Calculation of Core Inflation at the Central Bank of Armenia

According to the Law of the Republic of Armenia “On the Central Bank of the Republic of Armenia,” one of the primary objectives of the Central Bank of Armenia (CBA) is to ensure price stability in the Republic of Armenia. This objective is grounded in the principles of modern monetary theory, according to which inflation is primarily a monetary phenomenon and, over the long term, is fully controlled by the Central Bank through the monetary policy it implements.

Since 2006, (CBA), among dozens of countries in the world, has adopted an inflation-targeting strategy, under which particular importance is attached to inflation expectations, as the strategy is based on forward-looking considerations. In other words, the monetary policy implemented by the CBA is primarily aimed at anchoring inflation expectations over the medium term, thereby ensuring price stability over the long term. In this framework, as a rule, the final target indicator is overall inflation, or what is the same, the growth of the consumer price index, since it best reflects the extent of change in the overall level of living costs, prices of final goods and services, and is also the main guideline for market participants when making decisions and entering into contracts. However, in the short term, overall inflation is affected not only by cyclical fluctuations in aggregate demand, but also by temporary price fluctuations caused by supply shocks in the markets for individual goods and services (for example, a bumper or bumper harvest due to weather conditions, changes in consumer preferences for a particular product, an increase or decrease in government-regulated prices, etc.).

Theoretically, monetary policy responds primarily to factors affecting aggregate demand on overall inflation, while in the case of supply shocks, the Central Bank has a dilemma. In essence, the optimal policy is not to respond to supply shocks, since, as noted above, they are temporary in nature and fade over time, so neutralizing their impact can cause undesirable volatility in both financial markets and other sectors of the economy. In other words, if the manifested supply shocks do not significantly affect inflation expectations, the Central Bank does not respond to their primary effects, but rather emphasizes understandable and substantiated communication with the general public in order to maintain a high level of confidence in its activities.

However, in practice, the supply and demand factors affecting inflation are not always clearly separated. Therefore, there is a need to have inflation indicators that will allow filtering out the temporary effects of supply factors as much as possible, showing the most stable component of price changes, determined by total demand, which is a more reliable indicator from the point of view of guiding policy, leading to an increase in the effectiveness of the latter. It is for this purpose that the so-called "core inflation" indicators

are calculated. It should be noted that there is no single best way to calculate core inflation, therefore, over time, different methodologies (statistical, structural, etc.) have been developed.

The CBA uses the so-called "Seasonal Products and Administrative Regulated Services Prices Exclusion" methodology to calculate core inflation, in which case only those product groups whose inflation in the short term is almost entirely determined by supply factors are removed from the general basket[1]. Accordingly, the part of the price change that is more systemic in nature and is determined by total demand factors is simultaneously expressed in both filtered and separated product groups and core inflation indicators and does not cause significant changes in relative prices. The core inflation indicator obtained as a result of this method is also distinguished by its simplicity and greater clarity of grouping and interpretation of the factors affecting it, which is very important from the point of view of monetary policy communication. It should be emphasized that, despite its clear advantages, the application of this methodology may retain the effects of certain supply factors in core inflation. In order to exclude such risks, the CBA previously additionally filtered the core inflation indicator calculated by the method described above using the statistical method of "adjustment". In particular, those products that have shown greater volatility than the appropriate limit during a given month were removed from the list of products included in the core inflation basket, with the assumption that these fluctuations are mainly the result of the influence of supply factors. However, this method is vulnerable in the sense that it is purely mechanical in nature and does not allow for the study or judgment of the nature of price changes, therefore, in individual cases it may give false signals about the inflation trend and expected behavior. For example, if there is a positive cycle of global economic demand, under which there is a noticeable increase in prices in international commodity markets, as a result of statistical adjustment, high increases in prices of these imported goods in core inflation can be considered as a consequence of the influence of temporary supply factors and filtered out. Meanwhile, in this case, it would be desirable to leave it in the calculation of core inflation, since on the other hand, it indicates the presence of positive external demand. To avoid the mentioned problem, the CBA currently, instead of the mechanical method of statistical filtering, detects residual supply shocks through a detailed economic analysis of the pricing process in the market of a particular product or service and professional judgments, which is, in

[1] The judgment that the price volatility of seasonal goods is largely determined by supply factors is based on the fact that a significant part of the change in prices of seasonal agricultural products in the Republic of Armenia, at least in the short term, is determined not by demand, but by changes in output volumes and current developments in the agricultural sector. On the other hand, although changes in prices of administratively regulated services are influenced by demand factors over a long period of time, due to the high rigidity of prices and the highly discrete nature of changes (based on decisions), they act as a supply factor at the time of change.

fact, a more preferable option. From the point of view of the impact of monetary policy, priority is given to this option, according to which the calculated core inflation indicator, along with the one calculated using the previous option, is published in various Central Bank periodicals and publications.

It should be noted that the Central Bank is constantly developing and improving the methodology of core inflation by studying other, especially model-based, methods, which will make it possible to improve the main judgments made and the monetary policy implemented by mutually checking and comparing the results of different methods.

The methodology for the above two options is presented in detail below.

1. To calculate core inflation using the method of "Seasonal Products and Administrative Regulated Services Prices Exclusion method", seasonal products[2] and administrative regulated services[3] are excluded from the total consumer basket, after which the core inflation index is calculated based on price changes of other goods and services in the basket.
2. The core inflation index has been calculated by the CBA using the "Exlusion and Adjustment" method since 2008. For the purpose of calculation, the consumer basket is divided into 3 groups:
   - Seasonal Products & Administrative Regulated Services group
   - Imported goods group[4]
   - Other goods and services group[5].

In this way, to calculate core inflation, the goods and services of the first group are completely excluded from the consumer basket, the goods and services of the third group are also included in the calculation, and for the goods of the second group (imported goods), the extreme points are removed[6] and replaced with the average index of the previous 5 years.

In both of the above methods, the calculations are carried out in accordance with the methodology for calculating the consumer price index of the RA Central Statistical Office.

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[2] The "Fruit", "Vegetables" and "Egg" product groups included in the CPI basket are classified as seasonal products.

[3] In both methods, the group of administratively regulated services includes regulated housing, utilities, communications, and transportation services.

[4] includes those products whose import volumes exceed the volumes of local production by more than 50% and the weight of each of which in the consumer basket is at least 0.2%.

[5] In addition to the goods and services in the first and second groups, all other goods and services.

[6] Tukey's method for extreme outliers is used to detect outliers.