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Towards a Measure of Core Inflation in Bangladesh: Conceptual Issues

Md. Shahiduzzaman
Research Economist, Policy Analysis Unit
Research Department
Bangladesh Bank

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Towards a Measure of Core Inflation in Bangladesh: Conceptual Issues

Md. Shahiduzzaman¹

Abstract

Identifying core inflation has become a very important issue for the Central Banks of the world for last few years. It has also become a practice to monitor the core inflation along side the headline inflation in many countries including both inflation and non-inflation targeting ones. The concept of core inflation is to identify the more persistent trend by separating the noise and short-run fluctuations in the total Consumer Price Index (CPI). Thus far, the price stability objective of the Bangladesh Bank (BB) has been guided by the developments of total CPI. However, changes in the total CPI can be affected by some components that are highly volatile in the short-term. Sources of such fluctuations may be the good and bad harvests, disruption in external trade and so on that creates transitory noise in CPI. Hence the headline inflation loses its credibility as a short or medium term guide in the operation of monetary policy. Consequently, a growing number of countries are adopting the concept of core inflation in making monetary policy decisions. The purpose of the note is thus to develop the notion of core inflation for the policy purposes in Bangladesh.

....But the core rate of inflation was telling us these higher energy prices were not significantly feeding into other prices. The core rate suggested that inflation would fall back around the midpoint of the target range..... In fact, this is exactly what happened.

*Mr. David Dodge, Governor of the Bank of Canada,
Saskatchewan, 29 January 2002*

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1. Introduction

The central objective of monetary policy in Bangladesh is to maintain price stability while maintaining highest sustainable output growth of the country. By tradition, the price stability objective of the Bangladesh Bank (BB) has been guided by developments in the month to month changes (12-month moving average and point-to-point) in the consumer price index (CPI). CPI is compiled by the Bangladesh Bureau of Statistics (BBS) based on the actual prices of a typical basket of domestic and imported final goods and services consumed by the general public. However, focusing on the changes in total CPI as an operational guide to monetary policy requires qualifications because of some volatile components that can blur the CPI inflation over the short term (Berkmen, 2002, p. 2, Bagliano and Morana, 2003, p. 198).

Sources of large fluctuations may be the good and bad harvests, disruption in external trade etc that create transitory noise in CPI. As for example, due to a sudden flood, *aman*² production in a particular year may be hampered and thereby create a supply shock that increases total CPI inflation. The rise in price level, in this case, is due to the supply constraint, which is usually expected to continue until the next *boro* production, if this domestic supply shortage is not met by imports. The same kind of situation may also arise because of short supply of vegetables due to poor harvest or rise in the price of oil in the world market. While these kinds of shocks may have considerable impact on total CPI, changes in monetary policy stance will have little or no effect on it.

Bryan and Cecchetti (1993) argued that transitory fluctuations in the price level caused by non-monetary events, such as sector specific shocks or measurement errors, should not reflect in the policy decisions of the monetary authority as these price changes do not constitute underlying monetary inflation. Monetary policy decisions need to be credible and so that these are not supposed to be changed because of such short term fluctuations. Hence, aggregate price inflation loses its credibility to be a suitable measure of the price level as a short or medium run operational guide in implementing monetary policy actions.

2. Definition and measurement of core inflation

Berkmen (2002) pointed out that there are mainly two branches of definitions of core inflation: one considers core inflation as a persistent part and the other takes the generalized component of measured inflation (p.1). However, the general definition of core inflation is that the long-run or persistent component of the measured price index that is not related with the supply side shocks.

There are also some common methods of measuring core inflation³. One is the filtering or smoothing method where some product groups are excluded from the index whose prices are highly volatile to supply shocks, popularly known as exclusion method. The easiest examples of volatile components are food and energy prices. It ought to be noted though that the exclusion method is a subjective approach; a choice has to be made on what to exclude. Other notable methods of measuring core inflation include the statistical and economic approaches. The statistical approach attempts to eliminate the temporary noise components by computing limited influence estimators that averages out only central part of

² *Aus, aman, boro* are the names of major varieties of rice in Bangladesh, each grown in sequence over the year.

