Why Policymakers Can’t Rely On Inflation Data

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The data that the government releases on inflation might mislead monetary policymakers. Some measures of inflation are biased, while others get revised, sometimes significantly. As a result, the Fed needs to be careful in setting policy not to over-react to dubious data.

The Federal Reserve looks at four main indicators of consumer price inflation. The CPI (consumer price index) is the most broadly recognized measure of inflation. But the CPI is subject to erratic movements thanks to sharp changes in food and energy prices, so the Fed also often looks at the CPI excluding food and energy prices, often called the core CPI. However, economists have discovered that the CPI is biased upwards by one percentage point or more each year, so in recent years the Fed has focused more on some alternative indexes, called the PCE inflation rate and the core PCE inflation rate. The PCE (personal consumption expenditures) inflation rate is based on a price index that covers all the goods and services sold to consumers in the economy, and is more methodologically sound than the CPI. The core PCE inflation rate is similar, but excludes food and energy prices. However, unlike the CPI, the PCE inflation rate gets revised over time as new and better data are made available to the government statistical agencies. These later data make the PCE inflation rate a better measure than the CPI for evaluating inflation.

However, because the PCE inflation rate gets revised over time, monetary policymakers at the Fed must be careful not to read too much into the data as they are
released. Sometimes, the inflation data can be deceiving. To give an example, consider the situation in May 2002. The Fed had data on the core PCE inflation rate through the first quarter of 2002, and it showed a substantial decline in the inflation rate from mid-2000 to early 2002, as Figure 1 shows.

![Figure 1](image1.png)

The Fed began to worry about deflation, especially given the problems in Japan (which was in a decade-long recession thanks in part to deflation) and recent research that suggested that deflation could cripple the effectiveness of monetary policy. But revisions to the data suggested that the Fed should not have been so worried. By December 2003, the data that had showed a sharp drop in inflation were revised to show that inflation had in fact been fairly stable in 2001 and early 2002, as Figure 2 shows. In the graph, the line labeled “vintage May 2002” is what the data looked like as of May 2002, while the line
labeled “vintage Dec 2003” shows what the data looked like to the Fed in December 2003. The inflation rate for 2000 was revised down, while the inflation rate for 2001 and early 2002 was revised up.

In the graph, you can see that instead of inflation dropping from 2% in mid-2000 to 1.2% in early 2001, inflation was fairly steady over that period, in a fairly tight range from 1.6% to 1.9%. The data no longer suggested that the Fed should have feared deflation. In fact, over time, the data were revised substantially more. As Figure 3 shows, by August 2005, the data over this period showed that the Fed should have been worrying about a significant rise in inflation, not deflation. The August 2005 measure uses much better underlying data than before, and shows that the inflation rate in 2000 was lower
than originally thought, while the inflation rate in 2001 and early 2002 was higher than originally thought.

Of course, the Fed watches many more indicators than just the core PCE inflation rate. But that rate can be misleading and might have prompted the Fed to worry more about deflation than turned out to be appropriate.

What can the Fed do in response to the possibility that data might get revised? One approach is simply to not respond much to the initially released data. When economic data are released, policymakers must recognize that the data may not be accurate, so should not react as strongly as they would if they knew the data were correct.

A second possibility is that policymakers could try to forecast the revisions to data. The Fed, for example, spends many resources (as well it should) learning about the
underlying detail of the data and trying to figure out what it can about the direction in
which data may be revised. The most important variable for which this occurs is GDP,
which measures the overall output of the economy. After the Bureau of Economic
Analysis (BEA) releases its advance report on GDP for a quarter, additional data are
released in the following months (for example, data on the trade balance) that the Fed can
use to estimate the revision to GDP that the BEA will announce a few weeks later. For
most economic variables, only new data like that can be used to predict revisions to the
data. But research that I have conducted on the revisions to the PCE inflation rate shows
that the revisions are predictable. On average, the BEA underestimates the inflation rate
initially and later it is revised up. So, the early releases of the data are misleadingly low,
which monetary policymakers should take into account in thinking about policy.

A fairly simple method can be used to forecast the revisions to the inflation rate. I
examined the statistical relationship between the initial data release of PCE inflation and
the later revisions. Looking at the data in May 2002, an analyst could have adjusted the
data in the following way. From the first quarter of 2001 to the first quarter of 2002, the
core PCE inflation rate was reported as 1.17% in May 2002. But based on the statistical
relationship of past revisions, you would have expected the inflation rate to be revised up
to 1.55% over that same period, which is a substantially higher inflation rate and one that
would not have led the Fed to fear deflation. In fact, the inflation rate was revised up to
1.52% by August 2003, though later it was revised up substantially higher, to 1.84%.

What about the situation today? Over the past year, the PCE inflation rate was
3.35%. Using the statistical relationship from the past, I expect the PCE inflation rate to
be revised up to 3.45%. Over the past year, the core PCE inflation rate was 2.13%; I
expect it to be revised up to 2.26%. So, the upward revisions to inflation that we expect to occur are not very large, thus should not affect the Fed’s monetary policy decision much, if at all. In fact, the core PCE inflation rate, even if revised up to 2.26%, is close to the average core PCE inflation rate for the past three years. So, there are no signs that core PCE inflation is increasing. Overall PCE inflation has risen somewhat over the past three years, thanks to oil price increases. But in forecasting future overall inflation, the trend in the core PCE inflation rate is a better predictor than the trend in the overall PCE inflation rate. So, there is not much evidence to date that inflation is rising, even accounting for upward revisions to the data.

In summary, data on PCE inflation rates may be revised significantly. As a result, monetary policymakers may wish to avoid responding too strongly to such data. In fact, they should expect inflation to be revised up somewhat from when the data are initially released.