

March 3, 2009

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## Yet another cut at the recent retail price data

Much of modern business cycle theory—and the policy prescriptions that accompany it—rest on the idea that something interferes with markets. After all, if markets are working efficiently, there isn't anything that policy can do to improve matters. What that "something" is remains the great unknown in macroeconomics, but there is a common belief that price "stickiness" lies at the heart of the problem.

While economists wrestle with the question of what, exactly, causes prices to be sticky—that is, adjust more slowly than they would in the absence of whatever is getting in their way—some have taken on the tedious task of documenting the speed at which prices adjust. And, as you might imagine, it turns out that some prices adjust very quickly while others adjust at a glacial pace.

One of the most comprehensive investigations into the [evidence of price stickiness](#) was published a few years ago by economists Mark Bills of the University of Rochester and Peter Klenow of Stanford. Bills and Klenow dug through the unpublished data that are used to construct the consumer price index (CPI) and computed the frequency of price changes for 350 detailed spending categories. They concluded that between 1995 and 1997, half of these categories changed their prices at least every 4.3 months. Some categories changed their prices much more frequently. Price changes for tomatoes occurred about every three weeks. And some, like coin-operated laundries, changed prices on average only every 6½ years or so.

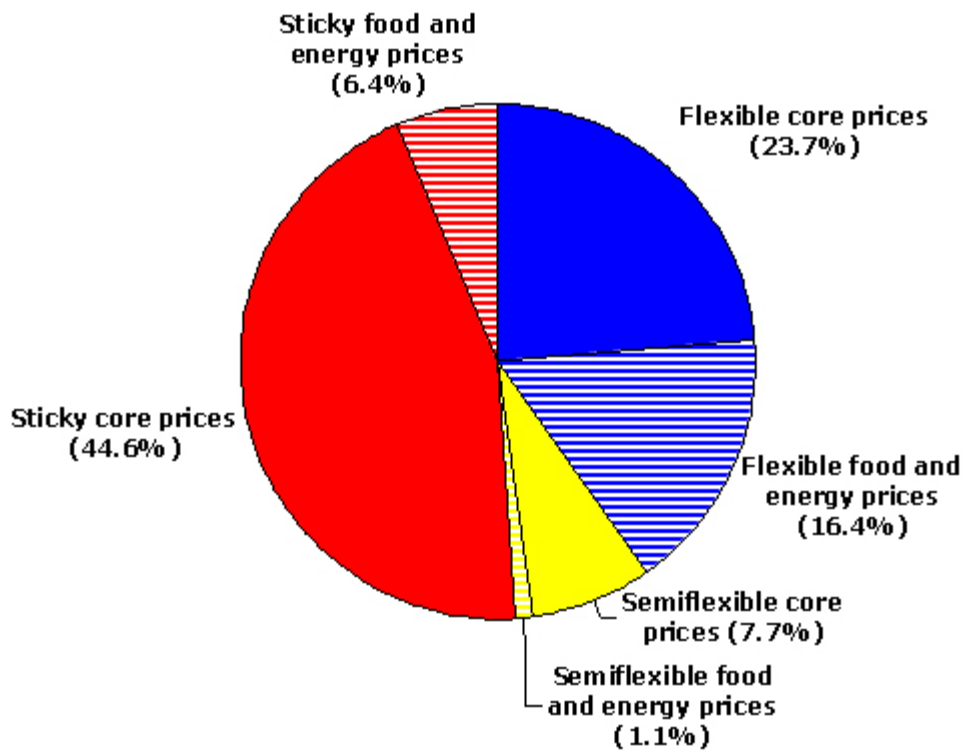
It has been argued—notably by [Kosuke Aoki of the London School of Economics](#)—that sticky prices are likely to incorporate forward-looking expectations and are therefore "a good candidate for a measure of core inflation."

We decided to take the data we use to compute another measure of core inflation—the median CPI—to produce a "sticky-price" and "flexible-price" CPI. There are some complications to this seemingly simple exercise. First, it isn't clear where one should draw the line between a sticky price and a flexible price. We rather arbitrarily decided to draw two lines, one at four months and another at six months. If price changes for a particular CPI component occur on average every four months or more frequently, we called that component a "flexible" price good and, if changes occurred less often than every six months, we labeled it a "sticky" price good. (We have called goods that change prices somewhere between every four and six months "semiflexible" and are generally ignoring them in this particular exercise.)

Second, since we're dealing with considerably fewer spending categories than Bills and Klenow did, we could only imperfectly match our data set to their results, so admittedly some art was applied in instances where sticky price goods and flexible price goods coexisted in the same spending category.

Those cautions aside, here's what we came up with, looking at data between 1998 and 2009.

