The Problem of Disinflation

By Stanley Fischer*

The paper examines the benefits and costs of disinflation, deals with the factors determining these costs and examines what can be done to prevent resurgence of inflation.

The successful United States disinflation from CPI inflation rates in excess of 18 % a year in the first quarter of 1980 to the 5 % rate in the first quarter of 1984 shows the power of a determined monetary policy, even in the face of increasingly expansive fiscal policy. Both the speed of the disinflation and the strength of the subsequent recovery appear to make the United States' strategy a desirable one to emulate. The strategy is to implement a restrictive monetary policy immediately, to keep up the monetary pressure while creating a recession deep enough to bring the inflation rate down to acceptable levels, to feed the recovery with temporary monetary acceleration, and then to maintain tight monetary control when the recovery gathers speed.

Basic questions discussed before the United States' disinflation remain. They are:

1. What are the benefits of disinflation?
2. What are the costs of disinflation?
3. What factors determine the costs of the disinflation program?
4. What can be done to prevent a resurgence of inflation?

1. The Benefits of Disinflation

Political rhetoric reveals no doubts about the desirability of disinflation; political action has been less resolute. Few governments have demonstrated a preference for disinflation over continued moderate and

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sometimes high rates of inflation. Beyond the traditional inflation worriers of Germany and Switzerland, and since 1975, Japan, it is only the United States and Britain that in recent years have shown a willingness to disinflate decisively. Many more countries struggle fitfully with inflation, running a restrictive policy for a while, intermittently trying to control inflation by stabilizing the prices of particular goods or the exchange rate, and then returning regretfully to higher inflation rates.

Rather than rehearse the well-know arguments about the costs of inflation, I will address three specific points. First, it is remarkably difficult to adjust the tax system appropriately for inflation, particularly capital taxation. Despite ongoing inflation, most countries, including the United States, have failed to adjust capital taxation to inflation. Adjustments that have been made in the United States — such as accelerated depreciation — restore effective tax rates to levels that obtained at lower rates of inflation, but leave the actual tax rate as sensitive as before to inflation. Indexation of tax systems remains desirable even at low inflation rates in the vicinity of 5 %, for the inflation rate and with it effective tax rates, is bound to fluctuate even when the averages rate is low.

Second, the issue of the links between the average rate of inflation and uncertainty about both the overall rate of inflation and relative prices has not been decisively settled. Most regression results suggest that higher average rates of inflation are associated with both more variability of the overall inflation rate and more relative price variability. But the theoretical possibility that the inflation rate can be kept as stable at a high as at a low average rate of inflation remains; experience in some countries, like Italy and France, is not inconsistent with the view. *Flemming's* (1976) argument that high rates of inflation are also uncertain rates because governments institute stabilization programs more frequently when inflation is high is persuasive, but implies there is nothing inherent in a high rate of inflation that makes it unstable. As to the association between the overall rate of inflation and the variability of relative prices, many of the regression results can be traced to the causal link between relative price shocks and the inflation rate, rather than to a causal link from inflation to relative price variability.

Third, because the costs of inflation depend heavily on the extent to which the economy has adjusted its institutional structure, there is the important question on the extent to which adaptations to inflation — which means indexation — should be permitted and encouraged. I have already argued for the indexation of the tax system; indexation of wages and long-term loan contracts remain to be discussed.

Despite the theoretical attractiveness of indexing, policymakers are almost universally opposed to it. There is a widely expressed — and correct — view that indexing is itself inflationary: it is true that indexation tends to increase the price level effects of any shock to the system, given monetary and fiscal policy. But, by the same token, a deflationary shock translates more quickly into price level than output movements when the economy is heavily indexed. This is the basis for the view that a country that is preparing to disinflate should prefer extensive indexation to an overhang of long-term nominal contracts.

More careful analysis shows that indexation as it is practiced is not unambiguously an aid to rapid disinflation. When wages are adjusted to a past price *level,* a slowdown in the inflation rate results in an increase in the level of the real wage, unless an appropriate correction is made. This difficulty aside, though, indexation reduces the costs of disinflation by allowing mid-course corrections that embody some of the inflationary slow-down that has already been achieved.

