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The Benefits of Price Stability

Stanley Fischer

"*. . . Such a spirit* [zeitgeist] *seems at work in the 1960s and 1970s, and is evidenced by what appears as a generalized erosion in public and private manners, increasingly liberalized attitudes toward sexual activities, a declining vitality of the Puritan work ethic, deterioration in product quality, explosion of the welfare rolls, widespread corruption in both the private and governmental sector, and, finally, observed increases in the alienation of the voters from the political process. . . . [W]ho can deny that infla- tion, itself one consequence of that conversion, plays some role in reinforcing several of the observed behavior patterns. Inflation destroys expectations and creates uncertainty; it increases the sense of felt injustice and causes alienation. It prompts behavioral responses that reflect a generalized shortening of time horizons. Enjoy, enjoy' —the imperative of our time—becomes a rational response in a setting where tomorrow remains insecure and where the plans made yesterday seem to have been made in folly.*"
<p style="text-align:right">Buchanan and Wagner (1977), pp. 64-65.</p>

Economic analysis of the costs of inflation—the mirror image of the benefits of price stability—is inevitably disappointing to the many, such as Buchanan and Wagner, who know that inflation is a deep societal prob- lem.' The question is whether what the many know is merely difficult to prove, or rather is substantially exaggerated.

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1. A footnote in the original, quoting Ropke to the effect that inflation undermines the foundations of a free society, has been omitted.

In this paper I start by reviewing the standard analysis of the costs of inflation, which depend on the institutional structure of the economy. Despite two decades of inflation, most of the developed economies have chosen not to encourage indexation or other institutional changes that would reduce the costs of a given rate of inflation. In the next section I examine the reasons for and the desirability of the decision to keep inflation painful. Concluding comments on the passion gap between the economic analysis of the desirability of price stability and rhetoric about inflation are then presented.

The costs of inflation

The costs of any given rate of inflation differ depending on whether the inflation was anticipated or not, and on whether the economy's institutions have adapted to the presence of inflation.[2] The greater the extent of institutional adaptation, and the longer any given inflation has been anticipated, the lower its costs.[3] We now examine the major economic costs of inflation, starting with costs that occur even when inflation is anticipated, and then moving on to consider costs associated with uncertainty about inflation and the variability of relative prices.

2. This paper should be interpreted as an attempt to assess the costs society should assign to inflation as part of an analysis of optimal policy: The other components are the costs or benefits of alternative results of policy, and the model of the economy that describes the feasible economic tradeoffs among various economic goods and bads—like inflation and unemployment. More technically, this paper concentrates on exploring one argument in the social welfare function; it examines neither the other arguments in the social welfare function nor in any detail the Phillips curve-type tradeoffs among inflation, unemployment, and growth that are needed for a full analysis of optimal inflation policy. There is no difference in this regard between estimates of the costs of unemployment based on Okun's Law, and estimates of the costs of a given rate of inflation given in this paper. The attempts made in this and earlier papers to measure the costs of inflation are sometimes criticized for their failure to describe the policies that would reduce inflation, but I do not see those who criticize this type of paper applying the same criticisms to Okun's Law-based estimates of the costs of cyclical unemployment.

James Tobin in his concluding comments at the conference stated that he wished 1 had given estimates of the costs of alternatives to inflation—for instance, the German hyperinflation was one way of trying to raise revenues to pay reparations after World War I. Perhaps it was the best way. But it is nonetheless an interesting question as to what costs the inflation imposed on the German economy.

3. On the costs of inflation, see Fischer and Modigliani (1978) and Fischer (1981); for other accounts, see Jaffee and Kleiman (1977), Klein (1976), Leijonhufvud (1981), Chapters 9 and 10 (originally published in 1977), Nordhaus (1973), and Okun (1975).

