

November 21, 2008

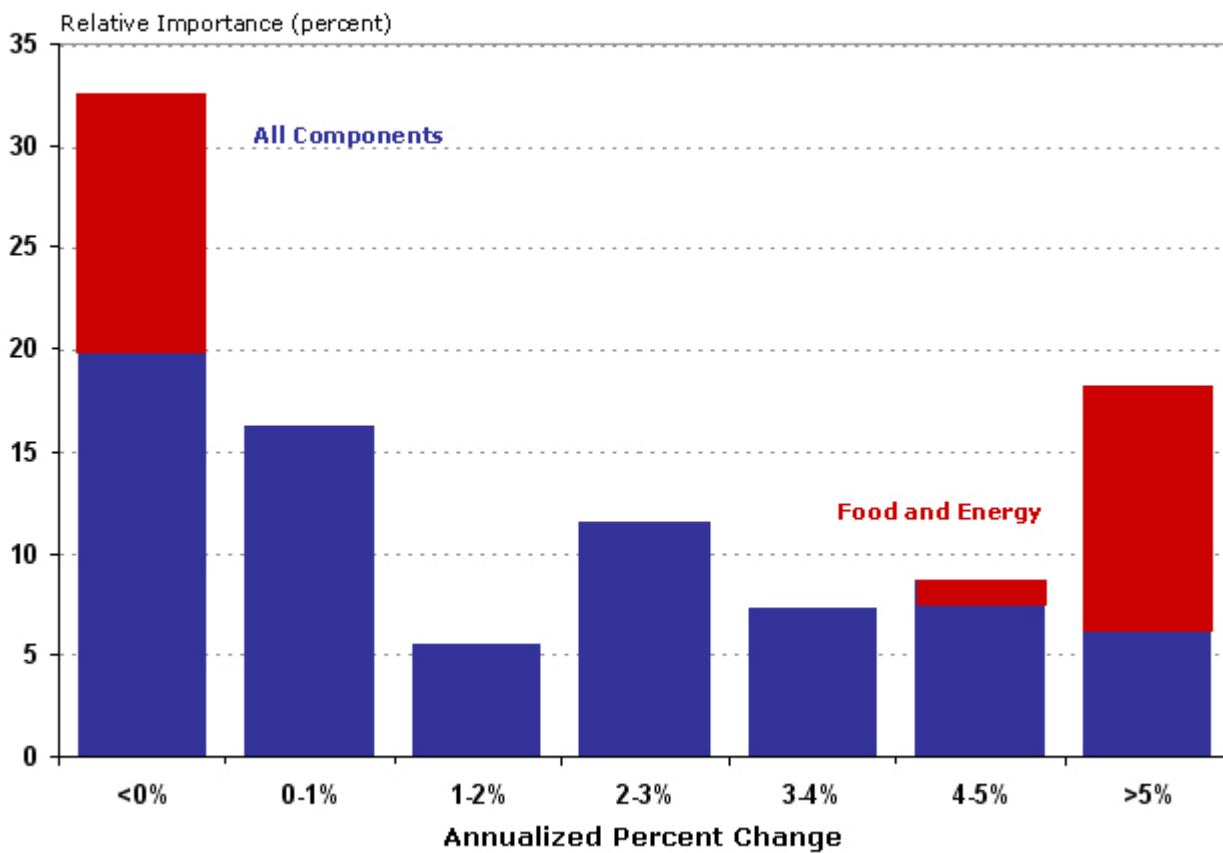
Thoughts on reading the October CPI

Here is what we know about the October consumer price index (CPI). The overall index declined at an annualized rate of about 11 percent for the month—it's sharpest fall since 1947. A plunge in gasoline prices played a big part in the decline, but that isn't the whole story. The traditional "core" CPI, which excludes food and energy prices, also declined in October (at an annualized rate of about 1 percent). This is the first decline in the core CPI since 1982.

Let me offer an opinion on what may be behind these numbers. The drop-off in consumer prices seems to have been prompted by a number of factors, including some pass-through from sharply lower commodity prices, a stronger dollar (which makes import prices cheaper), and very soft consumer spending.

But here's what I don't know. Is the October CPI a sign of "deflation"? (and it would appear that many of you are interested in finding an answer [to this question](#)). Before you answer the question for me, consider the following: In order to be "deflation" the decline in prices has to be sustained and broadly based. And I'm not sure I can give you much guidance on how long the decline must be in order for it to qualify as sustained, and I sure can't tell you how broadly-based a *general* decline in prices is. Consider the distribution of CPI component price changes in figure 1. About one-third of the prices in the CPI market basket declined last month, which is a fairly large percentage of the index. On the other hand, about one-third of the price index was rising in excess of 3 percent last month.

