Inflation Targeting

by

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Inflation targeting is a monetary-policy strategy that was introduced in New Zealand in 1990, has been very successful in terms of stabilizing both inflation and the real economy, and as of 2007 had been adopted by more than 20 industrialized and non-industrialized countries. It is characterized by an announced numerical inflation target, an implementation of monetary policy that gives a major role to an inflation forecast and has been called 'inflation-forecast targeting', and a high degree of transparency and accountability.

Inflation targeting is a monetary-policy strategy that was introduced in New Zealand in 1990, has been very successful, and as of 2007 had been adopted by more than 20 industrialized and non-industrialized countries. It is characterized by (*a*) an announced numerical inflation target, (*b*) an implementation of monetary policy that gives a major role to an inflation forecast and has been called 'inflation-forecast targeting', (*c*) and a high degree of transparency and accountability.

The *numerical inflation target* is typically around two per cent at an annual rate for the Consumer Price Index (CPI) or a core CPI, in the form of a range, such as one to three per cent in New Zealand; or a point target with a range, such as a two per cent point target with a range/tolerance interval of plus/minus one percentage points in Canada and Sweden; or a point target without any explicit range, such as two per cent in the UK and 2.5 per cent in Norway. The difference between these forms does not seem to matter in practice: a central bank with a target range seems to aim for the middle of the range, and the edges of the range are normally interpreted as 'soft edges' in the sense that they do not trigger discrete policy changes, and being just outside the range is not considered much different from being just inside.

In practice, inflation targeting is never 'strict' inflation targeting but always 'flexible' inflation targeting, in the sense that all inflation-targeting central banks ('central bank' is used as the generic name for monetary authority) not only aim at stabilizing inflation around the inflation target but also put some weight on stabilizing the real economy, for instance, implicitly or explicitly stabilizing a measure of resource utilization such as the output gap between actual output and 'potential' output. Thus, the 'target variables' of the central bank include not only inflation but other variables as well, such as the output gap. The objectives under flexible inflation targeting seem well approximated by a quadratic loss function consisting of the sum of the square of inflation deviations from target and a weight times the square of the output gap, and possibly also a weight times the square of instrument-rate changes (the last part corresponding to a preference for interest-rate smoothing). (The instrument rate is the short nominal interest rate that the central bank sets to implement monetary policy.) However, for new inflation-targeting regimes, where the establishment of 'credibility' is a priority, stabilizing the real economy probably has less weight than when credibility has been established (more on credibility below).

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* For *The New Palgrave Dictionary of Economics*, 2nd edition, edited by Larry Blum and Steven Durlauf.

Because there is a lag between monetary-policy actions (such as an instrument-rate change) and its impact on the central bank's target variables, monetary policy is more effective if it is guided by forecasts. The implementation of inflation targeting therefore gives a main role to forecasts of inflation and other target variables. It can be described as *forecast targeting*, that is, setting the instrument rate (more precisely, deciding on an instrument-rate path) such that the forecasts of the target variables conditional on that instrument-rate path 'look good', where 'look good', for instance, means that the inflation forecast approaches the inflation target and the output-gap forecast approaches zero at an appropriate pace.

Inflation targeting is characterized by a high degree of *transparency*. Typically, an inflation-targeting central bank publishes a regular monetary-policy report which includes the bank's forecast of inflation and other variables, a summary of its analysis behind the forecasts, and the motivation for its policy decisions. Some inflation-targeting central banks also provide some information on, or even forecasts of, its likely future policy decisions.

This high degree of transparency is exceptional in view of the history of central banking. Traditionally, central-bank objectives, deliberations, and even policy decisions have been subject to considerable secrecy. It is difficult to find any reasons for that secrecy beyond central bankers' desire not to be subject to public scrutiny (including scrutiny and possible pressure from governments or legislative bodies). The current emphasis on transparency is based on the insight that monetary policy to a very large extent is 'management of expectations'. Monetary policy has an impact on the economy mostly through the private-sector expectations that current monetary-policy actions and announcements give rise to. The level of the instrument rate for the next few weeks matter very little to most economic agents. What matters is the expectations of future instrument settings, which expectations affect longer interest rates that do matter for economic decisions and activity.

Furthermore, private-sector expectations of inflation affect current pricing decisions and inflation for the next few quarters. Therefore, the anchoring of private-sector inflation expectations on the inflation target is a crucial precondition for the stability of actual inflation. The proximity of private-sector inflation expectations to the inflation target is often referred to as the 'credibility' of the inflation-targeting regime. Inflation-targeting central banks sometimes appear to be obsessed by such credibility, but this obsession is for good reasons. If a central bank succeeds in achieving credibility, a good part of the battle to control inflation is already won. A high degree of transparency and high-quality and convincing monetary-policy reports are often considered essential to establishing and maintaining credibility. Furthermore, a high degree of credibility gives the central bank more freedom to be 'flexible' and also stabilize the real economy. (Svensson, 2002)

Whereas many central banks in the past seem to have actively avoided *accountability*, for instance by not having explicit objectives and by being very secretive, inflation targeting is normally associated with a high degree of accountability. A high degree of accountability is now considered generic to inflation targeting and an important component in strengthening the incentives faced by inflation-targeting central banks to achieve their objectives. The explicit objectives and the transparency of monetary-policy reporting contribute to increased public scrutiny of monetary policy. In several countries

inflation-targeting central banks are subject to more explicit accountability. In New Zealand, the Governor of the Reserve Bank of New Zealand is subject to a Policy Target Agreement, an explicit agreement between the Governor and the government on the Governor's responsibilities. In the UK, the Chancellor of the Exchequer's remit to the Bank of England instructs the Bank to write a public letter explaining any deviation from the target larger than one percentage point and what actions the Bank is taking in response to the deviation. In several countries, central-bank officials are subject to public hearings in the Parliament where monetary policy is scrutinized; and in several countries, monetary policy is regularly or occasionally subject to extensive reviews by independent experts (for instance, New Zealand, the UK, Norway, and Sweden).

