



How can inflation be considered low when food and gas prices are so high?

Because there is a difference between inflation and relative price changes. Inflation is a general rise in prices usually measured by tracking the prices of a broad basket of goods and services, such as the Consumer Price Index (CPI). The CPI is a weighted index of a typical consumer's market basket, which includes food and gas prices. Recently, there have been growing price pressures for these items, which highlight the importance of distinguishing between the two concepts.



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Over the past year, the overall—or headline—inflation rate has been gradually rising but remains modest by historical standards (the CPI has risen just 2.7 percent). This may come as a surprise to shoppers who have absorbed the swifter increases in some relative prices such as food, gas, and other commodities. It's well understood that rising food and energy prices can put pressure on household budgets, possibly causing painful tradeoffs, especially since it is hard to substitute these items. Households may decide to either cut back on food and gas or curb their spending on other goods and services, which could cause price changes elsewhere in the market basket. Although these tough choices between food, gas, and other goods and services tell us much about the welfare of individuals, they may not reveal much about the path of inflation.

Increasing food and gas prices will affect the headline CPI inflation directly to the extent of their share (roughly 20 percent) in the consumer market basket. These relative price changes may not be driven by inflation but, more likely, by fundamental factors affecting supply and demand for each particular good. Looking at the price change for one item or group, say gasoline (which is up 27 percent over the past year), doesn't tell you much about how high inflation is—just as infant and toddler apparel prices, which

have declined 3.8 percent in the past 12 months, are not an indicator of deflation. Inflation itself affects all prices and wages, not just one or two particular items or markets.

The headline CPI, like all headline inflation measures, is subject to short-term volatility that can arise from several sources: mismeasurement, treatment of seasonal factors, and relative price changes, which have little or nothing to do with inflation. These transitory price fluctuations may cause the CPI to give a misleading monthly signal of the inflation trend.

For example, in mid-2008, oil prices spiked, peaking at an average of \$134 a barrel that June. Measured at annualized rates, energy prices in general jumped 102.4 percent that month, which caused the CPI to spike up 11.7 percent, pushing its 12-month change up to 5.0 percent. Five short months later, the bottom fell out on oil and energy prices, causing the year-over-year percent change in the CPI to dip well below zero. This is exactly the kind of volatility that makes it difficult to monitor the headline CPI for changes in the inflation trend. What we need are measures of inflation that extract a signal about future prices.

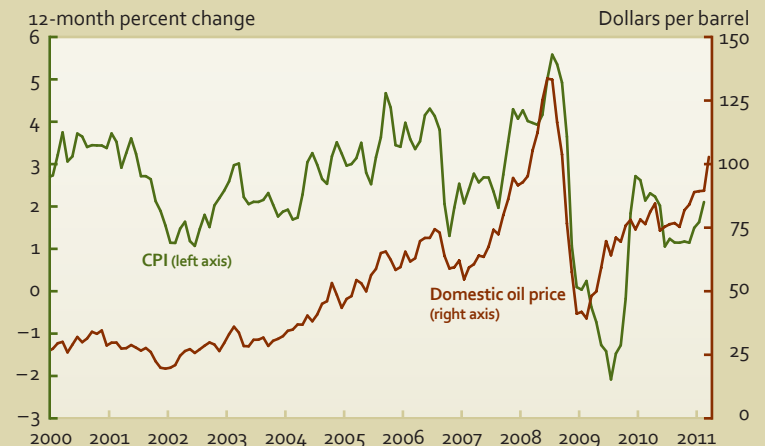
Price statistics that attempt to distinguish the inflation signal from noise are often called underlying measures of inflation. One well-known underlying inflation statistic excludes food and energy prices from the CPI; this is what most economists refer to as the “core CPI.” Food and energy prices tend to be the most volatile components and regularly cause fluctuations in the CPI that are not characteristic of the inflation trend.

However, the “ex-food and energy” approach does not address transitory price fluctuations in other components of the retail market basket used to construct the CPI, such as mismeasurement and idiosyncratic shocks (excise taxes, inclement weather, and government incentives to reduce the supply of used autos, for example). Further, such an approach may mismeasure inflation if there are long-term movements in food and energy prices relative to other goods and services.

An alternative underlying approach is to eliminate monthly volatile price movements from the CPI through the use of trimmed-mean estimators, which eliminate the most volatile monthly price swings (both increases and decreases). By eliminating high-frequency noise, these measures provide a clearer signal of the inflation trend than either the headline CPI or the core CPI.

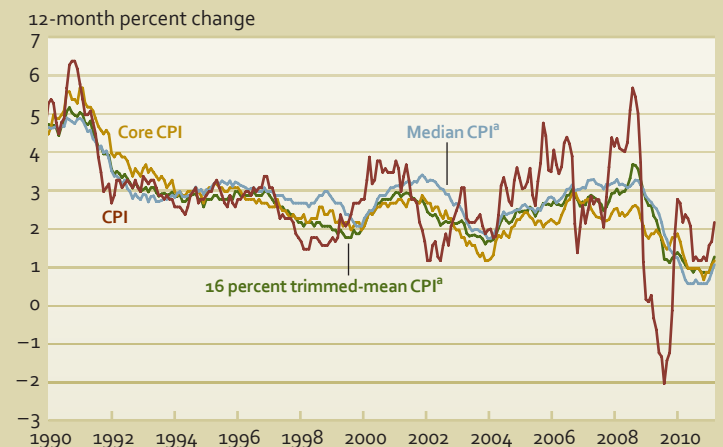
The Federal Reserve Bank of Cleveland reports two such trimmed-mean measures—the 16 percent trimmed-mean CPI and the median CPI—on a monthly basis. These measures are much less volatile than either the CPI or the core CPI, making them more useful in determining the current inflation trend and in forecasting future inflation, as research here in our Bank and elsewhere shows.

Inflation and Oil Prices



Sources: U.S. Department of Labor, Bureau of Labor Statistics; Federal Reserve Bank of Cleveland.

Consumer Price Index



a. Calculated by the Federal Reserve Bank of Cleveland.

Sources: *The Wall Street Journal*; Bureau of Labor Statistics/Haver Analytics.

As you can see from the second figure, these measures of underlying inflation are currently quite low. In fact, they are all hovering near post-World War II lows. The median CPI and the core CPI are up just 1.2 percent over the past year. ■



Watch video interviews with the authors and find other resources on inflation at www.clevelandfed.org/forefront



Recommended reading

Michael F. Bryan, Stephen G. Cecchetti, and Rodney L. Wiggins II. 1997. “Efficient Inflation Estimation.” Working Paper No. 9707. Federal Reserve Bank of Cleveland (August).
www.clevelandfed.org/research/workpaper/1997/wp9707.pdf