

Discussion

Christopher Kent

Robert Hill has made a valuable contribution to the conference in a number of respects. First, he has provided a succinct and thought-provoking discussion of the broad range of issues relevant to measuring inflation. Second, he has highlighted a number of developments that could potentially alter the way in which we measure inflation. For example, as Robert has explained, a reduction in the measurement bias would, by itself, reduce average CPI inflation, while a shift to more frequent updating of expenditure weights could increase the short-term volatility of CPI inflation. And third, he has issued a challenge for inflation-targeting central banks to consider the likely impact of these potential changes in inflation measurement on monetary policy. It is this third area on which I will focus my attention.

The relevant discussion for policy-makers can be framed around two related questions: (i) how should inflation targeters deal with changes in the measurement of inflation; and, (ii) should inflation targeters care about the potential for mismeasurement of inflation? The short answers are first, that a flexible inflation-targeting regime can deal quite effectively with changes that affect the measurement of inflation, and second, we should be concerned about mismeasurement, but perhaps not as much as one might think. Ensuring that the measurement bias is as modest as possible is important to enhance the credibility of an inflation-targeting regime, and like all central banks, inflation targeters need to play a role in the decision processes leading to possible changes in the way that statistical agencies measure inflation. But as long as the bias is not too large, the key question for inflation targeters is whether the bias is changing over time in a systematic fashion.

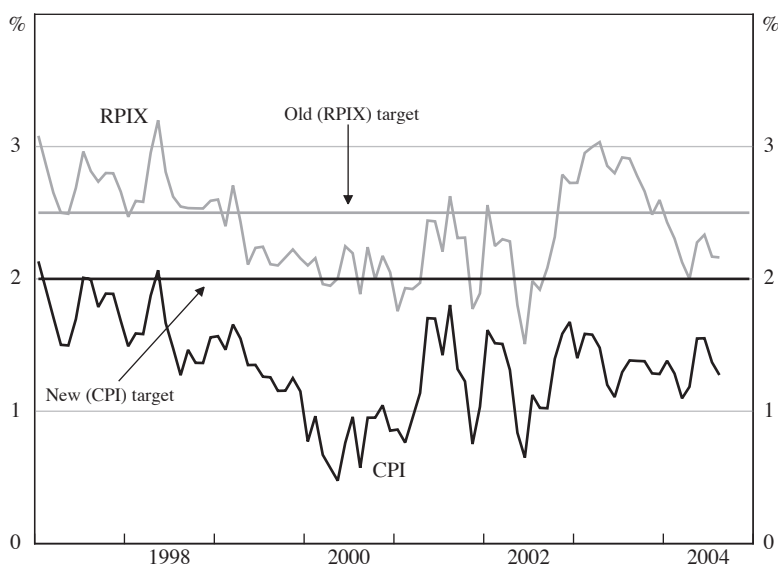
How to deal with changes in the measurement of inflation

The response to changes in the measurement of inflation depends crucially on the nature of the change. Consider a large change in the average rate of measured inflation. Perhaps surprisingly, the larger the change in the mean, the more obvious the solution: namely, it will likely force an adjustment in the inflation target itself. *A priori*, the adjustment process should not be a costly one so long as the central bank can leverage off its existing credibility to help reset the medium to long-term inflation expectations of the general public and financial markets around the new target.¹ The transition could be problematic, however, if the change leads current inflation to be further from target than had been the case under the old system. In this case, a flexible inflation-targeting regime will reduce the output cost of transition compared to a targeting regime that is required to return inflation to target in a relatively short time.

1. A more complete analysis would acknowledge the possible distinction between expectations regarding measured inflation and actual inflation, but this is beyond the scope of these brief comments.

In the UK in late 2003, the Bank of England (BOE) switched from targeting the retail prices index (excluding mortgage costs, RPIX) to the harmonised consumer prices index (CPI). The difference between the annual rates of inflation across the two measures was in the order of $\frac{3}{4}$ of a percentage point on average over the past 15 years, though it has been higher more recently (Figure 1; King 2004). The Governor of the BOE, Mervyn King, described the changeover as being akin to switching from Fahrenheit to Centigrade – the numbers change but the temperature stays the same. The problem is, however, that this assumes that the thermostat is also adjusted proportionately. The targeted level of inflation was indeed lowered, from $2\frac{1}{2}$ per cent under the old RPIX regime to 2 per cent for the new CPI regime. At the time of the changeover, the RPIX measure was close to its target; it has since come down some way. The CPI, however, was well below its target at the time of the switch. Perhaps even more importantly, the CPI has been below 2 per cent for a considerable time. The RPIX had been above the CPI by more than $\frac{1}{2}$ a percentage point in large part due to the rapid growth in housing-related prices, and when these pressures dissipate the two measures of inflation will likely move closer together. While this may be true, reducing the rate of inflationary pressures stemming from the housing market will not raise the rate of CPI inflation. The trend rate of CPI inflation will need to rise significantly relative to its recent history in order to bring it to the 2 per cent target.