The money triangle and menu costs

The best analyzed cost of inflation is the money triangle, representing the increased transaction costs resulting from economizing on holdings of currency and bank reserves as the inflation rate increases. The money triangle is a cost of anticipated inflation. As long as currency continues to be an efficient medium for making small transactions, the triangle welfare cost cannot be removed by institutional **adaptation.**[4] At a 10 percent inflation rate, the welfare cost corresponding to the money triangle—the area under the demand curve for currency—is about 0.25 percent of GNP in the United States. However, since currency is used more extensively in illegal than in legal transactions, a tax on currency has desirable allocative and distributional implications that offset this particular welfare cost of inflation.

Because the government has to use distortionary taxation to raise revenue, there is some welfare loss associated with all types of taxation. There is accordingly an argument, made originally by Phelps (1973), that some inflation is desirable on public finance grounds. However no one has established a case for high rates of inflation on this basis.

As transaction technology changes, for instance as the use of credit cards and futuristic means of making payments spreads, the size of the money triangle can be expected to fall. Improvements in the transactions technology are themselves in part induced through inflation, but are not reversible. The experience of inflation accordingly tends over time to reduce the welfare costs that result from economizing on the use of currency.

The money triangle becomes large at high rates of inflation. For instance, under reasonable assumptions about the form of the currency demand function, the money triangle welfare loss of a' 400 percent per annum inflation rate (corresponding to 160 percent with continuous compounding) is 3.3 percent of GNP.[5] These losses correspond to the famous descriptions of increased transactions costs in hyperinflations as individuals are paid more frequently and scurry to spend their incomes before the money loses its value. They alone provide good reasons to avoid

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4. The payment of interest on bank reserves would reduce the welfare loss triangle. I assume that money-stamping would not be an efficient means of paying interest on currency.

5. The assumptions are that the currency/GNP ratio at a zero inflation rate would be 0.075, at 160 percent inflation 0.025, and that the demand for currency equation is of the Cagan form, with unitary income elasticity: $CIPY = A \cdot \exp(\cdot b \cdot gpe)$, where gpe is the expected inflation rate. Under these same assumptions, the cost of an 800 percent inflation rate (corresponding to 220 percent compounded continuously) is 4.9 percent of GNP.

hyperinflation, even if the hyperinflation was perfectly anticipated and if there were no other welfare costs of inflation. But they do not by themselves account for popular reactions to rates of inflation in the low double-digit range, of the type experienced in many of the **OECD** economies in the '70s. Menu costs of inflation arise from the need to change prices more frequently with a higher inflation rate. These are the physical costs of changing prices, the costs of reprinting menus, changing telephone coin boxes, and the like. When the inflation rate becomes high, one-time changes—such as moving to the use of tokens in pay phones—are introduced that make the marginal costs of further inflation low. There are no well-established estimates of the menu costs of inflation.

Institutional non-adaptations

Many of the costs of the recent United States inflation were a result of the failure to adjust regulations and laws that were based on the presumption of stable prices. Interest rate controls in the banking system and non-indexation of taxes are the most important examples.

Controls on nominal interest rates payable by financial institutions ensure that the welfare loss associated with the currency triangle extends to other financial assets, to an extent that depends on the availability of substitute assets (equivalently on the interest elasticity of demand for the controlled asset).[6] Such controls bear particularly heavily on less sophisticated investors who keep their wealth in deposits. Interest ceilings on loans create an additional welfare loss from the misallocation of credit. The invention of money market funds and other financial innovations of the '70s, together with deregulation of the banking system in the '80s, substantially reduced the welfare costs of inflation arising from these controls.

Adjusting the tax system for inflation requires not only bracket indexation, but also appropriate inflation adjustments in the taxation of capital. Such adjustments would be administratively complicated and, if implemented, would imply major shifts in the tax burden.[7]

Accordingly, capital taxation has made few explicit adjustments for inflation except in countries with high rates of inflation—and even in these countries, major inflation-related distortions remain.[8]

The welfare losses associated with inflation-induced capital tax distortions occur because both savings behavior and the allocation of

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6. The existence of interest rate controls modifies the analysis of the welfare costs of the currency triangle.

