

Inflation Targeting: Theory and Policy Implications

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As with many monetary policy frameworks, inflation targeting is subject to the well-known problem of inflation bias. With inflation targeting, however, the bias becomes apparent not as inflation above desired levels but as a wedge between the announced target and observed inflation. This inconsistency could render the framework neither credible nor enforceable because the target is overshoot on average. The problem can be addressed by assigning price stability as the single policy objective or by assigning dual targets for inflation and output, provided that they are consistent. Many inflation-targeting countries take the joint target approach implicitly through transparency measures that publicly assess monetary conditions in terms of potential output and output gaps. [JEL E52, E58]

INFLATION TARGETING is a monetary policy framework under which policy decisions are guided by expected future inflation relative to an announced inflation target. Five industrial countries have announced formal inflation targets and targeting frameworks, and several others appear to be following a targeting approach on an informal or unannounced basis.

The purpose of this paper is to evaluate inflation targeting from a theoretical perspective and to assess its viability as a low-inflation—or price-stable—policy framework. Simply put, can inflation targeting deliver long-run price stability, or does it suffer from the drawbacks of other discretionary policies that, in theory, lead to an “inflation bias” that pushes inflation above desirable rates? The remainder of the paper addresses the following issues:

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- Inflation targeting is covered in the current theoretical debate on discretionary policies and inflation bias. Indeed, Svensson (1995) has proposed inflation targeting as a means to lower inflation and offset the inflation bias inherent in discretionary policy regimes.
- Questions remain, however, as to whether inflation targeting alone can reduce inflation to desired levels. Within the theoretical model, the underlying causes of the bias are not addressed by the inflation-targeting regime, and, as a result, inflation will systematically exceed the announced target. This inconsistency could lead to a breakdown of the targeting framework for two reasons: (1) private agents would see actual price increases overshooting the target and might conclude that the target is not credible; or (2) the government-central bank arrangements setting up the target would be unenforceable because sanctions against the central bank would be continuously required. Setting up an inflation target range might help because the monetary authority could perhaps keep inflation within the band by aiming for its lower end. Over time, however, the bias would push inflation up and perhaps out of the band.
- Inflation targeting could be made credible in two ways. First, the authority could announce and follow consistent inflation and output targets. Targeting output at a level consistent with nonaccelerating inflation addresses the underlying cause of inflation bias by eliminating the monetary authority's incentive to engineer surprise inflation. Thus, in contrast to "conventional wisdom," a dual monetary policy objective may enhance prospects for low inflation. Second, the monetary authority could commit to price stability as the sole monetary policy objective. By giving up the output objective, the monetary authority's incentive to deviate from announced plans with surprise inflation would be eliminated. Such a commitment, however, may not be feasible.

Section I of the paper presents background material, including a definition of inflation targeting and a short summary of country experiences. Section II reviews the literature and presents the standard model to analyze monetary policy frameworks. Section III applies the model to inflation targeting and identifies possible problems with the framework. Section IV covers implementation and policy implications. Section V summarizes the main conclusions of the paper.

I. Background

What Is Inflation Targeting?

Inflation targeting is a framework for conducting monetary policy in which decisions are guided by expectations of future inflation relative

to the announced target. In an inflation-targeting setup, the authorities announce a target or, more typically, a target range for future inflation. A change in the current policy stance is indicated if projected inflation over a one- to two-year time horizon falls outside the announced range. Thus, expected future inflation, as measured by projected inflation, becomes the “intermediate target” (or, more correctly, an indicator variable) for monetary policy.

From the public’s perspective, the monetary authority announces a target range for inflation that is consistent with the ultimate policy objective—typically, price stability. The authority announces its intention to hold inflation within the specified range in the future, possibly with some additional leeway for preannounced contingencies. Typical contingencies allow for price changes outside the announced range resulting from a terms of trade shock or a shift in indirect taxes. Thus, preannounced contingencies focus attention on measuring underlying inflation by accounting for inflationary influences outside the control of the monetary authority.

Transparency measures can be an important part of the inflation-targeting policy framework because the success of inflation targeting depends in part on whether private agents accept the officially announced target. As discussed in the next section, inflation targeting leaves room for policy discretion, and this freedom could tempt the monetary authority to raise output in the short term through expansionary policies. Put another way, potential inconsistencies between the inflation target and the preference to raise output beyond potential may render inflation targeting neither credible nor enforceable. All the inflation-targeting countries have introduced credibility-enhancing measures, including more open policy discussions and interpretation of economic data.

