

Box 3

Assessment of the 2023 Macroeconomic Forecast Error

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In 2023, the Colombian economy experienced a slowdown in economic activity, registering annual growth of 0.6% after the historical highs experienced in 2021 and 2022. This same year, inflation began to converge to the target, reaching 9.3 % at yearend amid a backdrop of a weakening in domestic demand, lessening upward supply pressures, less pressure from the exchange rate, and a contractionary monetary policy stance.

Economic activity for the full year surprised on the upside relative to the projections of the technical staff of *Banco de la República* (TS-Banrep) in January 2023.¹ This can be attributed in part to more resilient consumption growth, which contributed to counterweighing the initially expected decline in domestic demand. However, this unexpected increment was constrained by a larger-than-foreseen slowdown in investment at the beginning of the year. Meanwhile, stronger demand together with inflationary surprises derived from some regulated prices, particularly fuel and utilities), resulted in stronger-than-expected upward pressures on headline inflation during 2023. Nevertheless, demand pressures on core inflation (excluding food and regulated items) were more than offset by looser external financial conditions than initially expected, which supported lower price pressures from the exchange rate.

This Box applies 4GM,² one of the core forecasting models employed by *Banco de la República*, to analyze forecast errors of inflation and annual GDP growth in 2023. This exercise seeks to interpret and compare the implicit shocks behind the forecast errors, measured as the difference between the observed macroeconomic variables' data at the end of 2023 and the corresponding forecasts calculated by TS-Banrep in January of the same year. This analysis is similar to the one described in De Castro-Valderrama *et al.* (2021) and is part of the annual internal evaluation of the technical staff's forecasting process. The results that follow are for annual headline and core inflation, as well as GDP growth.

1. Headline and Core Inflation

Throughout 2023, headline inflation unexpectedly increased, surpassing the technical staff's January 2023 projection. On the other hand, core inflation was lower than anticipated, which meant that the TS-Banrep overestimated the upward shocks to this basket (Graph B3.1). Nevertheless, the forecast errors for both baskets were smaller than those for the exercise carried out in 2022³.

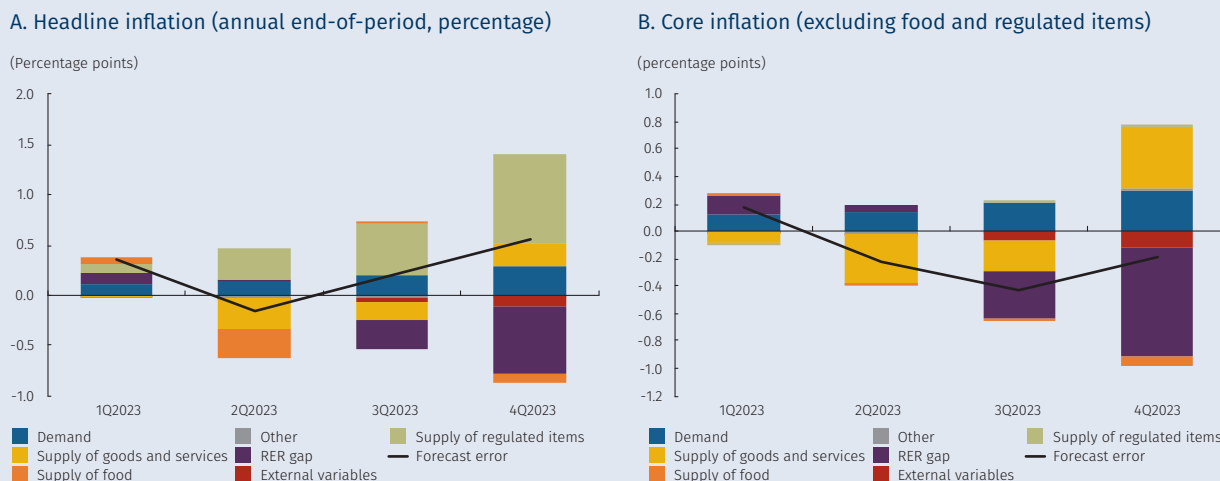
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1 This Box compares the January 2023 projections against the actual recorded in 2023.