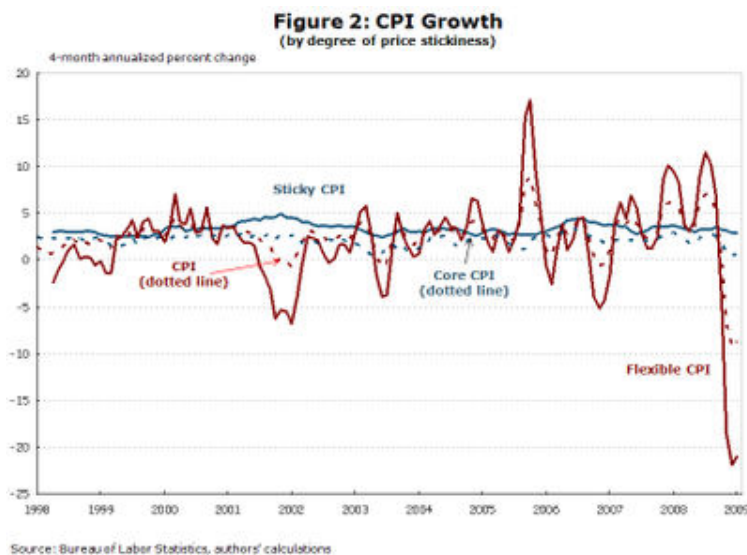
**Figure 1: The CPI Market Basket**  
(by degree of price stickiness)



Note: Shaded areas represent food and energy items.

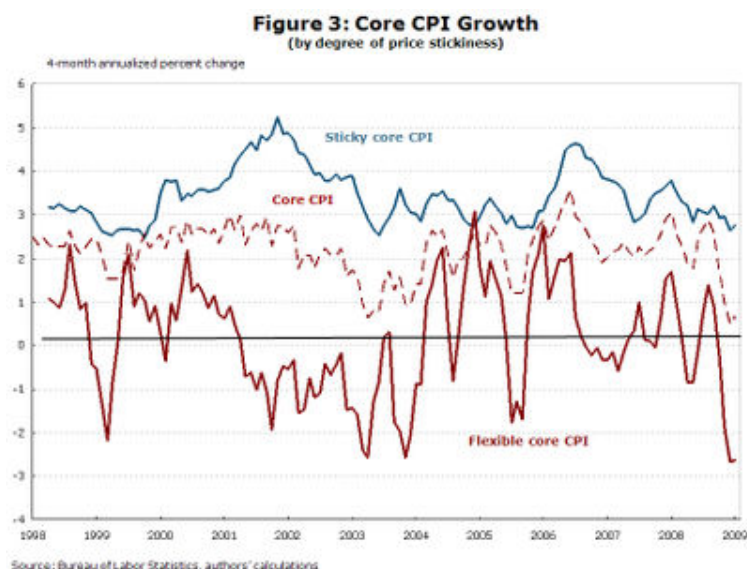
Figure 1 shows the weighted distribution of the CPI market basket on the basis of its degree of price stickiness. In terms of the overall, or "headline" CPI, we judge that a little more than 50 percent of the index is composed of sticky price goods, 40 percent of the index is made up of flexible price goods, and the remainder is somewhere in between.

So, what do these measures tell us? Figure 2 below shows the four-month percent change in the sticky CPI and the flexible CPI, with the headline and the traditional core CPI included as dotted lines for reference.



Clearly the sticky-price CPI exhibits relatively smooth patterns, very similar to that exhibited by the traditional core CPI, while the flexible price CPI behaves in a way more consistent with the headline CPI. Such a correspondence between the core measure and the sticky-price measure isn't very surprising since food and energy items are heavily (though not exclusively) flexible price goods (see again figure 1).

So we also produced "core" measures of the sticky and flexible CPI (the sticky and flexible price CPI measures less food and energy), and these data are shown in figure 3.



One observation from this calculation is that sticky prices have tended to rise at a pace above the core flexible prices for a

considerable period of time. Obviously something more than degree of price flexibility distinguishes these two price measures. But as an exercise in reading the incoming price data, the sharp drop in the flexible component of the core CPI is another clear indication of the strong disinflationary pressure on retail prices in recent months. Over the past four months, the core flexible CPI has fallen at a 2.6 percent pace, just a shade more than what we saw during the disinflation of 2003. And the sticky price core CPI? Well, it hasn't moved much—it's sticky. But the longer the disinflationary pressures on the economy persist, the more these prices will likely become unstuck as they too begin to reflect the price adjustments being reflected elsewhere in the consumer's market basket.

By [Michael Bryan](#), *Federal Reserve Bank of Atlanta*, and [Brent Meyer](#), *Federal Reserve Bank of Cleveland*

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