A defining feature of inflation targeting is that the target variable, future inflation, is not observed. From an operational point of view, inflation targeting can therefore be seen as a two-step process, in which the monetary authority must first make an inflation forecast to assess whether, under current policies, inflation is likely to remain within the announced target range. The second step is needed when future inflation is judged likely to move outside the target range. In this instance, a feedback rule that links policy actions to projected inflation is used to determine a path for monetary policy instruments that will bring the projected inflation rate into the target range.¹

¹The analytic tools needed to operate an inflation target can range from a set of reduced-form equations linking policy instruments to projected inflation to a full macroeconomic model. Discussion of these operational considerations is beyond the scope of this paper.

Country Experiences

Five industrial countries have adopted formal inflation targets.² New Zealand first announced an inflation target in 1989 as part of that country's economic reform and restructuring effort. Canada followed in early 1991. In the wake of the exchange rate mechanism crisis in September 1992, the United Kingdom announced that an inflation target would replace the exchange rate anchor that had been in place for two years but had proved unsustainable. Under similar circumstances, Sweden and then Finland set up inflation targets after their exchange rate pegs were successfully challenged. Both these countries had based monetary policies on fixed exchange rate baskets for much of the postwar period.

In all five countries, inflation rates fell after the inflation target policies were announced, but these declines were also associated with cyclical downturns and large output gaps. With recovery, inflation rates increased somewhat in all five countries, and, by mid-1995, the upper target ranges were breached by small amounts in New Zealand and Sweden. Four of these countries, however, tightened policies ahead of significant increases in price pressure.³

II. The Monetary Policy Literature: Underpinnings for Inflation Targeting

From the historical perspective of the "rules-versus-discretion" debate through the mid-1970s, inflation targeting could be classified in either category.⁴ It would be considered a rule if a clear mechanism linking policy instruments to the intermediate target or, in this case, its nearest equivalent, future inflation, could be established. However, in view of the uncertainty with which policy instruments affect future inflation, establishing the policy rule might be difficult, thus leaving the authority with discretion over how to set policy instruments.

²See Griffiths (1995) for a detailed description of each country's inflation target, the institutional framework and operation, and preliminary assessment. In addition to these countries, Australia and Spain have also announced inflation targets.

³In Finland, inflation has remained low, and the authorities have not seen the need to tighten monetary policies. In Sweden, inflation exceeded the target range in April–May 1995. In New Zealand, inflation remained just above the band in mid-1996.

⁴Haldane (1995) distinguishes between intermediate and final target policies. In this context, countries with inflation targets follow final target strategies. He notes that the difference may be more semantic than economic because differences in practice are exaggerated.

In the mid-1970s, the rules-versus-discretion debate took a new path that developed the concepts of time consistency (or credibility) and inflation bias. The literature begins with Kydland and Prescott's (1977) observation that policymakers might be tempted to exploit the inflation-output trade-off characterized by the short-run Phillips curve. Monetary authorities might choose expansionary policies in an attempt to raise output above its potential level by engineering unexpected inflation. However, such policies would be fully anticipated by private agents and would serve only to raise the average rate of inflation, with no impact on output. This increase in average inflation is known as inflation bias.⁵ In this literature, the distinction between rules and discretion rests on the notion of an enforcement power (or commitment technology) that binds the monetary authority to a stated course.⁶

The remainder of this section sets forth the standard theoretical model in the literature and the optimal monetary policy operating practices (or rules) under alternative assumptions and policy approaches. Two general classes are considered. The first assumes that the monetary authority can commit in advance to a specific policy rule, such as a fixed monetary growth rate or an exchange rate peg. The second general class of examples assumes that the monetary authority can operate only with discretion because full commitment to a policy course is not credible. There is no political or other means by which the monetary authority can be bound to a policy rule. The commitment case is used as a benchmark to evaluate inflation and output outturns; the first example in the second general class of models serves as a starting point for a review of the inflation bias problem and the inflation-targeting model.

The Model Setup

The typical theoretical model in the literature sets up the monetary policy problem as the minimization of a hypothetical social loss function (equation (1)).⁷ Both private agents and the monetary authority seek to minimize deviations in inflation and output from social preferences. π^* and y^* ,

⁵As discussed below, the rate of inflation is higher in this situation than the rate that would be obtained if policy remained committed to not exploiting the short-run trade-off between inflation and output.

