-7.73	-37.60	0.50
2019	-30.80	-	0.76	-0.60	0.57	-	-7.52	-30.80	0.76
<b>average</b>	-7.31	-0.93	0.07	-0.44	-0.79	-0.46	<b>-1.71</b>		
<b>min</b>	-37.60	-5.67	-4.53	-3.77	-3.77	-4.70		<b>-37.60</b>	
<b>max</b>	19.30	1.90	5.90	2.99	2.10	3.30			<b>19.30</b>

Source: National authorities and authors' calculations.

**Figure A1. Boxplots: Distribution of the Authorities' Forecasts**



Source: National authorities and authors' calculations.

## B. Relationship between Fiscal variables and Fiscal Rules

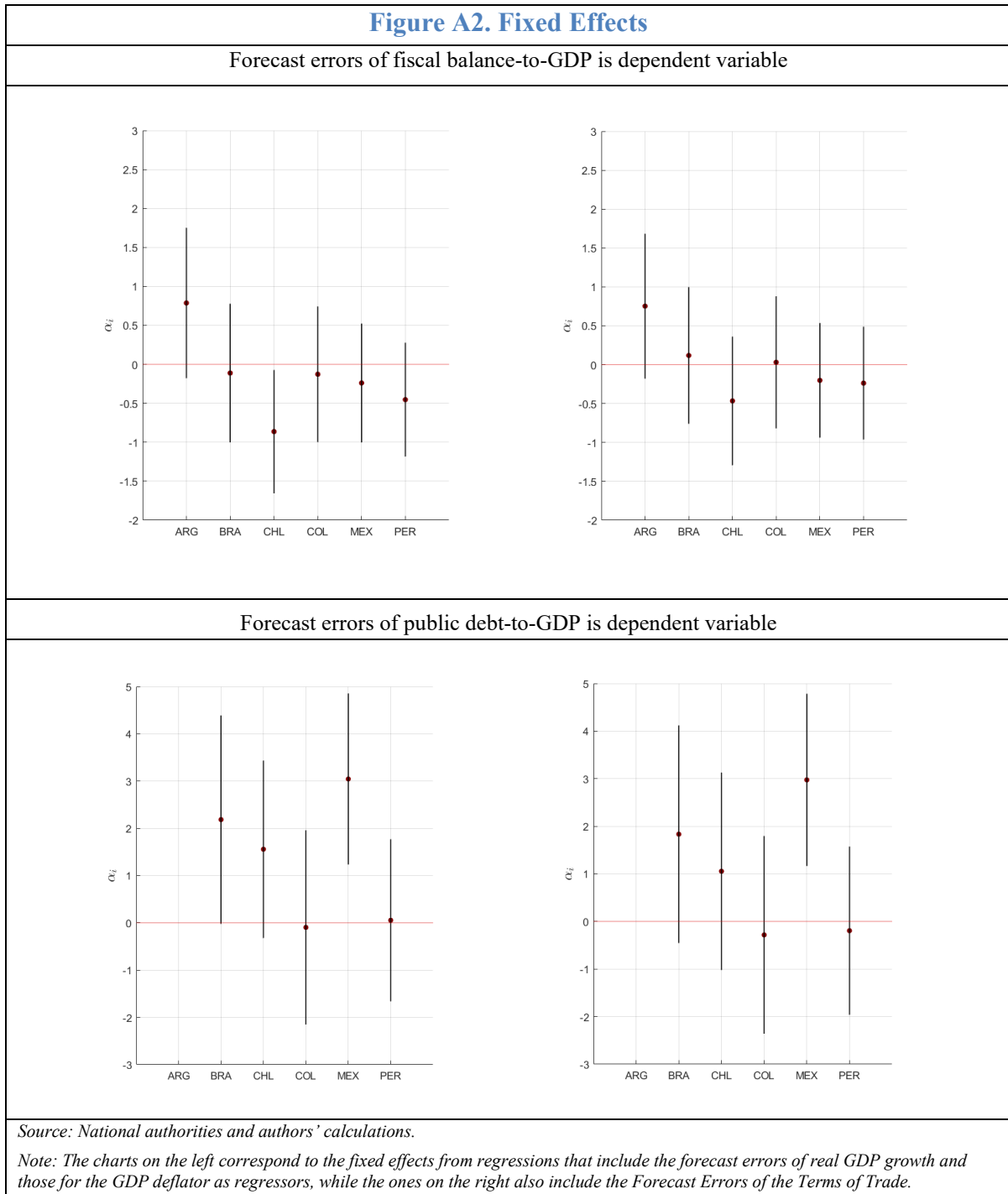
**Table A14. Impact of Fiscal Rules on Authorities' Fiscal Forecast Errors**

Y Var	Abs FE Bal/GDP F.E.	Abs FE Exp/GDP F.E.	Abs FE Rev/GDP F.E.	Abs FE PDebt/GDP F.E.
D Bal	-0.48 (0.591) [0.420]	-0.78 (0.457) [0.092]	-1.439 (0.547) [0.010]	-3.144 (1.077) [0.005]
D Exp	-0.396 (0.638) [0.537]	0.017 (0.493) [0.972]	-0.334 (0.590) [0.573]	-2.57 (1.240) [0.043]
D Debt	-0.96 (0.730) [0.193]	-0.28 (0.564) [0.621]	0.09 (0.675) [0.894]	-0.58 (1.194) [0.629]
Constant	1.941 (0.395) [0.000]	1.82 (0.305) [0.000]	2.61 (0.366) [0.000]	6.886 (1.058) [0.000]
Observations	78	78	78	64
Countries	6	6	6	5
R-squared	0.056	0.061	0.16	0.222
Adjusted R-squared	-0.053	-0.048	0.063	0.125
Standard errors in parenthesis p-values in brackets				