Figure 1: United Kingdom – Inflation
Year-ended

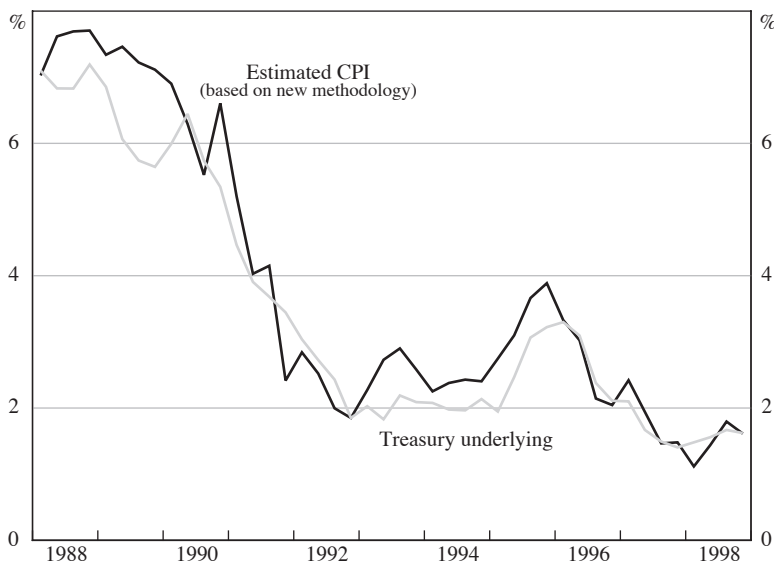


Source: Thomson Financial

In contrast to the UK case, adjusting the inflation target may not make sense for changes in the inflation measure that lead to only relatively small changes in average inflation. For example, it would be impractical to switch from a target of between 2 and 3 per cent to a target of, say, between 2.2 and 3.2 per cent on average over the course of the cycle. This type of change would, therefore, require a transition that brings actual inflation according to the new measure into line with an unchanged inflation target. This transition will be less costly (in terms of output fluctuations) if: the central bank’s commitment to the target is credible enough to anchor expectations around the unchanged target; and the targeting regime is relatively flexible.

In late 1998, the RBA decided to switch the measure of inflation it targeted from an underlying measure of CPI inflation (labeled in Figure 2 as ‘Treasury underlying’) to the headline CPI measure. This followed a modification to the CPI which meant that, among other changes, mortgage and consumer interest charges were replaced by house purchasing costs (RBA 1998). Inflation based on the Treasury underlying measure averaged 2.2 per cent from 1993 to 1998, compared with 2.4 per cent based on estimates of the CPI over the same period derived from the new acquisitions-based methodology. The switch was advantageous in at least three respects. First, it allowed the target to be defined in terms of the headline consumer price inflation measure published by the ABS, which was likely to have wider acceptance in the community. Second, the new measure actually had an average inflation rate closer

Figure 2: Australia – Consumer Price Measures
Year-ended percentage change



Sources: ABS; RBA

to the mid point of the 2 to 3 per cent range. And third, it occurred at a time when the old and new targeted measures were estimated to be relatively close to each other. This would not have been true had the switch taken place, for example, during 1996 when estimates suggest that the new CPI methodology would have resulted in a measure of inflation that was somewhat higher than the underlying measure. The new measure was not without disadvantages, however. In particular, it tended to display greater short-term volatility. To help address this, the Bank emphasised the need to use underlying measures of inflation to help assess inflationary trends, even though the target is expressed in headline terms. Also, the flexibility of the targeting regime helped to deal with higher short-term volatility by allowing the Bank to look through temporary deviations from the target.

In summary, credibility allows a low-cost transition if a new measure of inflation is used for the target. In the case where the measure of inflation that is targeted is altered but the level of the target itself is not, adjustment to the target is less costly if wage and price setters believe that the central bank will act to move the economy to that target in a timely manner. In the case where the target is adjusted along with the inflation measure that is targeted, central bank credibility will help to ensure rapid adjustment of people's expectations to the new anchor. A flexible targeting regime is likely to help in both cases; luck also matters, but it matters less if the timing of the changeover is suitably chosen. Finally, it seems obvious that central banks should play some role in the decision process leading to changes in the targeted measure of inflation.