⁶The monetary authority cannot choose between rules and discretion. Rather, the classification of the framework follows from the environment in which the authority operates. See Persson and Tabellini (1990) for a fuller treatment of this point.

⁷The single-period case is presented here. Barro and Gordon (1983) develop the multiperiod model in the context of "reputation"; this concept is explained at the end of this section. This analysis and the possible overstating of the inflation bias problem are picked up at the end of this section as well.

respectively. These preferences are generally defined as zero inflation and a level of output above that corresponding to the natural rate of unemployment. The assumption of zero inflation is consistent with price stability (assuming symmetric and offsetting shocks), while the social preference for output above the natural rate reflects the underlying assumption that rigidities in the labor market restrict potential supply. The parameter λ represents the relative social importance assigned to output: a higher λ places a greater weight on output deviations and a lesser weight on inflation. Thus, for example, an inflation-averse society would be characterized by a low λ value and a low π^* . The social loss function is

$$L = (\pi - \pi^*)^2 + \lambda(y - y^*)^2. \quad (1)$$

The social loss function is minimized subject to the supply constraint, typically the short-run Phillips curve (equation (2)). In this formulation, labor supply and, therefore, output are increased in the short run by an inflation surprise. (Output is also affected by supply shocks, ε .) This surprise can occur in the model because the monetary authority benefits from an information advantage that allows it to change policy after private agents form expectations. The output function is

$$y = (\pi - \pi^e) - \varepsilon. \quad (2)$$

Two additional equations are needed to solve the monetary policy problem. Equation (3) describes private sector inflation expectations, which are assumed to be rational, unbiased, and formed at time $t-1$, that is, before monetary policies for period t are set. An important feature in the model is whether the monetary authority can affect private expectations. The extent to which the monetary authority can influence private expectations distinguishes the commitment and discretionary cases discussed below; expectations are expressed as

$$\pi^e = E_{t-1}(\pi). \quad (3)$$

Equation (4) gives a general format for a monetary policy operating procedure (rule) that minimizes the social loss function to achieve the optimal mix of inflation and output.⁸ With this format, the monetary authority can choose the underlying rate of inflation (the a parameter) that will prevail when there are no output shocks. It can also choose how it will respond to output shocks (the b parameter). The general format is

$$\pi = a + b\varepsilon. \quad (4)$$

⁸The assumption that the monetary authority has full control over the inflation rate abstracts from operational issues such as economists' ability to predict inflation. See Baumgartner and Ramaswamy (1996) for a discussion of the inflation information content of financial and monetary variables.

Finally, the equations of the model are solved for the optimal policy rule, that is, expressions for a and b that minimize the social loss function. The following subsections develop policy rules under various environments and regimes.

Monetary Policy with Commitments: The Benchmark Case

The standard model outlined above is used in the literature to show analytic solutions for inflation and output in various policy-setting environments, including inflation targeting. As a benchmark, the model is typically evaluated under the assumption of full credibility and policy commitment. In this case, the monetary authority promises to refrain (or is restrained) from inflation surprises. In addition, it commits to offset supply shocks, but only in a predictable and preannounced way, so that all possible disturbances, ε , and their corresponding policy responses are known by the public in advance. These assumptions amount to a rules-based policy approach that by construction eliminates policy uncertainty.

Agents will base their inflation expectations on the policy rule alone, as they fully believe that the monetary authority will stick to the preannounced rule and will refrain from inflation surprises to raise output. Therefore, private agents adopt the socially preferred rate of inflation, π^* , as their inflation expectation. Through commitment, the authority exercises control over private sector expectations, or, put another way, the monetary authority “internalizes” private expectations in its policy rule and does not need to consider the impact of its actions on private expectations. By contrast, private expectations are dependent on monetary authority actions in the alternative discretionary case outlined in the next subsection.

The optimal values of the monetary policy parameters a and b in equation (4) are derived from the first-order conditions of the social welfare function, subject to the economic constraints of the supply curve. Expressions for these parameters are inserted into the optimal policy rule, as shown in equation (5):⁹

$$\pi = \pi^* + \frac{\lambda}{1 + \lambda} \varepsilon. \quad (5)$$

⁹Expressions for the values of the a and b parameters are derived from the first-order conditions of the optimization problem. To see this, substitute private expectations ($\pi^e = a$) and the monetary policy rule (equation (4)) into the loss and output functions (equations (1) and (2), respectively) and take derivatives with respect to a and b . To see equation (5), substitute the expressions for a and b into the policy rule (equation (4)).

