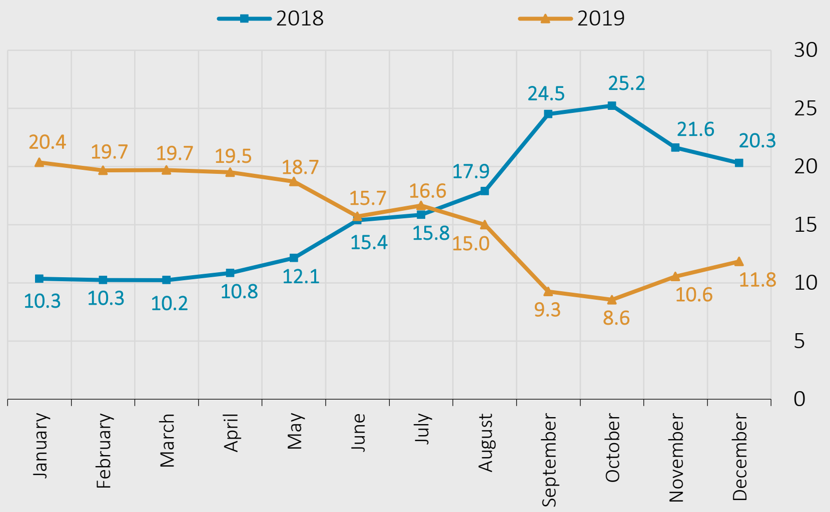
Box 3.1

Main Macro Drivers of the Disinflation in 2019

Consumer inflation, which was around 10% in early 2018, started to surge in May due to the depreciation of the Turkish lira and reached 25.2% in October, standing at 20.3% at the year-end (Chart 1). In 2019, consumer inflation fell to single digits in September and October with the effect of the high base. It ended the year at 11.8% and decreased by 8.5 points compared to end-2018. This box analyzes the main macro determinants of this fall in consumer inflation in 2019 by estimating a reduced-form time varying parameter Phillips Curve model.[1]

Chart 1: Consumer Inflation by Months in 2018 and 2019 (Yearly % Change)



Source: Turkstat.

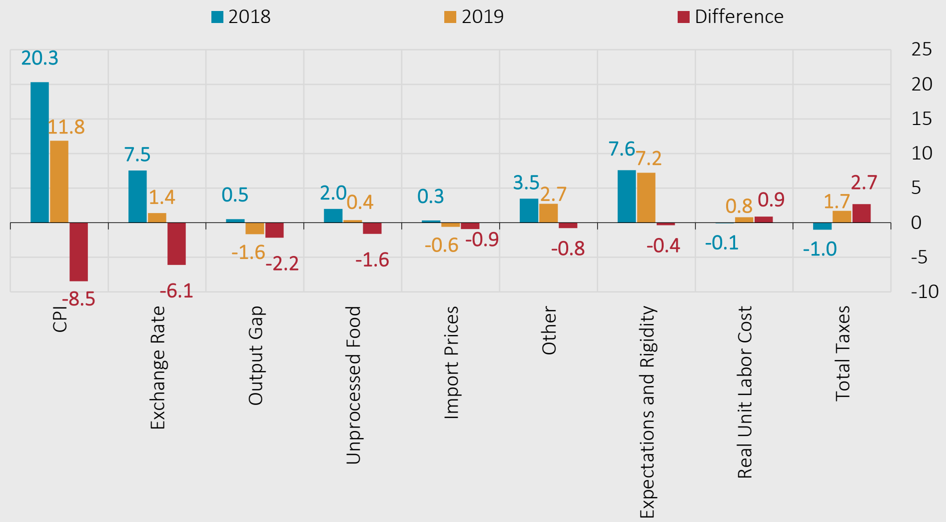
In addition to macroeconomic variables such as exchange rate, real unit labor costs, import prices and output gap, the inflation expectations for the next 12 months (CBRT Expectations Survey) were included in the estimated Phillips Curve model as an independent variable. The dependent variable of this model including expectations is the annualized quarterly consumer inflation.[2]

Model findings indicate that the main factor of the disinflation in 2019 was exchange rate developments (Chart 2). The exchange rate developments affect consumer inflation not only directly (through imported final goods in the CPI basket) and indirectly (through the expectations channel) but also through the cost channel due to the use of imported intermediate and capital goods in the production process. Exchange rate shocks in 2018 affected pricing behavior negatively by deteriorating the inflation expectations, the exchange rate pass-through reached very high levels compared to its historical average, and the speed of pass-through increased.[3] In 2019, the stabilization of the Turkish lira and the decrease in exchange rate volatility supported the fall in inflation.