*Note: The left-hand side is the absolute value of the forecast error for the respective fiscal variable, while the right-hand side are dummies for each fiscal rule (budget balance, expenditure, debt rule) that equal 1 when a particular rule is present, and equal 0 otherwise. Figures highlighted in (light) red depict lack of significance at the 10 percent level. Fiscal rule data is from Lledo et al (2017)*

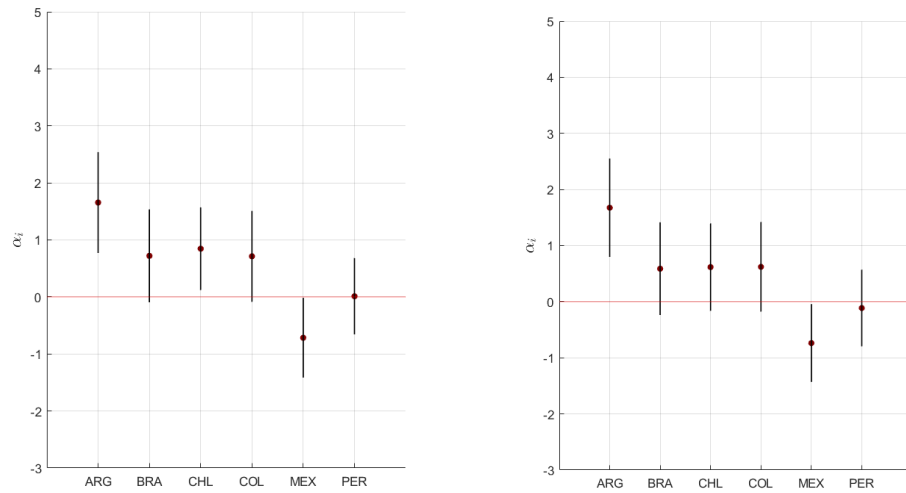


### C. Inspecting the Fixed Effects

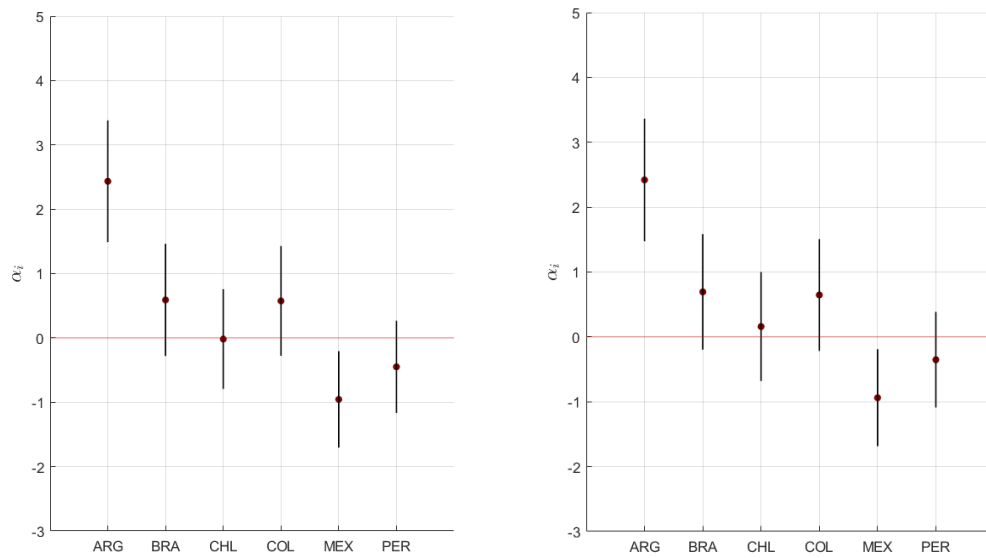


**Figure A2. Fixed Effects (Concluded)**

Forecast errors of expenditure-to-GDP is dependent variable



Forecast errors of revenue-to-GDP is dependent variable



Source: National authorities and authors' calculations.

Note: The charts on the left correspond to the fixed effects from regressions that include the forecast errors of real GDP growth and those for the GDP deflator as regressors, while the ones on the right also include the Forecast Errors of the Terms of Trade.

### D. Impact of the Exchange Rate Forecast Errors

**Table A15. Regression Results: Explaining Forecast Errors for the Public Debt-to-GDP Ratio**

Y Var FE PDebt/GDP	(1) F.E.	(2) F.E.
FE RGDP g	-0.54 (0.240) [0.029]	-0.524 (0.243) [0.035]
FE GDP defl g	-0.069 (0.075) [0.357]	-0.05 (0.082) [0.545]
FE ToT	- - -	- - -
FE ToT (change)	- - -	-0.032 (0.052) [0.547]
ExR Dev	0.114 (0.065) [0.085]	0.1 (0.069) [0.152]
Constant	1.194 (0.165) [0.000]	1.06 (0.276) [0.000]
Observations	64	64
Countries	5	5
R-squared	0.3	0.304
Adjusted R-squared	0.212	0.203
Hausman's test of specification H-stat: p-value		
Standard errors in parenthesis p-values in brackets		

*Note: Figures highlighted in (light) red depict lack of significance at the 10 percent level.*