This policy rule is interpreted as follows. In the absence of supply shocks, the monetary authority sets inflation at the social preference, π^* . With a supply shock that, for example, lowers output, the monetary authority loosens monetary conditions (creating surprise inflation) to offset in part the output decline. The response to the shock depends on social preference trade-off between output and inflation (the λ parameter) and is shown in the second term of equation (5). Equation (6) quantifies the extent to which output shocks are offset by monetary policy:

$$y' = -\frac{\varepsilon}{1 + \lambda} \quad (6)$$

In the monetary policy literature, the commitment policy regime is often labeled as time inconsistent (or not credible) because the monetary authority has an ex post incentive to deviate from its announced policy (that is, an incentive to deviate after private expectations are formed). Because private agents do not anticipate policy surprises, the monetary authority can increase output temporarily and thereby improve the inflation-output outcome. Such an expansion, however, would violate the commitment to the policy rule, making the commitment not credible or time inconsistent.¹⁰

Also, the outcome under the commitment rule is sometimes described in the literature as “second best,” despite the fact that average inflation is held to the rate preferred by society. The second-best description reflects the assumption that labor market rigidities lower potential supply. A first-best outcome would address the labor market directly.

Discretionary Policies

In a discretionary regime, the monetary authority lacks the necessary credibility (or ability to commit) to convince private agents that it will not undertake a surprise expansion. In consequence, private agents rationally expect “surprise” policies, and this then alters private expectations and the authority’s ability to influence and control them. In contrast to the commitment case, the policymaker cannot assume that private expectations will equal the social preference, π^* . Rather, to derive the optimal policy rule under discretion, the authority must take into account the impact of its future policies on private expectations. The resulting policy formula,

¹⁰Persson and Tabellini (1990) observe that the time-inconsistent label is not appropriate in this case because, by assumption, the commitment regime requires full credibility and, therefore, time consistency.

shown in equation (7), includes a second constant term, λy^* .¹¹ This term in the policy rule is called the inflation bias because it adds a constant rate of inflation to the policy rule under discretion—as opposed to the commitment case. The optimal policy rule under discretionary policies can be expressed as

$$\pi = \pi^* + \lambda y^* + \frac{\lambda}{1 + \lambda} \varepsilon. \quad (7)$$

In the policy discretion case, both average and expected inflation exceed the social preference, π^* . The inflation bias stems from the assumption that private agents recognize the monetary authority's incentive to adopt expansionary policies and adjust their expectations accordingly. These higher private inflation expectations are taken into account by the monetary authority and incorporated in the optimal policy equation. However, because it is anticipated, the higher level of inflation has no impact on output.

To summarize, discretionary policies result in a higher average level of inflation but do not improve output. In most instances, the commitment is not a viable option because the underlying incentive for the monetary authority to engineer a surprise expansion cannot be prohibited. Since the commitment case can generally be ruled out on these grounds, attention in the literature has focused on mechanisms of reducing or offsetting the inflation bias found within the class of discretionary policies.¹²

The problem of inflation bias as presented above is perhaps overstated because the model does not take into account that monetary policy is a continuous process.¹³ By extending the model to include multiple-period repeated games, the monetary authority sees a link between current and future policies. In this extension, the incentive to create surprise inflation

¹¹As in the commitment case, the optimal policy equation is derived from the first-order conditions of the social preference function. However, under discretion, the monetary authority cannot internalize private expectations in the sense of incorporating them as an exogenous variable into its inflation rule. To derive the optimal inflation rule under discretion, an expression for private expectations is first obtained by taking expectations of the first-order conditions. The resulting expression is then substituted into the first-order condition to arrive at the policy rule. In both the commitment and discretionary cases, the monetary authority knows the private expectations equation.

¹²Discretionary policies are sometimes labeled "third best" because the inflation outcome is higher than in the commitment, or second-best, case. Persson and Tabellini (1990) point out that the economic outcomes under commitment and discretionary regimes should not be compared because, if a commitment can be made, time consistency (credibility) is not an issue.