7. The issues are discussed in Aaron (1976).

8. Use of a consumption tax would avoid these difficulties.

investment are **affected**.[9] The size of the distortions is difficult to pin down: Under fairly modest assumptions about saving elasticities and with the tax code of the early '80s, it is possible to associate a welfare loss of close to 3 percent of GNP with a 10 percent inflation.[10]

The losses discussed in this section are avoidable consequences of inflation. Financial deregulation will reduce the costs of any future inflation. The losses resulting from inappropriate treatment of capital income could be avoided either by adjusting taxes or by moving to a consumption tax. But the fact is that such distortions remain in many countries: It is evidently no simple matter, administratively and politically, to make the adjustments.

Despite a variety of initiatives by the accounting profession and economists, **inflation-adjusted** corporation accounts have not gained wide acceptance. Similarly, inflation adjustments to significant macroeconomic variables, such as the government budget deficit or savings rates, are far from routine, even though the principles of inflation-adjusted accounting are well understood. With existing systems of accounting, budget deficits are exaggerated under inflationary conditions because nominal rather than real interest payments are treated as a current expense. The nominal component of interest should be deducted as a repayment of principal." The adjustments may **be substantial:** For instance, Italy has a debt equal to 80 percent of GNP and an inflation rate of about 12 percent. The inflation adjustment is then nearly 10 percent of **GNP,** transforming Italy's budget deficits from 15 percent of GNP to 5 **percent.**[12]

There are no estimates of the welfare costs of fiscal policy mistakes, if any, resulting from mismeasurements of deficits. Nonetheless, systematically poor information is an unlikely aid to intelligent **policymaking.**[13]

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9. **See Feldstein** (1982) for a review of some of his work in this area.

10. **See Fischer** (1981) for estimates based on earlier work by **Feldstein** and Summers (1979). King and Fullerton **(1984),** pp. **244-45** criticize the **Feldstein-Summers** results, showing that most of the effect is a result of the continued use by firms of FIFO accounting in inflationary conditions. However, given that firms do use FIFO **accounting,** King and Fullerton show sizable increases in marginal corporate tax rates as the inflation rate rises.

11. Equivalently, the government should count as part of its income its capital gain on the real value of outstanding liabilities.

12. A complete set of adjustments for the EC countries is presented in **Cukierman** and **Mortensen** (1983). The magnitude of the adjustment for the U.S. can be calculated based on a privately held public debt equal to 30 percent of **GNP** and an inflation rate of, say, 4 percent, implying an adjustment to the deficit equal to 1.2 percent of GNF!

13. It may be argued that budget deficits should always be exaggerated since governments always overspend. But in high inflation countries, for example Brazil, the exaggeration can be so large as to lead to excessively contractionary fiscal policy when stabilization is attempted.

The examples of this section show that nominal thinking and nominal institutions are deeply embedded in the structure of the economy. That is one of the main reasons price stability should be a goal of policy.

Inflation and price level uncertainty

The empirical evidence is that there is more uncertainty about future price levels at high than at low average rates of **inflation**.[14] There is no logical reason that this has to be so: In principle, it should be possible to produce the same stability of the price level around a trend rising at 10 percent per year as around a stable trend. And indeed, as the cross-sectional Figure 1 shows, there are countries, such as Australia and Italy, that have reasonably stable inflation rates at high **levels**.[15]

A highly variable inflation rate is not necessarily an unpredictable one, since the fluctuations might be foreseen—just as a retail business can predict the highly seasonal pattern of its annual sales. Here too the empirical evidence is that in the United States (and Australia) uncertainty about inflation is positively associated with the rate of **inflation**.[16] The most persuasive explanation of this relationship, due to Okun (1971) and Flemming (1976), is that because economies cannot adjust fully to inflation, monetary policy is more likely to be reversed at high than at low inflation rates.