Figure 1: Distribution of October CPI Component Price Changes

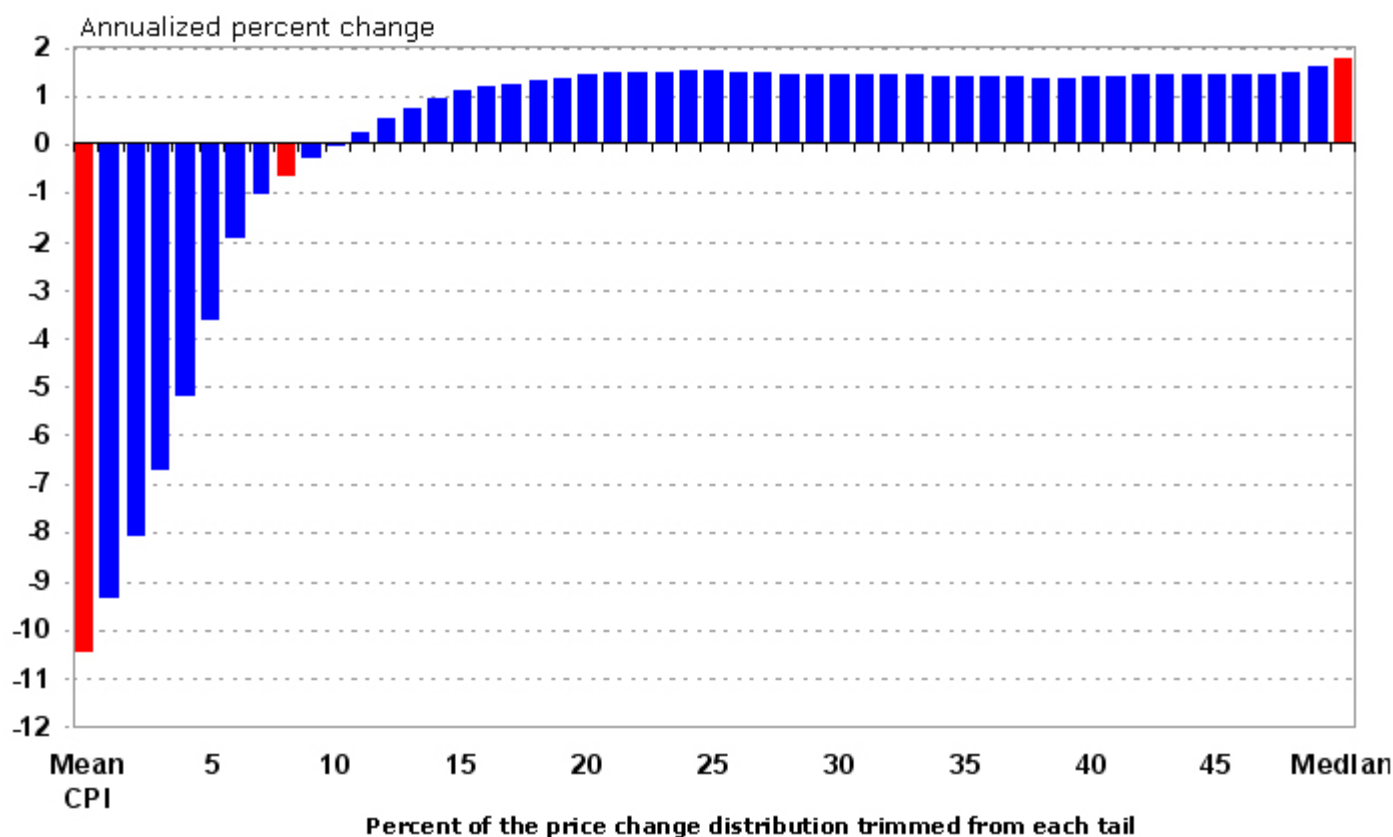


Source: Cleveland Federal Reserve Bank

One of the things I like to consider when thinking about how "sustainable" and "general" the monthly CPI data are is to consider the behavior of the trimmed-mean estimators of the CPI. A trimmed-mean estimator is the weighted average of the CPI after some proportion of the extreme values of the index are "trimmed" away. The idea of the trimmed-mean estimator is that extreme price changes are not representative of prices in general. Moreover, there is ample evidence that the more extreme the price change, the less sustained it is likely to be.

We can trim any proportion of the data away. In fact, we can trim it all away such that only the median price change remains (this is the Cleveland Fed's median CPI series.) Consider figure 2, which shows all the various trimmed mean estimators of the October CPI data, from a CPI that trims very little of the index to one that trims away most of the index. How much trimming provides the best perspective from which to judge how sustainable and general the monthly price data are? In the past, I've argued that two indicators stand out, the 16 percent trimmed-mean CPI (trimming 8 percent of the most extreme highs and 8 percent of the most extreme lows from the data) and the median CPI. I've highlighted these values in figure 2. While the overall CPI posted a sharp decline, the 16 percent trimmed-mean CPI posted a rather slight 0.6 percent decline, and the median CPI rose 1.8 percent.

