# Indicators of underlying inflation in Rwanda

## The rationale

In Rwanda, the National Institute of Statistics of Rwanda (NISR) collects and publishes CPI inflation data consistent with the International Standard Industrial Classification (ISIC). At the same time, the National Bank of Rwanda (BNR) has a mandate of ensuring stable inflation. For this, BNR aims to maintain inflation around a benchmark of 5 percent with a tolerance band of +/- 3 percent. BNR fulfills its mandate using monetary policy actions.

However, the CPI basket comprises items such as food and energy whose variability depends, among others, on changes in weather conditions and international prices that are out of the influence of BNR decisions. Equally importantly, some items in the CPI basket record transitory changes in their prices that do not significantly transmit into the inflation trend in the medium term, which is a relevant horizon for monetary policy. All these make the noise in CPI inflation data, thus blurring real signals of dis/inflationary pressures. Therefore, many central banks always try to distinguish noise from real signals by analyzing indicators of underlying inflation.

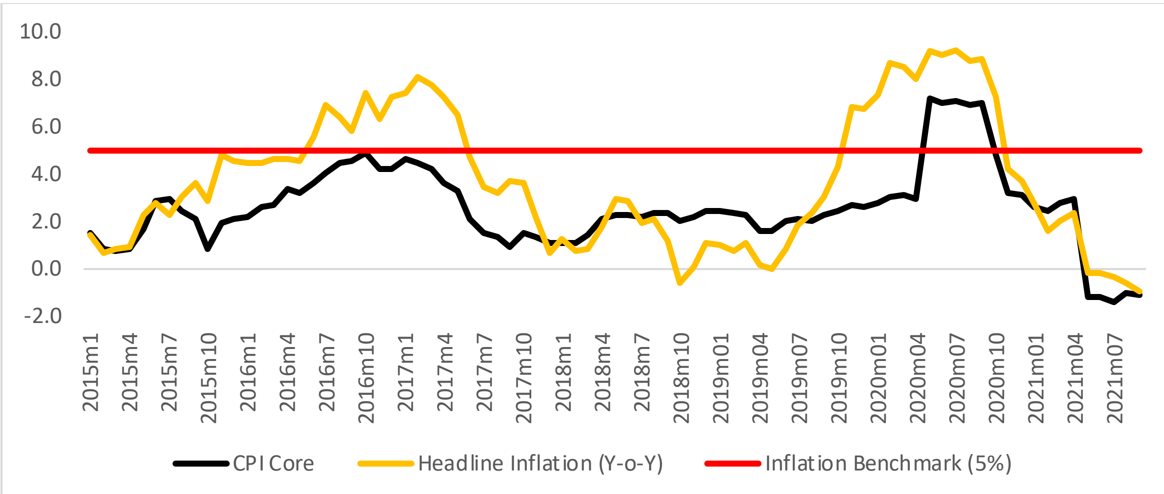
Indicators of underlying inflation are real-time measures of trend headline CPI inflation and are more stable than headline CPI inflation. They should not differ systematically from headline CPI inflation over time and should predict reasonably well the future path of headline CPI inflation. In these circumstances, they are used to justify and explain the conduct of monetary policy.

## Different ways of measuring underlying inflation in Rwanda

The first indicator of interest for BNR is core inflation. This measure excludes two predetermined categories of products: fresh food and energy items, whose price movements are volatile and heavily affected by uncontrollable factors such as weather conditions, international prices, or administrative decisions. However, this measure of core inflation keeps some other food items mostly imported and dependent on global prices. Historical trends show correlations between imported food prices and domestically produced food prices. To get a full measure of core inflation and a comprehensive analysis of pressure drivers, BNR excludes all food items and all beverages. The remaining core inflation represents around 61 percent of the total urban consumer price index (CPI) from 75 percent.

Figure 1 shows historical co-movements between core and headline inflation, suggesting that core inflation can predict headline inflation.

Figure 1: Core inflation and headline inflation



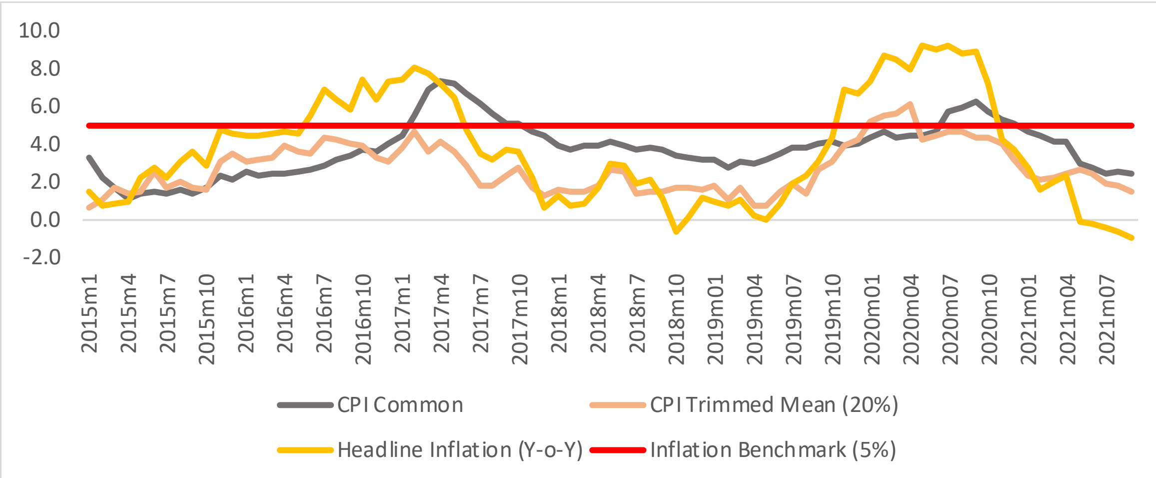

**Source**: National Bank of Rwanda

BNR mainly monitors this core inflation indicator and uses it as a primary component in the forecasting exercise. Core inflation is also the most measure that is closely associated with the cyclical position of the domestic economy and, therefore, reflects monetary policy actions.

The other indicators used by BNR to analyze the natural trend CPI inflation movements are CPI trimmed mean and CPI common. The CPI trimmed mean is calculated by removing identified components with the highest and lowest annual rates of price change each month. Among 47 CPI sub-components, BNR uses statistical methods to identify and remove the CPI indices within 10 percent with the highest annual rates of change. BNR applies the same to the CPI indices falling within 10 percent with the lowest annual rates of change. The resulting final CPI trimmed mean indicator equals the weighted average of the remaining CPI indices corresponding to 80 percent.

The third indicator, CPI common, measures the common trend in price changes across 47 sub-components of the CPI basket. Its computation implies filtering out each subcomponent-specific change and identifying similar developments across all goods and services in the CPI basket. Figure 2 also suggests co-movement between headline inflation, CPI common, and Trimmed mean indicators.

Figure 2: Trimmed mean, CPI common inflation indicators, and headline inflation




**Source**: National Bank of Rwanda

## Underlying inflation and the conduct of monetary policy

An assessment of the underlying inflation indicators helps distinguish persistent movements in inflation driven by macroeconomic fundamentals such as the level of economic activity from transitory changes. In this context, these indicators provide quantifiable evidence about changes in inflation expected to persist in the future, relating it to variables affected by monetary policy decisions. Providing this background information also supplements inflation forecasts, which are essential for monetary policy decisions.