Uncertainty about future 'price levels and unanticipated changes in prices both have welfare costs. Observers of inflationary economies often point to the diversion of managerial resources to financing rather than production activities, though there is as yet little evidence on the extent of this loss in the developed economies.

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14. See Pagan, Hall, and Trivedi (1983) for a critical review of the literature.

15. Within the OECD, and across a sample of 53 countries for which data were available on the IFS tapes, there is a strongly significant positive correlation between the variance of the inflation rate and its level, for both the 1960-73 and 1973-83 periods. For earlier examination of this relationship, see Okun (1971), Gordon (1971), and other studies reviewed in Fischer (1981).

16. There are two types of evidence, presented in Fischer (1981). First, the variance of the error term in a forecasting equation for the inflation rate is **heteroscedastic**, increasing with the inflation rate. Second, as Cukierman and Wachtel (1979) and others have shown, the cross-sectional variance across forecasters is an increasing function of the inflation rate. Pagan, Hall, and Trivedi (1983) critically examine much of the earlier literature before establishing a positive relationship between price level uncertainty and the inflation rate for Australia.

FIGURE 1

**CPI Inflation and the Variability of the Inflation Rate,
OECD, 1973-1983**
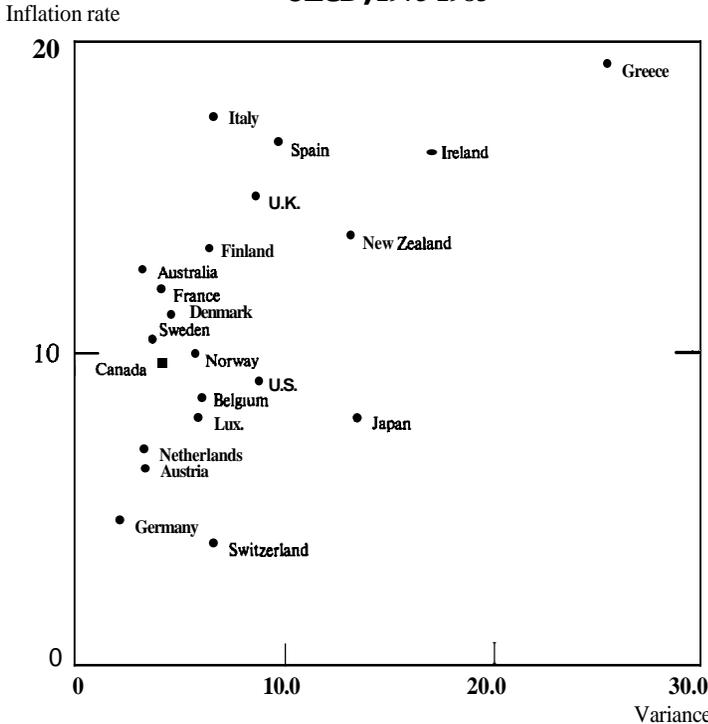
Inflation rate

Note: Iceland (48.2,120.7), Turkey (36.8, 626.1), and Yugoslavia (24.4,42.7) are not shown on the graph. Entries in parentheses are inflation rate and its variance respectively.

In an economy without indexed assets or other safe means of hedging against inflation, there is an ex ante loss from greater uncertainty about future price levels. The size of the loss can be approximated starting from an estimate of the premium that indexed bonds would command over nominal bonds, and it turns out to be of the same order of magnitude as the money triangle at a 10 percent inflation rate.[17] The difficulty in this procedure is, though, that the larger the welfare loss associated with the absence of indexed bonds, the harder it is to explain their non-existence

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17. The **premium** for indexed bonds is the excess of the expected real rate of return on nominal bonds over the real return on indexed bonds.

except where introduced by **governments.**[18] Marketable indexed bonds have been issued by governments in high-inflation countries, and in the United Kingdom. Indexed Social Security provides a similar inflation hedge, albeit in restricted amounts.