¹³For a summary of the multiperiod model and the role of reputation, see Persson and Tabellini (1994).

might be reduced because today's surprise could raise future inflation expectations and prove costly (in terms of the loss function) in future periods. Intuitively, the monetary authority may seek to avoid inflation surprise in the current period to establish reputation and enjoy benefits in the future. The importance of reputation effects depends on the length of tenure of the monetary authority as, with a finite horizon, incentives for inflation surprises are not eliminated.

Solutions to the Inflation Bias Problem

The inflation bias results in a higher-than-desired rate of inflation when monetary decisions are guided by discretionary policies. While a commitment regime is preferable to discretion, fully credible policies are not feasible for most countries, and other means of reducing or offsetting the inflation bias need to be explored. A number of solutions have been proposed in the theoretical literature, but most have either resulted in partial improvement or have introduced adverse consequences, such as increased variability in output.¹⁴ The next few paragraphs give a brief review of two representative approaches, the Rogoff "conservative banker" approach and Walsh's optimal contracts approach. The next section follows with a discussion of inflation targeting as a means of addressing the inflation bias.

Rogoff's (1985) conservative banker approach addresses the inflation bias through the government-central bank relationship.¹⁵ In this example, the government appoints a central bank that is more averse to inflation than the public at large (as characterized by a λ parameter that is lower than what society would assign). As can easily be seen from equation (7), a smaller λ will reduce the inflation bias: it is eliminated when λ is zero, that is, when the bank focuses solely on inflation. The drawback of this approach is an increase in output variability.¹⁶

Walsh (1995) addresses the inflation bias problem through the government-central bank relationship (optimal contracts). The proposed arrangement structures the central banker's personal employment contract to impose a penalty on the banker if inflation exceeds the socially preferred

¹⁴For a summary of the proposed fixes, see Svensson (1995).

¹⁵To this point, the paper has used "monetary authority" rather than "central bank" to identify the institution making policy decisions. It now switches to the term "central bank" to underscore the importance of the relationship between the government (the agent for the public at large) and the monetary institution, which can be separate.

¹⁶The increase in output variability can be seen from equation (7). With $\lambda = 0$, monetary policy will not be used to offset output shocks, and the full variance will be seen in actual output.

rate. The arrangement, in effect, gives the banker an additional incentive to hold down inflation while observing social preferences. The added cost to the banker can be used to offset the inflation bias, as shown in equation (8), where c is the banker's cost for each unit of excess inflation. Set properly (that is, at λy^*), the cost term can offset the bias and will have no adverse impact on output or its variability. Walsh's optimal contract solution is

$$\pi = \pi^* + \lambda y^* + \frac{\lambda}{1 + \lambda} \varepsilon - c. \quad (8)$$

Although the optimal contract approach can yield benchmark-best results (the commitment case), there may be problems with its implementation. First, the underlying cause of the inflation bias is not addressed, and, in consequence, the tensions stemming from supply restrictions remain.¹⁷ In addition, Blinder (1995) has questioned the efficacy of contracts that impose personal costs on central bankers for excess inflation. He points out that such personal financial incentives may be ineffective because many bankers could earn higher salaries in the private sector.

III. Inflation Targeting

Svensson (1995) has proposed inflation targeting as a means of tackling the inflation bias. Here, too, the proposal works through the government-central bank relationship. With inflation targeting, the central bank is assigned by the government an explicit inflation target, π^b , which is lower than the social preference, π^* .¹⁸ Policies remain discretionary, and private agents are assumed to take the target (which is announced) into consideration when forming their expectations. They do not, however, adopt it fully because, as with all discretionary policy regimes, they foresee the central bank's incentive to stimulate output through higher inflation. Thus, the monetary authority cannot internalize private sector inflation expectations, and the optimal policy rule follows the same form as the standard discretionary case. With targeting, the social inflation preference, π^* , is replaced by the inflation target, π^b .¹⁹

¹⁷This point on the underlying causes of the inflation bias is made in McCallum (1995).

¹⁸Under inflation targeting, the central bank is assigned a policy goal but has discretion in how to achieve it. Thus, it has instrument but not goal independence. See Fischer (1995) for a more complete discussion.