More frequently, policymakers oppose indexation on the grounds that permitting or encouraging adjustments to ongoing inflation is a confession of failure in the fight against inflation. This argument can be interpreted in terms of the notion of *dynamic inconsistency,* which provides a formal analysis of situations in which policymakers announce a set of plans that they intend to carry out, but which they do not want to implement when the time for action comes. Dynamic inconsistency occurs when private sector actions depend on expectations of policy. For instance, the economy is better off if firms and workers believe that monetary policy will be restrictive; once that expectation is established, though, there is a temptation for the monetary authority to be expansionary and thus inconsistent with the expectations that it wished to induce.

One method for handling the problem of dynamic inconsistency is to put in place institutions that encourage consistency. It could be argued that because indexation reduces the pain of inflation, it encourages the authorities to act in an inflationary manner. If society is undefended against inflation, then any government that unexpectedly causes inflation will suffer electorally. An argument of this type presumably underlies the restrictions against indexation in West Germany.

The dynamic inconsistency argument against indexation is, however, not clearcut: it can alternatively be argued that because the benefits (for the authorities) of following an inflationary policy are lower when the system is indexed, indexation makes it less rather than more likely that the authorities will unanticipatedly increase the inflation rate. For

instance, the issue of government indexed bonds removes one of the major incentives for government inflationary policy by making it impossible to inflate away the national debt. Some empirical analysis[1] suggests that monetary policy in countries with indexation was not more expansionary after the first oil shock than in nonindexed countries.

Indexation in wage and loan contracts is primarily a means of reducing the costs of uncertain inflation. Accepting the links between high and variable inflation, and variable and uncertain inflation, indexation reduces the costs of high inflation rates. Because the inflation rate will continue to fluctuate even if the average rate is reduced, indexation may be desired by private agents at low as well as high rates of inflation; governments should at the least not attempt to prevent indexation in private contracts.

Because of lags, indexation is nonetheless an imperfect mechanism for dealing with uncertain inflation. Even with substantial institutional adaptation to inflation, high inflation rates impose costs, admittedly difficult to measure, on the economy; economists simply do not have an empirical basis for asserting that the costs of moderate rates of inflation are high. Nonetheless, as positive economists we have to recognize that the public perceives inflation to have high costs, and that many governments will attempt to disinflate before the desirability of doing so has been established beyond a reasonable doubt.

2. The Costs of Disinflation

The simplest measure of the costs of disinflation is the *sacrifice ratio,* the ratio of output foregone (as a percentage of a year's GNP) to the reduction in the inflation rate. Early estimates of this ratio for the United States, summarized by *Okun* (1978) were as high as 6 to 18, with a median estimate of 10. By the time the policy experiment was undertaken, there were estimates in the literature[2] that were as low as 5. Part of the reduction in the estimated cost came from the inclusion of the exchange rate as one channel through which disinflationary policy could quickly affect domestic prices and inflation; another part probably came from the intellectual pressure of the view propounded by rational expectations theorists such as *Sargent* (1981) that a credible policy could reduce inflation quickly and cheaply.

The actual costs of the U.S. disinflation will only be determined when it is clear what the new steady state inflation rate is. But under the

[1] *Fischer* (1983).
[2] For example *Gordon* (1981).

assumptions that the natural rate of unemployment is between 6 and 6.5 %, that the Okun's law coefficient relating unemployment to output is 2.5, that the inflation rate has fallen from 10 % to 5 % in the United States, and that full employment will be reached at the end of 1985, the sacrifice ratio will turn out to be about 5. The loss of output for reducing the inflation rate from 10 to 5 % will approximately be equal to one quarter's GNP. Thus the recent United States experience implies costs at the lower limits of earlier predictions. Of course, the United States experience is not consistent with the extreme view that a resolute disinflationary policy can reduce the inflation rate virtually costlessly.[3]

The United States experience provides one clear measure of the output costs of disinflation. Every other economy that has disinflation has faced foregone output cost. This applies to the German and Swiss cases to be discussed in this conference, and to the Japanese stabilization following the first oil crisis. It also applies in all the cases studied in *Yeager*'s (1981) examination of the ends of fourteen inflations. Surprisingly, there were even periods of reduced output following the four hyperinflations examined by Sargent (*op cit*).