In the absence of indexed bonds, increased uncertainty about future price levels imposes welfare costs. The difficulties apply particularly to long-term, for example retirement, savings. With equity not having sparkled as an inflation hedge, the long-term saver is substantially exposed to inflation risk. The two best inflation hedges are housing and the rolling over of short-term nominal assets, but in neither case is the real value assured as it would be with indexed bonds. The inability to protect the value of savings against inflation is almost certainly a—if not the—major reason that the public reacts so viscerally to the threat of inflation.

Ex post redistributions of income and wealth caused by unanticipated inflation create both gainers and losers. Empirical research has not uncovered any consistent effects of unanticipated or anticipated inflation on the distribution of income, despite the popularity in the '50s and earlier of the view that inflation redistributes income from labor to capital. On wealth account, within the private sector, unanticipated inflation redistributes wealth from the wealthy, who own nominal assets, to the middle income groups who are largely nominal borrowers. As Hurd and Shoven (1983) show, the elderly wealthy are extremely vulnerable to unanticipated inflation, while the elderly poor, who have no assets beyond Social Security wealth, are impervious to the effects of unanticipated inflation. As between the private and public sectors, unanticipated inflation benefits the public sector. This redistribution is in part intergenerational, since the reduction in the real value of the national debt implies that future generations will have to pay lower real taxes.

What are the welfare costs of such redistribution? The simple answer is that the costs depend on how society weights the marginal utilities of the gainers and losers—that is to say, we do not know. But such redistributions are costly to society because they create and destroy wealth for individuals on·an apparently random basis, and not on a basis that rewards the Protestant virtues. Certainly, the well-known inspired polemics of Keynes (1919, 1923) on the dangers of inflation emphasize the role of wealth redistributions and the loss of legitimacy such redistributions imply for capitalist institutions.

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18. The welfare economics of government issue of indexed bonds is discussed in Fischer (1983).

Inflation and relative price variability

A persistent theme in the inflation literature is that inflation interferes with the efficient operation of the price system. Greater uncertainty about the aggregate price level implies greater uncertainty about relative prices, and accordingly less response to changes in relative prices. Further, if it is costly to change prices, the variability of relative prices will increase as the overall inflation rate rises.'?

There is a strong positive relationship between the inflation rate and relative price variability, in the United States and in other countries. The most convincing explanation of the relationship is that it reflects causation in both directions: Exogenous shocks to relative prices 'are associated with increases in the inflation rate, and exogenous increases in the inflation rate cause increases in the variability of relative prices. Increases in relative price variability in high-inflation countries are in part attributable to lags in the adjustment of prices administered by the government.

There are, so far as I know, no estimates of the welfare costs of the reduced efficiency of the price system caused by inflation.[20] The size of the estimates would depend on the underlying theory: If the theory builds on informational inefficiencies, then the welfare costs are related to unanticipated inflation; if the theory builds on costs of changing prices, then inflation per se is to blame. Okun's theory of customer markets (1975) would also assign costs to inflation- induced price changes. However, the Okun theory could also be recast to say that customer relationships would be preserved by constancy of real (indexed) prices in an inflationary economy.

Adapting to inflation

Only two of the many costs of inflation discussed above could not be removed by institutional innovation: the money triangle and the reduced efficiency of the price systems associated with higher inflation and/or

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19. The extensive literature on inflation and relative price variability is reviewed in Marquez and Vining (1984).