¹⁹Equation (9) is derived by minimizing the social loss function. The problem is set up and solved in the same way as the standard model outlined in the previous section.

$$\pi = \pi^b + \lambda y^* + \frac{\lambda}{1+\lambda} \varepsilon. \quad (9)$$

It is easy to see from equation (9) that the policy rule includes the inflation bias common to discretionary policies, λy^* . But this bias can be offset and the social preference for inflation obtained by choosing the inflation target, π^b , sufficiently below the social preference:

$$\pi^b = \pi^* - \lambda y^*. \quad (10)$$

With the inflation target so chosen, the optimal policy rule yields average and expected inflation at the social preference:

$$E(\pi) = E\left[\pi^* - \lambda y^* + \lambda y^* + \frac{\lambda}{1+\lambda} \varepsilon\right] = \pi^*. \quad (11)$$

(There are no adverse implications for output and output variability.) Inflation targeting, therefore, is a potential means of achieving an economic outcome similar or identical to that possible under commitment rules. The underlying cause of the bias, however, is again not addressed.

The inflation bias term presents a potential problem for inflation-targeting credibility: the optimal inflation rule yields an average inflation rate at the social preference but above the announced target. In effect, by announcing and following an inflation target, the central bank can potentially lower average inflation; however, because it does not control or internalize private expectations and because private agents understand the central bank's incentive to adopt expansionary policies, the inflation bias term remains. The bias term now appears as a wedge between average inflation and the announced target. Whether the policy approach is credible or feasible depends on the private expectations mechanism and the means by which the government assigns the inflation target to the central bank. Three possible outcomes are reviewed below.

Private Expectations

The first outcome incorporates the main assumptions outlined above. It assumes a discretionary environment in which private agents see both the announced inflation target and the central bank's incentive to raise output through surprise inflation. For its part, the central bank announces an inflation target that is low enough to offset the inflation bias and yield average inflation at the social preference rate.

The situation may not be stable. On average, inflation will be above the central bank's target, and, either immediately or over time, this over-

shooting will be recognized. The situation is sustainable only if the overshooting has no impact on private expectations. In this case, private agents understand and “accept” average inflation above the announced target and turn a “blind eye” to this inconsistency.²⁰ Alternatively, private agents will lose faith in the target, and the inflation-limiting benefits of the policy framework will break down. In effect, by announcing an inflation target, the central bank sets up a benchmark that is never met.²¹

An inflation target range might help with the overshooting problem, but possibly for only a limited period of time. With a target range, the central bank could aim for inflation so low that, even including the bias, average inflation would remain under the upper limit of the announced band. Over time, however, the public might adjust its inflation expectations in line with the observed outcome so that average inflation would rise and eventually breach the upper limit.

The Government-Central Bank Relationship

This outcome assumes that the central bank is assigned an inflation target by the government through a law or other arrangement that is not fully credible. As a result, the policy environment is discretionary. Private agents, however, place some faith (initially) in the target so that average inflation is brought down toward the social preference; however, as in the first outcome, it overshoots the announced target.

In this example, the overshooting of the inflation target does not go unnoticed by the government. It must, under the terms of its arrangement with the central bank, take measures against the central bank for failing to hit the target. However, the central bank is doing its job correctly, in that it sets policy according to the social loss function, the Phillips curve constraint, and the assigned inflation target. No action—short of a revision in the loss function—will change this outcome, and the government will need to take action against the central bank continuously. The government-central bank inflation target

²⁰While experience with announced inflation targets is insufficient to shed light on this possibility, it may be supported by the experience of monetary targeting in Germany, where the monetary target was exceeded in 9 of the past 21 years while money growth was under target in only 1 year. (The target was achieved in the remaining years.) Despite this record, the Bundesbank is widely considered to be highly credible.

²¹Reputation would work against inflation targeting. Drawing on this literature, the expectations “trigger” function would set $\pi^e = \pi^d$ with the initial inflation target announcement. However, when agents observe that $\pi > \pi^d$, they would set their expectations to $\pi^* + \lambda y^*$.

arrangement therefore cannot be enforced, and any initial credibility is lost. As argued in the discussion of the first outcome, a target range might help initially, but average inflation could over time rise above the range's upper limit, thereby necessitating continuous action against the central bank.

A Strong Inflation Target Law

The third outcome assumes that the government sets up an ironclad means of enforcing the inflation target assigned to the central bank and that private agents see the target as fully enforceable. Credibility would not be in question, and the central bank would internalize private expectations. By definition, therefore, the inflation-targeting framework falls into the class of commitment policies, and average and expected inflation equals the announced target.

IV. Implementation and Policy Objectives

The three cases presented above make clear that inflation bias and, therefore, credibility problems might not be addressed by inflation targeting alone. For inflation-targeting policy frameworks to work, the underlying inconsistency in policy objectives needs to be addressed.