Both experience and theory imply that there is no costless way to disinflate. Any country contemplating reducing its inflation rate has to face the likelihood of a serious, and perhaps prolonged, recession. I turn now to discuss the factors that determine the extent of that recession.

3. Factors Determining the Speed and Cost of Disinflation

A precondition for sucessfull disinflation is that the government is able to finance itself without substantial use of money financing.[4] With 10 % as a typical high powered money to GNP ratio, and the growth rate of output at about 3 %, not much more than 0.5 % of GNP can be raised through money financing of government spending at a low rate of inflation.

[3] The sacrifice ratio may overstate the costs of disinflation: the implicit assumption made in using it as a measure of costs is that the only difference the disinflation program makes to output is to induce a temporary recession. However, the choice might in fact be between disinflation now and disinflation later, or it could be between disinflation now and disinflation later, or it could be between a lower permanent output level as higher inflation, and a higher permanent output level at lower inflation, with a transitional recession period required to go from the one path to the other. In either of these latter cases, the sacrifice ratio overstates the output costs of disinflation.

[4] More generally, in discussing the costs of disinflation I am assuming that the government has already attended to whatever real factors may have caused the inflation, and that the system can operate at a lower long-term inflation rate.

The next important issue is the choice between gradualist and cold turkey policy. If policy is entirely credible, then there is no doubt that the outputs costs of disinflation are minimized by a gradualist policy that gives private sector contracts time to adjust to the impending change in monetary and fiscal policy. But the failure of gradualist policies — or the failure of governments to pursue such policies despite proclaimed intentions — suggests that in practice policy will be cold turkey when it changes: that is, monetary (and perhaps fiscal) policy is moved immediately to a setting consistent with the long-run target for inflation. Typically this means a sharp reduction of the growth rate of money, or equivalent monetary restriction that sharply raises interest rates.

Given a reduction in the growth rate of nominal GNP, the costs of disinflation are determined by the structure of pre-existing contracts, particularly labor contracts, the wage determination process, and the credibility of policy. I shall also briefly discuss the role of the exchange rate.

The longer term are pre-existing labor contracts, the longer it takes for the inflation rate to fall, and the greater the output costs of the disinflation. But the length of labor contracts is not the only determinant of the costs of disinflation. The greater the extent to which labor is concerned with relative wages, the more difficult it is to get disinflation under way in a system in which labor contracts overlap in time. Similarly, the more resistant labor is to reductions in real wages, which typically occur in the early stages of a disinflation, the slower the disinflation process is and the greater the output cost.

Output costs would be minimized — and could in principle even be zero — if the economy could move immediately to a new equilibrium in which interest rates, wages and prices are simultaneously set on paths consistent with the new inflation rate. Several important implications follow from this consideration: first, tough shock treatment may be less costly than simple contracting models suggest, for a large shock may lead to the reopening of contracts that would have remained closed if policy had been less extreme; second, it provides the theoretical basis for the advocacy of currency reform as a means of dealing with inflation by forcing the renegotiation of all existing contracts; third, as frequently noted, it implies that disinflation is less costly in an economy in which hyperinflation has already destroyed most pre-existing contracts; further, it means that disinflation should be cheaper in countries like Japan where there is co-ordinated annual negotiation of economy-wide wage levels than in economies with overlapping long-term-contracts.

Despite the obvious attractiveness of coordinating the adjustment to inflation, advocates of disinflation typically oppose incomes policies or a package deal with labor. The reason for the suspicion of such policies may be that they have often been used instead of rather than as an accompaniment to a stabilization program. If the government does not change macroeconomic policy, then an incomes policy does no longterm good in reducing the inflation rate. But given a serious decision to undertake a stabilization program, incomes policy is desirable.