³ A detailed description of various alternative methods of core inflation will be incorporated in "A Measure of Core Inflation in Bangladesh", Working Paper 0609, Policy Analysis Unit, Research Department, Bangladesh Bank by Shahiduzzaman, Md. (2006, forthcoming) .

a distribution after truncating outlier points. Bryan and Cecchetti (1993) suggested the use of trimmed mean approaches if the distribution of the sector specific shocks is skewed. The economic approach is also called the model based approach that derives a measure of core inflation using the assumption of long-run neutrality of money. While the latter two methods are generally supported on statistical and theoretical grounds, the most popular and widely used method of measuring core inflation is the exclusion method. Appendix-1 notes some cross-country measures of core inflation.

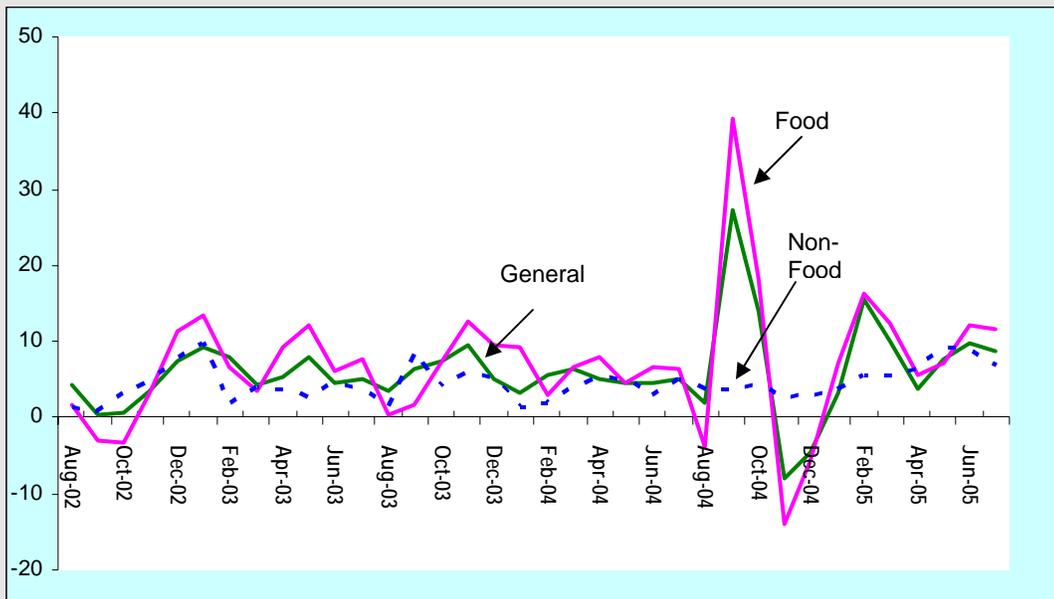
3. A measure of core inflation in Bangladesh context

Monitoring core inflation has become a practice for central banks around the world. This is equally true for both inflation and non-inflation targeting countries. For example, while the Bank of Canada uses the changes in total CPI as inflation-control target, core inflation is used as a shorter-term operational guide to its monetary policy formulation (Macklem, 2001). This is because over the longer run short term fluctuations should not have any lasting effect on the inflation rate and so total CPI and core measures have tended to move in a very similar fashion. Hence, the price stability concept of the central bank in terms of total CPI still remains valid. In the Philippines, the National Statistics Office (NSO) began publishing official core inflation, alongside the CPI headline inflation from February 2004. Initiatives have been taken from researchers at the State Bank of Pakistan to develop alternative measures of core inflation based on the CPI basket (Sadia, 2003). In Bangladesh, neither the Bangladesh Bureau of Statistics nor the Bangladesh Bank has taken any initiative to date to identify and measure the core inflation. However, BB does monitor the 12-month moving average in order to eliminate the noise components of fluctuations. Nevertheless, the moving average method is not a well defined measure of core inflation. One of the problems with this method is that the effect of any shock does not average out properly if the distribution of the sector-specific shocks is skewed (Bryan and Cecchetti, 1993, p.2)

In the Bangladesh context, the construction methodology of core CPI may commence by identifying the most volatile components of the CPI basket. Figure 1 shows the monthly changes of the food, non-food and the general CPI. It is evident from the graph that food-CPI is highly volatile and distorts the otherwise consistent trend of non-food CPI. Similarly, as evident in Figure 2, not all the components of non-food CPI are equally consistent; transport and communications, gross rent, fuel and lighting, and recreation, entertainment, education and current services are more volatile than the clothing and footwear. The above facts necessitate the investigation of the volatility of each of the components of total CPI in order to develop a measure of core inflation in Bangladesh.