So far, since its inception in the early 1990s, inflation targeting has been a considerable *success*, as measured by the stability of inflation and the stability of the real economy. There is no evidence that inflation targeting has been detrimental to growth, productivity, employment, or other measures of economic performance. The success is both absolute and relative to alternative monetary-policy strategies, such as exchange-rate targeting or money-growth targeting. No country has so far abandoned inflation targeting after adopting it, or even expressed any regrets. For both industrial and non-industrial countries, inflation targeting has proved to be a most flexible and resilient monetary-policy regime, and has succeeded in surviving a number of large shocks and disturbances. As of 2007, a long list of non-industrial countries were asking the International Monetary Fund for assistance in introducing inflation targeting. Although inflation targeting has been an unqualified success in all the small- and medium-sized industrial countries that have introduced it, the United States, the Eurozone and Japan have not yet adopted all the explicit characteristics of inflation targeting, but they are all moving in that direction. Reservations against inflation targeting have mainly suggested that it might give too much weight on inflation stabilization to the detriment of the stability of the real economy or other possible monetary-policy objectives; the fact that real-world inflation targeting is flexible rather than strict and the empirical success of inflation targeting in the countries where it has been implemented seem to confound those reservations. (Roger and Stone, 2005)

A possible alternative to inflation targeting is *money-growth targeting*, whereby the central bank has an explicit target for the growth of the money supply. Money-growth targeting has been tried in several countries but been abandoned, since practical experience has consistently shown that the relation between money growth and inflation is too unstable and unreliable for money-growth targeting to provide successful inflation stabilization. Although Germany's Bundesbank paid lip service to money-growth targeting for many years, it often deliberately missed its money-growth target in order to achieve its inflation target, and is therefore arguably better described as an implicit inflation targeter. Many small and medium-sized countries have tried exchange-rate targeting in the form of a *fixed exchange rate*, that is, fixing the exchange rate relative to a centre country with an independent monetary policy. For several reasons, including increased international capital flows and difficulties defending misaligned fixed exchange rates against speculative attacks, fixed exchange rates have become less viable and less successful in stabilizing inflation. This has led many countries to instead pursue inflation targeting with flexible exchange rates.

A current much-debated issue concerning the further development of inflation targeting is the appropriate *assumption about the instrument-rate path* that underlies the forecasts of inflation and other target variables and the *information provided about future policy actions*. Traditionally, inflation-targeting central banks have assumed a constant interest rate underlying its inflation forecasts, with the implication that a constant-interest-rate inflation forecasts that overshoots (undershoots) the inflation target at some horizon such as two years indicates that the instrument rate needs to increased (decreased). Increasingly, central banks have become aware of a number of serious problems with the assumption of constant interest rates. These problems include that the assumption may often be unrealistic and therefore imply biased forecasts, imply either explosive or indeterminate behaviour of standard models of the transmission mechanism of monetary policy, and at closer scrutiny be shown to combine inconsistent inputs in the forecasting process (such as some inputs such as asset prices that are conditional on market expectations of future interest rates rather than constant interest rates) and therefore produce inconsistent and difficult-to-interpret forecasts. Some central banks have moved to an instrument-rate assumption equal to market expectations at some recent date of future interest rates, as they can be extracted from the yield curve. This reduces the number of problems mentioned above but does not eliminate them. For instance, the central bank may have a view about the appropriate future interest-rate path that differs from the market's view. A few central banks (notably in New Zealand, Norway, and Sweden) have moved to deciding on and announcing an optimal instrument-rate path; this approach solves all the above problems, is the most consistent way of implementing inflation targeting, and provides the best information for the private sector. The practice of deciding on and announcing optimal instrument-rate paths is now likely to be gradually adopted by other central banks in other countries, in spite of being considered more or less impossible, or even dangerous, only a few years ago. (Svensson, 2007; Woodford, 2005)

Another issue is whether flexible inflation targeting should eventually be transformed into flexible *price-level targeting*. Inflation targeting as practised implies that past deviations of inflation from target are not undone. This introduces a unit root in the price level and makes the price level non-stationary. That is, the conditional variance of the future price level increases without bound with the horizon. In spite of this, inflation targeting with a low inflation rate is referred to as 'price stability'. An alternative monetary-policy regime would be 'price-level targeting', where the objective is to stabilize the price level around a price-level target. That price-level target need not be constant but could follow a deterministic path corresponding to a steady inflation of two per cent, for instance. Stability of the price level around such a price-level target would imply that the price level becomes trend stationary, that is, the conditional variance of the price level becomes constant and independent of the horizon. One benefit of this compared with inflation targeting is that long-run uncertainty about the price level is smaller. Another benefit is that, if the price level falls below a credible price-level target, inflation expectations would rise and reduce the real interest rate even if the nominal interest rate is unchanged. The reduced real interest rate would stimulate the economy and bring the price level back to the target. Thus, price-level targeting may imply some automatic stabilization. This may be highly desirable, especially in situations when the zero lower bound on nominal interest rates is binding, the nominal interest rate

cannot be further reduced, and the economy is in a liquidity trap, as has been the case for several years until recently in Japan. Whether price-level targeting would have any negative effects on the real economy remains a topic for current debate and research. (Svensson, 2002)

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