20. Fischer (1981a, pp. 419-22) argues that quantity rather than price variability should be the basis of welfare calculations, and that rough calculations suggest that the costs arising from quantity variability are small. Simple regressions, presented in Fischer (1983a), show a negative relationship between the growth rate of real output and the inflation rate in a cross-section time series analysis of 53 countries, over the periods 1960-73 and 1973-81. But these results certainly cannot be attributed solely or even mainly to the effects of inflation on the efficiency of the price system, since supply shocks and business cycle timing relationships play major roles. Another strand of the literature, for instance Friedman (1977) and Mullineaux (1980), argued that inflation uncertainty increases the unemployment rate. The comments about supply shocks apply in this case too.

greater inflation uncertainty. In the latter case, I am assuming that in practice higher rates of inflation are also more uncertain rates of inflation, though I believe that if an ironclad fixed growth rate monetary rule were introduced, uncertainty about inflation would be much the same whether the growth rate were zero or 10 percent.

Most of the remaining costs could be avoided by completing financial deregulation, by the government's issuing indexed bonds, thoroughly indexing the tax system, and removing legal impediments to the use of indexed contracts.[21] Government indexation would likely be followed by increased private sector indexation. For instance, the absence of privately issued indexed annuities is doubtless one of the major sources of private sector concern about inflation; private insurance companies would probably start selling such annuities as soon as government indexed bonds were available. Legal restrictions also play a role in slowing indexing innovation. For instance, despite the proliferation of new forms of mortgage in the last decade, there has been only one issue of price level adjusted mortgages (PLAM's). It turns out that there are still legal impediments to their issue. HUD is currently considering proposals that would facilitate the issue of PLAM's.[22]

Why should the government not index the economy as completely as possible to reduce the costs of inflation? Most governments have resisted indexation, typically arguing that it would be a 'confession of failure" in the fight against inflation'and might easily have disruptive consequences" for the economy.[23] The arguments fall into three categories: First, indexation may affect expectations; second, it may make the government more willing to tolerate inflation; and third, indexation may reduce the stability of the economy.[24]

The first and second arguments are essentially the same. If indexation reduces the costs of inflation, then the government is likely, when faced with any disturbance that requires it to contemplate an increase in the

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21. Since I am examining the benefits of price stability, I do not discuss innovations such as those of Irving Fisher (1920) and Robert Hall (1982) that would reduce the costs of inflation by removing inflation--either by redefining the monetary unit or by operating a commodity currency scheme.

22. The proposal is described in 'Insurance of Indexed Mortgages: Docket No. R-84-1153, FR-1915, in the Federal Register, Vol. 49, No. 108, June 4, 1984. I am indebted to Huston McCulloch for this information.

23. Report of the [Radcliffe] Committee on the Working of the Monetary System, 1959, para 573.

24. See also Okun (1971).

price level, to permit more inflation. This suggests at the least that the government would be willing to permit greater instability of the inflation rate if the system were fully indexed.

Indexation also reduces the stability of the price level by affecting the slope of the Phillips curve. The Phillips curve becomes steeper, so that a given increase in the money stock translates in the short run into more inflation and less reduction in unemployment in an indexed than in a non-indexed economy. Similarly, it is well known that by making the real wage less flexible, indexation worsens the response of the economy to supply shocks: An adverse supply shock raises prices and reduces output more with indexed than with non-indexed wages. It is analytically possible to avoid this difficulty by tying wages to an index that excludes the effects of supply shocks, but such complicated indexation schemes have not yet been introduced.

Widespread indexation of the returns on financial assets creates another potential source of instability of the price level. The larger the indexed component of the stock of financial assets, the smaller the nominal base of the system that serves to determine and, through the real balance effect maintain the stability of, the price level. For instance, if the returns on deposits are indexed, then most of the money stock automatically accommodates itself to inflationary shocks.[25] Similarly, because the national debt is indexed, inflationary shocks exert no stabilizing effect on the private sector by reducing the real value of their assets. In the extreme, the only nominal friction restraining inflation is the stock of currency, which in an inflationary economy will be small.[26]

These valid arguments all suggest that indexation would reduce the stability of the price level.[27] It is a different matter to argue that indexation would also raise the average inflation rate. Indexation reduces the cost of inflation to the private sector by removing inflationary distortions. It also reduces the marginal benefit of inflation to the public sector, by removing

25. This is the current situation in the Israeli economy.

26. In the Israeli economy, with its current 300-400 percent per annum inflation, the stock of currency is less than 2.5 percent of GNP.