The credibility of monetary policy has received much emphasis in rational expectations discussions of inflation. To the extent that wages are determined by expectations of inflation, and to the extent that expectations of inflation are determined by expectations about policy, this emphasis is well-placed. There is substantial evidence justifying the wage-inflation expectations link, less evidence that economic agents have in the past based expectations of inflation on expectations of policy. Although it is difficult to believe that expectations of inflation can be entirely independent of policy expectations at a time when a serious change in policy is taking place, it is important for the authorities to recognize that credibility is not easily obtained, and that it is less likely to be obtained if it is relied on as a secret weapon that will reduce the costs of disinflation. Policy will lack credibility if the authorities are not willing to persist in their policies even if they are not believed in.

Exchange rate appreciation significantly reduced the cost of the recent United States disinflation. Because monetary stabilization does not imply a long-run appreciation of the exchange rate, the appreciation associated with monetary restriction has ultimately to be undone. Nonetheless, exchange rate appreciation — or a rapid reduction in any component of inflation — may well reduce the costs of disinflation by permitting disinflationary gains at a time when output costs of disinflating are highest.

Exchange rate appreciation, like incomes policy, is, however, a dangerous route to follow to disinflation if no fundamental change in policy has been undertaken. Many countries have tried to stabilize inflation by stabilizing the exchange rate and have failed because macroeconomic policy has not in fact adjusted to make a permanently lower inflation rate possible. A disinflation program that starts by operating on the exchange rate rather than by getting monetary and fiscal policy in order is likely to fail: a disinflation program that starts with restrictive monetary policy by contrast is likely to benefit from an exchange rate appreciation.

4. Preserving the Gains of Disinflation

The transition to a lower inflation rate in a disinflation program is only the first step in keeping the inflation rate low. The industrialized economies have already moved once from low to high inflation rates and they could do so again.

It is tempting to believe that a monetary rule or other automatic mechanism can preserve the gains made in the fight against inflation. But because the financial system is continually undergoing technical progress, and because of other shifts in the demand for money, a monetary rule does not guarantee price stability or low inflation together with reasonably full employment.

Indeed, there is nothing that guarantees the economy can operate continually close to full employment with low rates of inflation. Uncertainty about the nature of the disturbances affecting the economy ensures that policy that attempts to keep the inflation rate low is also likely to be policy that sometimes reduces the growth rate of money in circumstances that later turn out to be inappropriate. For this reason there is probably a trade-off between the average levels of unemployment and inflation in an economy, given the disturbances affecting that economy. There is no easy route to inflation control: the secret of success in the continuing effort to control inflation is continual vigilance.

Summary

The paper deals with four basic problems concerning disinflation. (1) The benefits of disinflation depend mainly on the adjustment of the tax system and of wage and loan contracts, and on the consequences on the variability of the inflation rate and of relative prices. (2) There is no costless way to disinflate; (3) The speed and cost of disinflation is determined by the choice between gradualist and cold turkey policy, the length of labor contracts, incomes policy, the credibility of monetary policy, and by the behavior of the exchange rate. (4) The gains of disinflation can only be preserved by continual vigilance (and not by a simple monetary rule).

Zusammenfassung

Der Artikel behandelt vier grundsätzliche Probleme des Disinflationsprozesses. (1) Der Nutzen der Disinflation hängt hauptsächlich von der Anpassung des Steuersystems und der Lohn- und Kreditvereinbarungen sowie den Auswirkungen auf die Varianz der Inflationsrate und der relativen Preise ab. (2) Es gibt keine Disinflation ohne gesamtwirtschaftliche Kosten. (3) Die Faktoren, die Geschwindigkeit und Kosten der Disinflation bestimmen, werden im wesentlichen bestimmt durch die Wahl zwischen einer gradualistischen Politik und einer Schocktheraphie, durch die Laufzeit der Lohnver-

einbarungen, durch die Einkommenspolitik, die Glaubwürdigkeit der Geldpolitik und die Entwicklung des Wechselkurses. (4) Die Vorteile aus der Disinflation können nur durch stetige Wachsamkeit und nicht durch eine einfache Geldmengenregel erhalten werden.

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