The Difficulty of Understanding Inflation

A recent column by a former Chief Economic Advisor of India highlights the difficulty some economists face in understanding data. To explain this, we first revisit some basic concepts.

All of us are familiar with the basic concept of inflation, which refers to the rate of increase in prices over a defined term period.

The measurement of inflation can be broad or narrow depending on the range of goods and services covered, or the region for which the measurement is done. In macroeconomic analysis, we typically refer to a broad measure corresponding to the price level associated with the aggregate of all goods and services produced in the economy. In line with this broad understanding, we have measures like the Consumer Price Index (CPI) which includes prices of goods and services consumed by the representative consumer; the Producer Price index (PPI), which captures prices received by producers of goods and services; and the implicit deflator in national accounts computations which is based on the ratio of nominal and real GDP. Such concepts have been implemented in most major economies. As is the case in all empirical measurements, different measures exhibit different behaviors. A data blog by the Federal Reserve of St Louis delightfully captures this phenomenon - https://fredblog.stlouisfed.org/2015/03/the-many-flavors-of-inflation/.

Till 2010, India only had the Wholesale Price Index (WPI) that captured prices of all goods produced or sold in the economy. The WPI is a very old index and was globally the precursor to the PPI, which replaced it in most economies in 1978. Since 2010, the Central Statistics Office (CSO) has also been producing a Consumer Price Index built up by aggregating consumer price indices for both rural and urban areas across all states in the country. For analysts who are only able to think of a single measure for a given concept, this undoubtedly created a challenge.

This problem can be illustrated by the following graph. As is evident, the prices of goods as captured by the wholesale price index shows much higher volatility than that reflected in the CPI. The GDP deflator, which is based on data from both CPI and WPI, consequently exhibits an intermediate level of volatility. This is not very different from the behavior captured by the Federal Reserve of St Louis' blog.

The confusion in the former Chief Economic Advisors article arises from the fact the recent data shows that the GDP deflator reveals an inflation of only 0.2% in the first quarter estimates for FY 2023-24, as against the fact that the CPI had an inflation rate of 4.6% in the same period. The implicit thrust of the article seems to be that it would be more "realistic" if we were to use the level of CPI inflation to compute real GDP growth. Their objection to CSO's practice of combining data from WPI and CPI rests on two broad reasons. First, that "the wholesale price index (WPI) for manufacturing is used to deflate the nominal magnitudes for several non-traded services sectors that account for an important share of total gross value added." Implicit in the criticism is the assumption that CPI would have been a better deflator in these cases. It should be noted that neither CPI nor WPI measures the prices received by the producers of most of these services. Were solely the CPI to be used, then the reverse criticism would have been made in periods when WPI inflation was higher than the CPI (such as during 2021-22).

A more legitimate criticism of national accounts computation is that we should have made greater efforts to make price indices for these non-traded services. Experimental indices have been prepared

for many of these services by the Office of the Economic Advisor in the DIPP. It would be nice if these could be converted to regular indices and incorporated in national account computation.

A second criticism in the same article refers to the fact that India does not adopt “double deflation”. This criticism is irrelevant from the perspective of CPI vs WPI. India’s inability to implement double deflation is primarily due to the fact that it doesn’t have price indices for many services. It’s important to note that India is not the only major economy which faces this challenge. South Africa, China, Russia and (till recently) the United Kingdom all had issues with employing double deflation. Though using single deflation measures does introduce biases, the direction of the bias could vary. An IMF working paper (‘Measure up: A Better Way to Calculate GDP’ – IMF Staff Discussion Note SDN/17/02) simulated the use of single deflation methods instead of double deflation and found that over a similar time range, 5 countries (Belgium, France, Japan, Netherlands and the US) would have understated their GDP whereas 3 countries (Brazil, Canada and Korea) would have overstated it. In general, the effect in the EU countries was relatively small. Given this, it would be difficult to argue that there is a particular directional bias that would have been present in Indian computation on account of non-usage of double deflation. It certainly cannot be argued that the methodology should change from year-to-year to give lowest or highest growth rates to suit our political objectives. There are legitimate criticisms and suggestions to improve GDP methodology but we need to be careful that they are not pushed too far.

The divergent behavior of WPI and CPI creates a significant challenge for monetary authorities. However, explaining this will require a separate article.