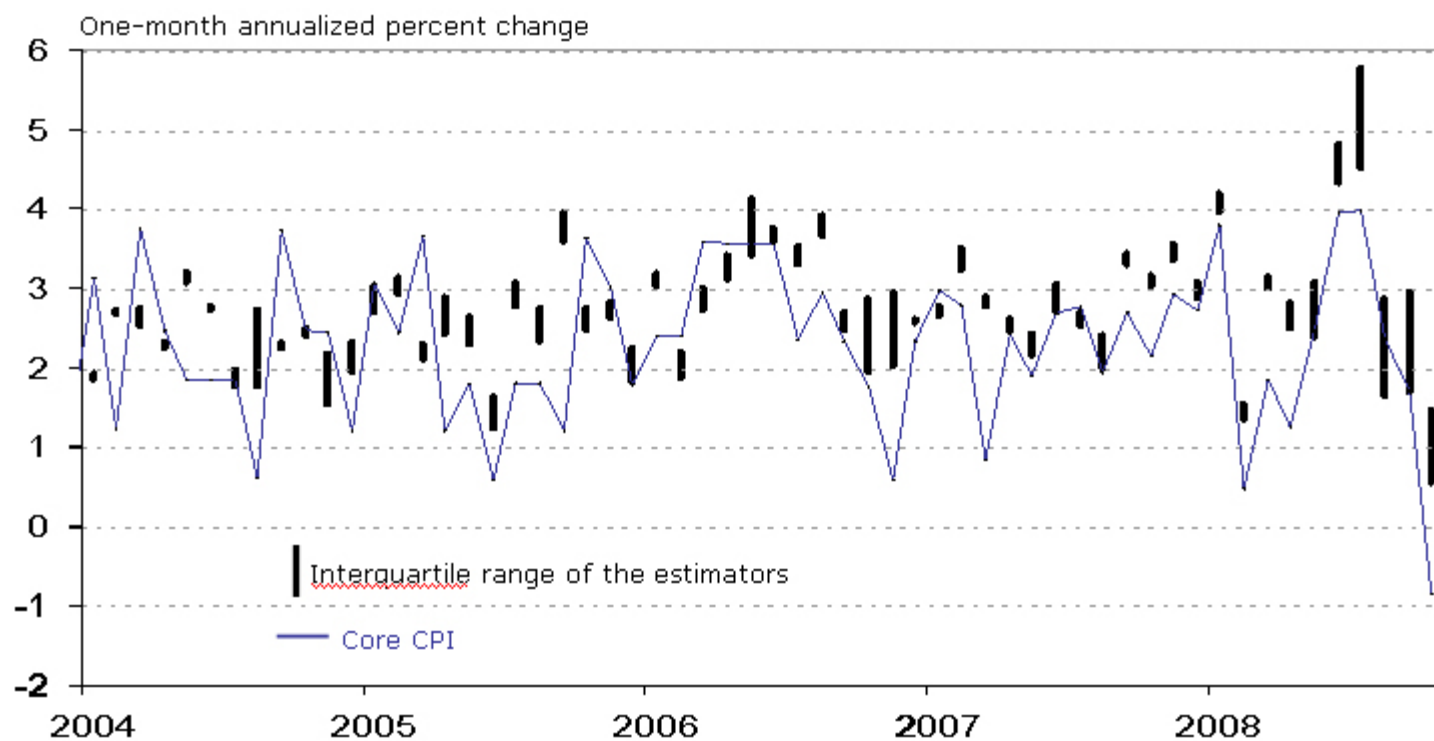
Figure 2: Trimmed Mean Estimators (October 2008)



Source: Cleveland Federal Reserve Bank

But, admittedly, knowing which trim of the data best represents how sustainable and general a monthly price report is, is not very clear. So let me offer up a range for you to consider: the interquartile range of the trimmed-mean estimators. An interquartile range is merely the spread between the 75th and the 25th percentile of the estimators. As such, it provides a relatively stable spread of the estimators from which to gauge the range over which prices are “generally” rising (or falling.) Figure 3 shows the interquartile range of the various CPI trimmed-mean estimators monthly since 2004 compared to the traditional core CPI. The interquartile range of the October CPI data is from 0.5 percent to 1.5 percent, shown as the last vertical line in figure 3, and 1.5 percentage points above the core measure.

Figure 3: Core CPI and the Interquartile Range of Trimmed-Mean Estimators



Source: Federal Reserve Banks of Atlanta and Cleveland

So when the boss asks me what I thought of the October CPI report and what does that single number tell us about inflation (or deflation), my answer is this: The overall and the core CPI posted declines for the month and clearly there is significant, rather broadly based downward pressure on retail prices. But as I cut the data, it looks to me that the October CPI data is pointing to an inflation rate somewhere in the 0.5 percent to 1.5 percent range.

By [Mike Bryan](#), vice president in the Atlanta Fed's research department

November 21, 2008 in [Data Releases](#), [Inflation](#) | [Permalink](#)