Should inflation targeters care about the potential for mismeasurement?

Inflation targeters should care about inflation mismeasurement if the bias is especially large, since this would reduce the extent to which the targeted measure is accepted among the general population, thereby reducing the credibility of the targeting regime. However, so long as the bias is small, then switching to an even less biased measure of inflation is not necessarily optimal from the perspective of an inflation-targeting central bank. This is because other characteristics of the targeted measure matter besides just mismeasurement.

It is desirable for the targeted measure of inflation to satisfy at least four general characteristics. It should be: (i) widely understood and accepted; (ii) a broad measure of prices; (iii) timely; and, (iv) have a high signal-to-noise ratio. Acceptance helps to establish credibility for the targeting regime. The desirability of a broad measure follows from the first and helps to ensure that policies to reach the target also impart stability across the economy as a whole. Timeliness will aid public acceptance of the measure and is relevant to the operational concerns of the central bank, that is, by helping to signal recent inflationary trends. And a high signal-to-noise ratio will also enhance acceptance, since the public will lose faith in a measure that moves around too much in the short term relative to its medium-term trends. It will also help to satisfy operational concerns regarding accurate assessment of current and likely near-term trends.

It is not clear that a measure that captures the true changes in the cost of living or the cost of goods and services is necessarily optimal when judged against all of these four characteristics. For example, any such measures are likely to be less well understood and less timely than a measure such as the standard Laspeyres measure of the CPI. And, as Robert has suggested, they are unlikely to be available on a timely basis and may display a lot of short-term volatility. Even in the case where this volatility reflects true movements in short-term prices facing consumers, if this is at a frequency over which policy can have very limited influence (for example, less than a couple of quarters), then it may be preferable to target a less volatile, albeit less than perfect, measure of true prices.

A biased measure such as the Laspeyres CPI may better satisfy many of these characteristics, including being well understood, already widely accepted and available on a timely basis. Relative to a measure such as the Fisher Ideal index suggested by Robert, the Laspeyres index does suffer from measurement bias. However, this does not create sizeable problems for an inflation-targeting central bank, so long as the bias is not too large and is not subject to significant variation over time. Also, the inflation target must obviously be set high enough to account for the bias. Statistical agencies can do much to help minimise the size of the bias, including, for example, regularly updating the weights used in the Laspeyres index. The Australian Bureau of Statistics updates the expenditure weights at the level of the 89 expenditure classes only infrequently – typically every five years – but does make adjustments to weights within categories more frequently according to new products and services. Even variation in the measurement bias over time, however, is not a significant problem, so long as it is small relative to other factors affecting inflation and the targeting regime is sufficiently flexible.

The US Federal Reserve tends to focus on the measure of consumer price inflation based on the core chain price index for personal consumption expenditures from the Bureau of Economic Analysis (Federal Reserve Board 2000, 2004). While this has the advantage of a smaller bias than the headline CPI (Laspeyres) measure of inflation published by the Bureau of Labor Statistics, it is not as well understood nor widely accepted by wage and price setters. Also, it is subject to revisions, which can at times be quite substantial and, therefore, problematic for an inflation targeter (for estimates of these revisions, see Clark 1999).

In summary, central banks care about a range of characteristics with respect to the inflation measure targeted. Accurately measuring the change in a broad measure of prices is important, but not the only consideration. Moderate mismeasurement of the true change in the cost of living is not a problem *per se*. The more important question is whether mismeasurement is changing over an extended period of time. I suspect that this is difficult to test accurately, but it is not clear why the extent of the bias in the CPI in Australia has changed over time in a systematic way. Finally, problems of mismeasurement matter less for a central bank with a credible and flexible inflation-targeting regime.

References

- Clark TE (1999), 'A comparison of the CPI and the PCE price index', Federal Reserve Bank of Kansas City *Economic Review*, 84(3), pp 15–29.
- Federal Reserve Board (2000), *Monetary Policy Report*, submitted to the Congress on February 17. Available at <<http://www.federalreserve.gov/boarddocs/hh/>>.
- Federal Reserve Board (2004), *Monetary Policy Report*, submitted to the Congress on July 20. Available at <<http://www.federalreserve.gov/boarddocs/hh/>>.
- King M (2004), 'The Governor's speech at the annual Birmingham Forward/CBI business luncheon', Bank of England *Quarterly Bulletin*, 44(1), pp 74–76.
- RBA (Reserve Bank of Australia) (1998), 'The implications of recent changes to the consumer price index for monetary policy and the inflation target', Reserve Bank of Australia *Bulletin*, October, pp 1–5.