



Core Versus Headline Inflation: An Opportunity for Greater Transparency

Daniel L. Thornton, *Vice President and Economic Adviser*

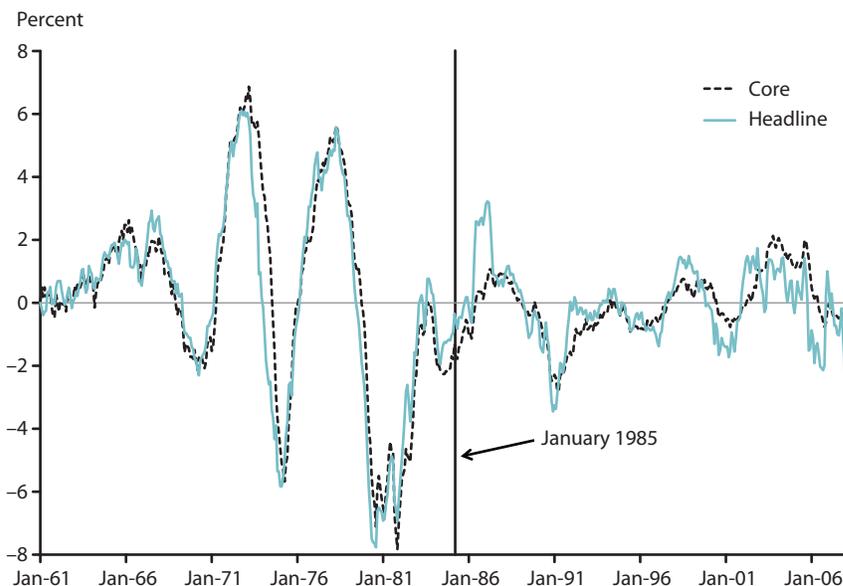
The core inflation measures—which exclude food and energy—are commonly used in monetary policy deliberations. Recently, the Federal Open Market Committee (FOMC) has been accused of being out of touch with consumers because the prices of groceries and gas have increased much more rapidly than the prices of the goods reflected in the core measures.¹ In a recent speech, Janet Yellen, Vice Chair of the Fed’s Board of Governors, defended the FOMC’s use of core measures, saying that the Committee’s “focus on core and other inflation measures that may exclude recent increases in the cost of gasoline and other household essentials is not intended to downplay the importance of these items in the cost of living or to lower the bar on the definition of price stability.” Rather, she said, “The Federal Reserve aims to stabilize inflation across the entire basket of goods and services that households purchase, including energy and food,” but the FOMC focuses on *core* inflation measures because “in light of the volatility of food and energy prices, core inflation has been a better forecaster of overall inflation in the medium term than overall inflation itself has been over the past 25 years.”²

This essay notes that the evidence that core inflation is a better predictor of future headline inflation is mixed and presents the results of a simple test of the proposition that core inflation is a better predictor of future headline inflation than headline inflation. The essay concludes by showing that over periods of interest to consumers, the difference in the loss of purchasing power reflected by the core and headline measures is economically relevant.

Not only is the evidence of the relative predictive power of the core versus the headline measures mixed, but much of the pertinent literature investigates

the predictive power of core inflation measures that differ from those used by the FOMC.³ Consequently, surprisingly few studies address the hypothesis that core inflation used by the FOMC better predicts future headline inflation than headline inflation itself. In addition, much of the existing research uses a one-year forecast horizon, which is likely shorter than the “medium-term” horizon of interest to policymakers. Specifically, I test whether the average level of core inflation or headline inflation over the most recent two or three years is a better predictor of headline inflation over the next two or three years.⁴ Two- and three-year forecast horizons are assumed to represent the “medium term.” I use a standard procedure to test whether the difference in the two forecasts is statistically significant in terms of either the mean square forecast error (MSFE) or the mean absolute forecast error (MAFE). Vice Chair Yellen did not specify a particular inflation index, so the analysis presented

Core and Headline CPI Forecast Errors: Three-Year Horizon



here uses both the consumer price index (CPI) and personal consumption expenditures (PCE) inflation measures.

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The chart shows the CPI forecast errors at the three-year horizon.⁵ It appears that before the mid-1980s, the core measure slightly outperformed the headline measure. Since then, the difference has generally remained very small. The results suggested by the chart are consistent with the results of the statistical tests. For either the MSFE or MAPE loss functions and CPI or PCE, the forecast errors based on core inflation are smaller than those based on headline inflation over the entire sample period; however, in no instance is the difference statistically significant. The results are even less favorable for the core measure since the mid-1980s. Since then, the headline measure has smaller forecast errors than the core measure by the MSFE, but larger by the MAPE. Again, in no case is the difference statistically significant. The results for the two-year horizon are likewise mixed, but statistically insignificant. For the most recent period, there is no compelling evidence that core inflation is a better predictor of future headline inflation over the medium term.

The forecasting exercise here is relatively simple and may not reflect the exercises underlying the FOMC's focus on core inflation. Consequently, in the interest of greater policy transparency and to allow the public to better understand its focus on core measures, the FOMC should provide evidence of the superior forecasting performance of the core measure it uses.

The need for greater transparency is essential since the difference between the core and headline measures is economically important. As noted [elsewhere](#), deviations of headline from core inflation can be relatively large and tend to be persistent. That is, the two measures provide different pictures of the loss of purchasing power over relatively long periods. This is illustrated dramatically in the difference between core and headline inflation in recent months. Since August 2010—when Treasury indexed bond measures of inflation expectations started rising—headline CPI inflation has increased by 4.1 percent, while the core measure increased by a modest 1.2 percent. An economically important differential can exist for much longer periods as well. For example, the erosion of purchasing power during the past decade is 5 percent higher measured by headline CPI compared with core CPI (26 percent vs. 21 percent). The same comparison using PCE is smaller, 3.4 percent (23.5 percent for headline vs. 20.1 percent for core) but still economically relevant. ■

¹ See Reddy, Sudeep and Derby, Michael S. "Bernanke Recasts His Language on Inflation." *Wall Street Journal*, March 15, 2011; <http://online.wsj.com/article/SB10001424052748703363904576200683431201642.html>.

² Yellen, Janet L. "Commodity Prices, the Economic Outlook, and Monetary Policy." Speech presented at the Economic Club of New York, New York, New York, April 11, 2011; www.federalreserve.gov/newsevents/speech/yellen20110411a.htm.

³ For example, see Khettry, N. Neil K. and Mester, Loretta J. "Core Inflation as a Predictor of Total Inflation." Federal Reserve Bank of Philadelphia *Research Rap—Special Report*. April 26, 2006; www.philadelphiafed.org/research-and-data/publications/research-rap/2006/resrap-sr2006.pdf; and Smith, Julie K. "PCE Inflation and Core Inflation." Unpublished manuscript, Department of Economics and Business, Lafayette College, July 6, 2006.

⁴ For robustness, I also test whether the average core or headline inflation over the most recent year is a better predictor of headline inflation over the next two or three years. In addition, where the sample size is sufficiently large, the tests are performed using non-overlapping data. The results are consistent with those reported here. For all results and additional charts, click [here](#).

⁵ The figures on the chart are plotted on the month of the forecast. My calculations also included the PCE inflation measure but this is not shown on the chart here. Additional charts are included in the online material referenced in footnote 4.