Dual Policy Objectives and Transparency

One means of making inflation targets credible is to announce both inflation and output targets, provided that they are consistent.²² In this way, the central bank's incentive to raise output through surprise inflation is eliminated, and, as a result, the root cause of inflation bias is addressed. Svensson (1995) underscores this point and reminds his readers of the well-known result that, if the output target is set equal to the natural rate of unemployment, the policy conflict and the inflation bias are resolved. This relationship can be seen intuitively. If the inflation and output targets lie on the long-run supply curve so that the output objective corresponds to nonaccelerating inflation, no trade-off is needed to balance the two objectives, and there is no incentive for policymakers to induce surprise inflation. The inflation bias is eliminated.²³

²²A working assumption is that the central bank has instrument independence. Output goal independence is also necessary unless the government agrees to the output objective.

²³Svensson (1995), however, reaches the additional conclusion that under output persistence the inflation bias remains.

An output target could be announced explicitly along with the inflation target or signaled implicitly—for example, as part of efforts to make policies more open and transparent.²⁴ Canada, Finland, Sweden, and the United Kingdom have all signaled implicit output targets as part of policy transparency measures. In these countries, the central bank publishes assessments of prospects for output relative to its potential, namely, the output gap. By making known its views on inflation pressures in this context, the central bank signals an implicit output target. Ideally, the central bank explains the policy stance so that it is clear that policies will be tightened if inflation is likely to rise above the announced target.

A Single Policy Objective

Another means of eliminating the inflation bias is to remove the central bank's incentive to surprise the public by adopting (or being assigned) price stability as the single policy objective.²⁵ In this case, the inflation bias is absent because the central bank has no incentive to raise output through surprise expansionary policies. The drawback to such an approach, however, is that it precludes monetary responses to supply shocks, which will result in higher output variability.

V. Summary and Conclusions

Inflation targeting is a framework for conducting monetary policy in which projected future inflation compared against an announced target is used to guide policy decisions. In this sense, projected inflation takes the role of an intermediate target.

Five industrial countries have put inflation targeting in place since 1989. In view of the forward-looking nature of the policy setup and the cyclical downturn that occurred in all the inflation-targeting countries in the intervening period, it is too early to judge the effectiveness of the framework based on the largely desirable inflation results observed so far. Four of the countries tightened monetary policies ahead of significant upturns in inflation. This early action is encouraging.

At the theoretical level, inflation targeting can be classified either as a rule or as discretionary. In the traditional rules-versus-discretion debate, the

²⁴In this context, efforts to raise output above potential must focus on structural policies that will first increase the level of potential output.

²⁵In New Zealand, the Reserve Bank's enabling legislation (the Reserve Act of 1989) identifies price stability as the single objective of monetary policy.

classification depends on the feasibility of developing a rule linking policy instruments to projected inflation—the nearest equivalent to an intermediate target in this setup. In the more recent literature, which emphasizes the concept of time consistency, the classification would depend on the institutional setting for the government-central bank relationship.

In the general class of discretionary policies, the literature identifies an inherent bias that on average causes inflation to exceed the socially preferred level. This bias is sometimes offered as an explanation for higher-than-desirable inflation rates. By correctly choosing the inflation target, Svensson shows that the bias can be offset so that average inflation matches the social preference. However, in setting the low-inflation target, an apparent inconsistency is introduced: average and expected inflation will exceed the announced inflation target. This overshooting could cause the framework to break down through two channels. First, the target might lose credibility as private agents recognize that on average inflation will exceed the target. Second, the arrangements through which the government monitors the central bank would not be enforceable when inflation systematically exceeds the announced target.

Credibility and enforceability can be restored if the central bank places full weight on inflation control and abandons any effort to stabilize output. This single objective, however, may not be desired by society because it raises output variability.

The credibility and enforcement problems can be resolved if the appropriate output target is pursued along with the inflation target. By targeting output at potential, incentives to trade off inflation for higher output—the source of the inflation bias—are eliminated. This targeting can be signaled implicitly through transparency measures in which central banks publish their inflation projections in terms of potential output and output gaps. As a result, and contrary to conventional wisdom, monetary policy objectives for both inflation and output may be a part of a credible policy framework. Finally, to achieve the first-best solution, the level of potential output can be raised to the social preference through structural measures.

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