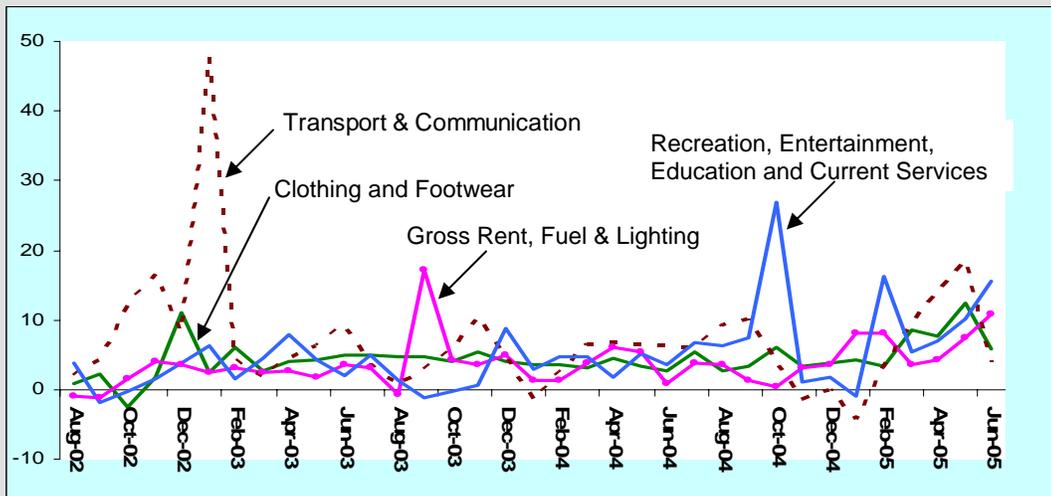
In constructing a measure of core inflation in Bangladesh a few things should be considered. First, food constitutes a large share of total expenditure and constitutes nearly 59 percent of the total CPI index. So, excluding the food prices from the total CPI will not be a good indicator of long term inflationary trend because that will consistently ignore a major share of consumer expenditure. Investigation of the measures of core inflation of some countries that have similar types of heavily food weighted CPI, can give some useful information in this regard. However, the process of developing the exclusion method requires time series and monthly data for each of the major components of food and non-food CPIs. A strong collaboration between BB and BBS is warranted in this regard. Presently, BBS only supplies monthly CPI data of total food and eight major groups of the non-food items. Secondly, it has to be investigated how the volatility of the international energy prices appears to filter down to the CPI. Finally, the rural sector may be less monetized than the urban sector and a

Figure 1: Percentage Changes in the Monthly Price Indexes (Gen., Food, Non-food)



Note: Month to month changes of CPI in annualized rate (seasonally adjusted)