[1] This method was previously used in the works of Kara, Öğünç and Sarıkaya (2017) and Koca and Yılmaz (2018).
[2] For detailed information about the model, see Koç, Öğünç, and Özmen (2020).
[3] Box 3.1, Inflation Report 2018-IV.

Another important determinant of the fall in inflation is the output gap, which reflects aggregate demand conditions. Because of the moderate pace of recovery in the economy following the contraction in the second half of 2018, aggregate demand conditions became the second main driver supporting the slowdown of inflation in 2019. The contribution of the output gap to the decline in consumer inflation is estimated as 2.2 points.

Chart 2: CPI Inflation (Yearly % Change) and Contributions of Subcategories (% Points)



Source: CBRT calculations.
* Other: Includes the contributions of alcohol-tobacco products other than tax adjustments and the estimation errors of the equation

Another component that supports the fall in inflation in 2019 is unprocessed food prices. Fresh fruit and vegetable inflation closed the year at a low level of 2.94% thanks to favorable weather conditions. While this can be attributed to the appreciation of the Turkish lira, the contribution of unprocessed food decreased by 1.6 points compared to 2018 when the exchange rate effect is excluded (Chart 2).

In line with the outlook in global economic activity, import prices followed a moderate course in this period. Import prices in US dollars supported the decline in inflation with the fall in annual average commodity and oil prices. It is evaluated that the “Other” item, which includes the contributions of alcohol-tobacco products excluding tax adjustments to inflation, as well as the estimation errors of the equation, also reflects the indirect effects of electricity and natural gas price adjustments in this period.

The term "Expectations and rigidity" in Chart 2 denotes the sum of inflation expectations and the contributions of the constant term to consumer inflation.[4] Price makers also take into account the expected inflation while updating their prices and adjusting wages. Therefore, inflation expectations affect the rate of change of prices. While the model estimates indicate a high impact on expectations and rigidity, most of this effect comes from inflation expectations, and the impact of this channel on the slowdown in inflation in 2019 seems to be relatively low. This is considered to be driven by the improvement in inflation expectations becoming evident only in the last months of the year.

[4] The part of inflation which cannot be explained by basic economic variables (import prices, exchange rates, output gap, labor cost, food prices and tax adjustments) and which is estimated as a constant term in the equation, is called “rigidity”. It should be emphasized that the contributions to consumer inflation depend on the model predicted and that some effects, especially the size of the rigidity, may differ according to the model definition and sample size.

Real unit labor cost was one of the factors whose contribution to inflation increased in 2019, mainly due to the implications of the 26% increase in minimum wages. Another item that contributes to inflation is taxes. Of the total taxes in 2019, while 1 point of the 1.7-point-contribution stemmed from the removal of the temporary tax cuts introduced in the previous year, the rest was due to tax adjustments in alcohol-tobacco products.

In sum, the main drivers of the decline in inflation in 2019 compared to 2018 were exchange rate developments, demand conditions, and unprocessed food and import price developments. Moreover, the model findings indicate that there is significant room for improvement in the expectations channel in order to maintain the fall in inflation and achieve price stability. This situation highlights the importance of anchoring the inflation expectations to medium-term forecasts that are intermediate targets.

References

Kara, H., Öğünç, F. and Ç. Sarıkaya (2017), “Inflation Dynamics in Turkey: A Historical Accounting”, CBRT Research Notes in Economics, No.17/03, May 2017.

Koca, Y. K. and Yılmaz, T. (2018), “A Closer Look at Core Inflation Dynamics with a Historical Perspective”, CBRT Research Notes in Economics, No.18/07, October 2018.

Koç, Ü., Öğünç, F. and Özmen, M. U. (2020), ”Role of Expectations in Inflation Dynamics”, work in progress.

CBRT (2018), “A Model-Based Analysis of Recent Inflation Developments”, Inflation Report 2018-IV, Box 3.1