

## Inflation Disconnect?

**H**eadline inflation is the percentage change in the price index for a basket of goods and services. Core inflation measures the underlying trend in inflation, i.e., the component of inflation most closely linked to monetary policy actions in the longer term. The most common way to measure core inflation is to exclude food and energy from the set of goods and services. The rationale for excluding food and energy prices is that historically they have been highly volatile and high volatility tends to mask the underlying inflation trend. But why always exclude these two classes of goods while including others?

The difference between headline inflation and the most commonly used measure of core inflation (less food and energy, or XFE in short) has been increasing since early 2004, for both consumer price index (CPI) inflation and personal consumption expenditures (PCE) inflation. The gray line in the chart illustrates this by showing a 5-year moving average of the difference between headline CPI inflation and CPI-XFE inflation. The discrepancy between these two indices reflects the sharp and sustained increase in the price of oil between mid-2004 and mid-2006. The inflation rate of the energy component of the CPI (CPI-E) has been growing much faster than the overall CPI. (The green line in the chart shows the difference between the two.)

The academic literature is increasingly focused on *limited-influence estimators* to measure core inflation.<sup>1</sup> In fact, the Federal Reserve Bank of Cleveland calculates two such monthly measures of core inflation: the weighted median<sup>2</sup> and the trimmed mean CPI inflation rates. These measures exclude the items facing more extreme price movements in each time period, resulting in a different basket of omitted items each period.

Proponents have argued that limited-influence measures of core inflation have superior statistical properties and, in particular, are better at forecasting headline inflation. The black line in the chart shows the difference between headline inflation and core inflation, measured by the 16 percent trimmed mean CPI inflation (CPI-TMI). This smaller difference between core and headline inflation suggests that discrepancies between headline and core inflation are partly induced by the way core inflation is defined and measured.

A disconnect between measures of headline and core inflation could be a concern for policy-

makers: It may not be reasonable to conclude that monetary policy has been effective in maintaining price stability by looking solely at a core measure of inflation that excludes sustained oil price increases. However, one must keep in mind that an increase in energy prices could present monetary policymakers with a trade-off between controlling inflation and stabilizing the output gap (i.e., the difference between actual and potential output) if these price increases affect actual output more than potential. The optimal resolution of this trade-off is an active area of research.<sup>3</sup>

In sum, price indices provide a snapshot of the dynamics of prices of a basket of goods and services. However, because each core index suppresses a different source of information, they each provide a different measure of inflation. Especially in times of substantial relative price movements, all price indices should be considered by policymakers and analysts.

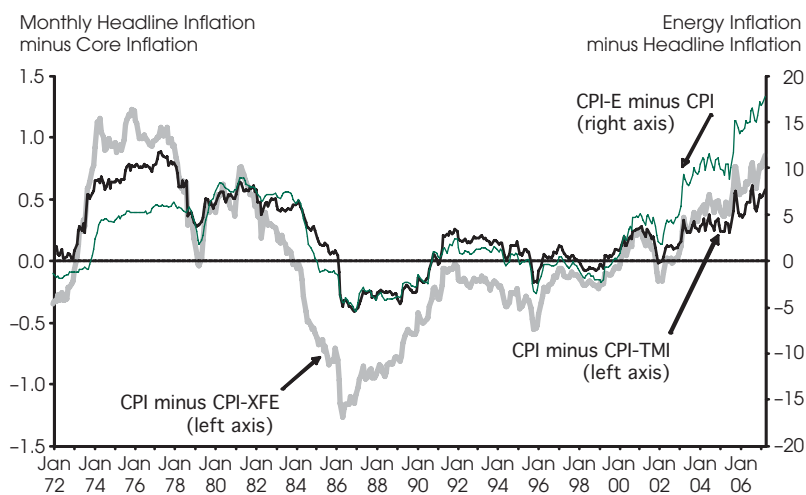
—Riccardo DiCecio

<sup>1</sup> Mick Silver, "Core Inflation Measures and Statistical Issues in Choosing Among Them," Working Paper No. 06/97, International Monetary Fund, April 2006.

<sup>2</sup> Kristie M. Engemann and Michael T. Owyang, "Hard 'Core' Inflation," Federal Reserve Bank of St. Louis *Monetary Trends*, February 2005.

<sup>3</sup> For a comprehensive review of this literature, see Lutz Kilian, "The Economic Effects of Energy Price Shocks," *Journal of Economic Literature*, forthcoming.

### CPI Inflation Rates: Headline, Core Measures, and Energy (5-year moving averages of annualized % change)



SOURCE: Bureau of Labor Statistics; Federal Reserve Bank of Cleveland; Haver.

Views expressed do not necessarily reflect official positions of the Federal Reserve System.