Figure 2: Percentage Changes in the Monthly Price Indexes of non-food items

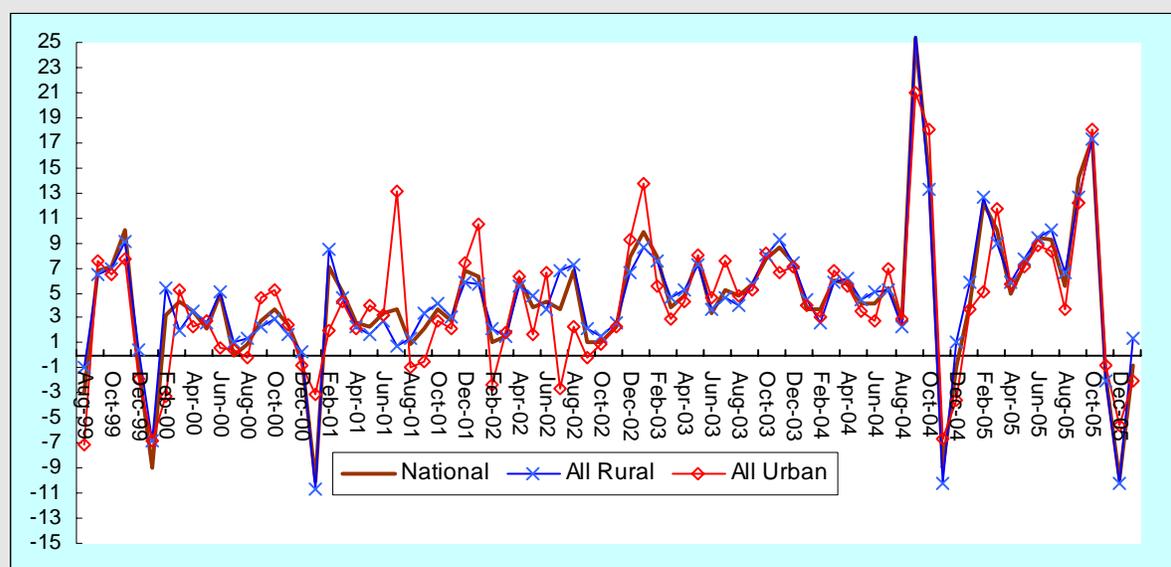


Note: Month to month changes of CPI in annualized rate (seasonally adjusted)

supply shock would impact the rural and urban indexes with different lags. This is to note that the rural CPI constitutes a majority weight (74.75 percent) in constructing the total national CPI. Figure 3 demonstrates the monthly change in national, all rural and all urban CPIs. From the figure, we can see that fluctuations differ both in direction and magnitude for a given month. The change (annualized rate) in all-urban CPI in July, 2001 is 13.01 percent, whereas for all-rural CPI it is only 0.8 percent, which results in the national CPI of 3.7 percent. From June '2002 to July '2002, all-urban CPI decreased by 2.7 percent when all-rural CPI increased by 6.8 percent at the annualized rate. Thus, all-rural and all-urban CPIs

differ in magnitude as well as in direction, and hence a careful analysis of rural and urban sector inflation is essential for proposing a measure of core inflation in Bangladesh.

Figure 3: Percentage Changes in the Monthly Price Indexes of National, All Rural and All Urban



Note: Month to month changes of CPI in annualized rate (seasonally adjusted)

4. Conclusion

The concept of underlying or core inflation has become central to the monetary policy strategies of central banks around the globe. This is because a change in total consumer price index or headline inflation also includes short-term price changes that cannot be explained by monetary phenomena. Hence, the use of headline inflation may be misleading for making monetary policy decisions and an appropriate measure of core inflation should be used instead. So far, the Bangladesh Bank has monitored the twelve-month moving average approach in defining the underlying trend that averages out the short-term or transitory components from total CPI. However, there are some limitations to the moving average approach and it is not a widely-used measure of core inflation. There are some commonly used methods in measuring core inflation. A commonly used method requires taking subjective decision of excluding particular prices from the aggregate price index. Other approaches use statistical or economic modeling. In the Bangladesh context, the computation process of core inflation should consider several issues like the weight of food items to total CPI, effect of external shocks on domestic price and rural and urban influence on total CPI. It is an urgent agenda in the Bangladesh context to come up with a well-thought out methodology for constructing a measure of *core inflation* that will be used as an operational guide to monetary policy formulation.

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Appendix 1: Measures of Core Inflation Used in Selected Countries

| Country | Measure of Core Measure |
|---------------|------------------------------------------------------------------------------------------------------------------------------------|
| Canada | Excludes eight most volatile components from total CPI and then adjusts the remaining components for the effects of indirect taxes |
| Chile | CPI excluding 20% with higher (-) variations and 8% with higher (+) variations |
| Colombia | CPI excluding agricultural food, public services , and transport |
| Germany | CPI excluding indirect taxes |
| Japan | CPI excluding Fresh Food |
| Korea | CPI less energy and non-grain agriculture |
| Peru | CPI excluding 9 volatile items (food, fruits and vegetables, and urban transport, about 21.2%) |
| Philippines | Excluding selected food and energy items from headline CPI |
| Singapore | CPI excluding costs of private road transport and costs of accommodation |
| Spain | CPI excluding energy and unprocessed food |
| Thailand | CPI excluding Fresh Food and Energy (23%) |
| United States | CPI excluding food and energy |