BOX 3
THE CORE INFLATION INDICATOR

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Recent developments in inflation in Colombia (defined as the change in the consumer price index: CPI) were influenced by the simultaneous presence of two different shocks. On the one hand, there is a group of widespread and lasting shocks that affect a large number of products. The drop in international oil prices and lower foreign interest rates are two examples. On the other hand, some items have felt the impact of specific, short-term shocks, such as prices for unprocessed foods.

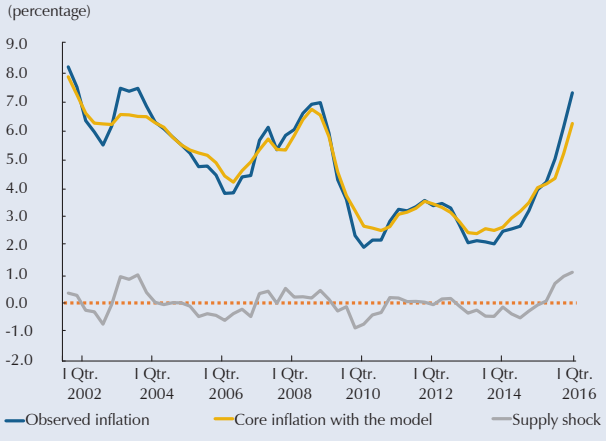
The effects on the CPI reflect two different realities: the first implies a change in the phenomenon of inflation and in macroeconomic conditions (macro-inflation), while the specific shocks are associated with changes in relative prices and with conditions in their respective markets.

The objective of a central bank is to stabilize macro-inflation without distorting the efficient adjustment in relative prices. For this reason, it is essential for the monetary authority to correctly identify these two types of shocks.

One possible way to detect macro-inflation is with core inflation, which usually is measured by excluding a subset of goods that make up the CPI basket. Another way of approaching core inflation is to use a dynamic stochastic general equilibrium model to determine the different sources of price fluctuations in the economy, differentiating between specific shocks and generalized shocks.

A model for a closed economy is used in this analysis. It is calibrated and estimated to replicate the momentum in the main macroeconomic variables of the Colombian economy. The model consists of four equations that describe the momentum in surplus demand for goods in the economy, the monetary policy decision taken by the central bank, inflation excluding unprocessed foods, and unprocessed food inflation.

Graph B3.1
Supply Shock, Core Inflation and Non-processed Food Inflation



Source: DANE and Banco de la República

The Phillips curve, in particular, relates surplus demand for goods to inflation excluding unprocessed foods. Additionally, this curve contains elements that are exogenous to the model and have a direct and temporary effect on inflation excluding unprocessed foods. These elements are represented by a supply shock. Graph B3.1 shows the contribution of the supply shock to the performance of inflation excluding unprocessed foods.

It is important to highlight the effect this shock had on inflation during 2015. Thus, core inflation calculated with the model is inflation that subtracts the contemporary supply shocks from inflation excluding unprocessed food, as it sterilizes the latter from any kind movement that is not considered, either from excess demand or inflation expectations.

Graph B3.2 shows a comparison between the proposed measure of core inflation and the average of the four measures of core inflation, based on the exclusion of goods, observed and calculated by Banco de la República. As one can see, according to the model used, it is possible that some of the measures of core inflation now being used are overestimating actual macro-inflation.

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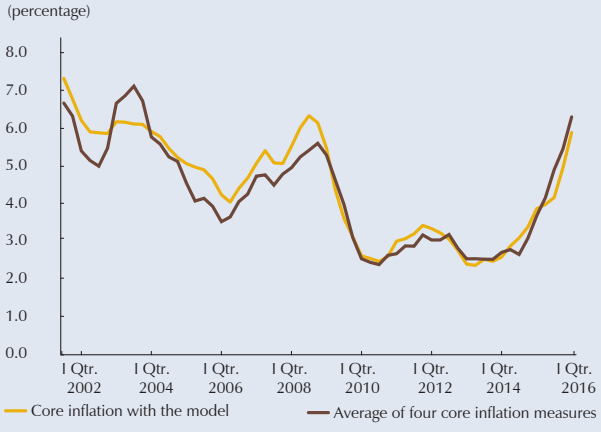
Graph B3.2
Core Inflation with the Model and Other Measures of Core Inflation



Source: Banco de la República.