2 See <https://repositorio.banrep.gov.co/handle/20.500.12134/9812>

3 See Box 2 of the April 2023 Monetary Policy Report: <https://www.banrep.gov.co/en/monetary-policy-report-april-2023>

Graph B3.1
Inflation Forecasting Error in 2023
(Annual change end-of-period)



Note: the forecast error is calculated as the difference between the observed value and the forecasts made in January 2023. A positive value indicates that the final value observed was higher than the forecast and, therefore, the variable was underestimated. In a given quarter, the bars represent the cumulative four-quarter shocks that explain the discrepancy between the forecast and the observed data; thus, a bar above the horizontal axis indicates that more shocks materialized than initially expected by the technical staff.
 Source: Calculations by the authors.

The forecast error for core inflation was mainly explained by three macroeconomic surprises that affected prices during 2023, surpassing the technical staff’s expectation: supply shocks in the goods and services baskets, those related to exchange rate pressures, and those associated with domestic demand. In particular, the first two groups of shocks recorded greater than expected declines, explained by more favorable external conditions and bigger decreases in the food basket, benefitting prices of certain services such as food away from home. Furthermore, exchange rate pressures in the second half of the year were lower than anticipated at the beginning of the year.

The forecast error shows that the technical staff underestimated headline inflation in most quarters of 2023. These upward surprises in headline inflation are primarily explained by the behavior of price adjustments in the regulated basket⁴. In particular, fuel and utilities price adjustments⁵ were higher than those included in the initial macroeconomic forecast.

2. GDP growth

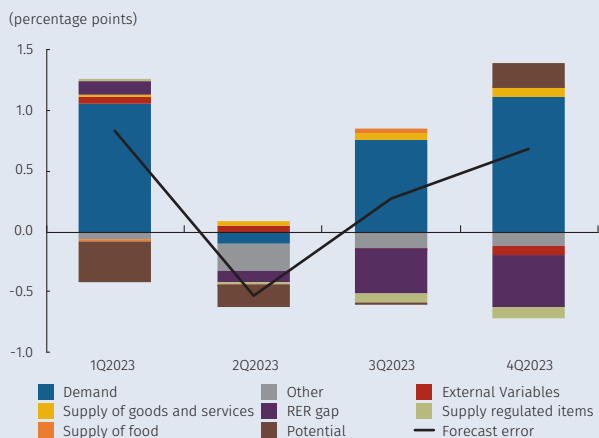
On the external front, the GDP’s growth forecast at the beginning of 2023 anticipated more restrictive external financial conditions than those of the previous year. This, together with the lower dynamism of external demand, would partly explain the year-long economic slow-down. Domestically, private consumption was expected to decline from the high levels of the previous two years, along with a fall in investment activity compared to the levels of 2022.

Graph B3.2 shows that during most of 2023, annual quarterly GDP growth was higher than forecast by the TS-Banrep early in the year. This is mainly explained by positive demand shocks associated with a slower-than-expected decline in private consumption. This is mostly due to higher-than-expected consumption of services and non-durable goods. Quantitatively, these positive shocks were more significant than their negative counterparts. The latter affected economic activity growth due to the downward potential GDP estimate resulting from reduced investment levels in the last national accounts report and lower real

4 The annual change of the food basket for 2023 was consistent with the technical staff’s January projection.

5 The upward surprise in utility prices was mainly explained by a higher-than-expected increase in specific components, including gas, water, water, and electricity.

Graph B3.2
Error in Growth Forecasting in 2023
Quarterly GDP growth
(Quarterly change)



Note: the forecast error is calculated as the difference between the observed value and the forecasts made in January 2023. A positive value indicates that the final value observed was higher than the forecast and, therefore, the variable was underestimated. In a given quarter, the bars represent the cumulative four-quarter shocks that explain the discrepancy between the forecast and the observed data; thus, a bar above the horizontal axis indicates that more shocks materialized than initially expected by the technical staff.
 Source: Calculations by the authors.

depreciation observed (real exchange rate gap (RER)), which could have negatively affected the country's net exports.

References

De Castro-Valderrama, Marcela, Santiago Forero-Alvarado, Nicolás Moreno-Arias, and Sara Naranjo-Saldarriaga. "Unraveling the Exogenous Forces behind Analysts' Macroeconomic Forecasts." *Borradores de Economía*, no. 1184 (2021). <https://doi.org/10.32468/be.1184>.

Gonzalez, Andres, Alexander Guarin, Diego A. Rodriguez-Guzman, and Hernando Vargas-Herrera. "4GM: A New Model for the Monetary Policy Analysis in Colombia." *Borradores de Economía* 1106 (2020). <https://doi.org/10.32468/be.1106>.