27. It is possible though that resolute monetary and fiscal policy could nonetheless maintain the stability of the price level in an indexed economy. In Fischer (1983b) I found no significant difference between the inflationary responses of economies with and without indexation to the first oil shock. There was a statistically insignificant tendency for the existence of bond indexation (present in Argentina, Brazil, France, and Israel in 1972) to worsen the inflationary response.

the possibility of inflating away the public debt. The combined effect of these changes on the average inflation rate is **uncertain**.[28]

The question of whether indexation causes a higher rate of inflation cannot be settled by pointing to the empirical association between indexation and high inflation, because the causation is mutual. Nonetheless, while there are enough examples to show that the introduction of indexation need not cause the rate of inflation to increase, inflation rates above the low double digits cannot be sustained without substantial indexation because the economic disruptions become too large. In this sense, indexation is potentially inflationary. Even so, we do not know whether indexation reduces economic well being. Are people better or worse off when there is more, but per unit less costly, inflation?

Where does this leave the discussion of the benefits of price stability? Are higher rates of inflation with indexation an adequate substitute for price stability? The answer is no. Even with extensive indexation, the money triangle and the increased uncertainty associated with higher inflation rates (and increased aggregate price level uncertainty with indexation) remain as costs of inflation. Further, nominal institutions and methods of thinking and calculating **are** so deeply entrenched in all **economies**— including the high-inflation economies—that the task of completely indexing the economy would take many years to implement.

At the end of such a process, inflation would still be costly because it affects the payments mechanism and is associated with increased uncertainty and relative price variability. And the costs of inflation resulting from other distortions would still increase with the inflation rate, for indexation does not work well at high rates of inflation. Indexation lags have substantial distortionary effects at high rates of inflation. For instance, the price level is typically available with a one-month lag. Today's payments have to be made in today's dollars, and therefore cannot be tied to today's price **level**.[29] If monthly inflation rates fluctuate between, say 5 percent and 15 percent, then there remains substantial uncertainty about the real

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28. Suppose that the average inflation rate is influenced by the costs and benefits of the always-exploitable short-run **tradeoff** between inflation and unemployment, as in Barro and Gordon (1983), or in a less extreme **form** of the analysis in which governments only sometimes have short horizons. The problem is that the reduced cost of inflation to the private sector and reduced benefit to the public sector leave the effects of indexation on the government's utility function uncertain.

29. They can, however, **be** tied to today's exchange rate, which is one reason indexation in high-inflation countries is frequently to the exchange rate.

value of even a price-indexed debt. Similarly, because of the lag in announcing the price level, and then in adjusting the wage payment to the price level, wage indexation agreements leave considerable uncertainty about the real value of wages; the result is negotiation for retroactive wage adjustments. The potential solution to this difficulty of collecting prices more frequently may merely worsen the inflation **problem**.[30] Tax indexation, in particular, works badly in highly inflationary economies.

I conclude that extensive indexation should be avoided, but not that inflation should be made as painful as possible by removing all **indexation**—because no society can ensure stability of the price level, however devoted it is to that goal. It is important not to introduce indexing mechanisms that substantially increase the short run instability of the inflation process. It is probably most important not to index the returns on short-term deposits. Further, so long as inflation remains at reasonable levels, there is little reason for indexation of short-term nominal government debt. But some indexation beyond that already in place in the United States would be desirable. In particular, the government should issue indexed long-term government debt—as in Britain—to reduce the costs to the public from long-run uncertainty about the price level. Because tax regulations are changed infrequently, it would also be desirable to make the tax system inflation-neutral.

. These changes would remove the major long-run costs of inflation without substantially affecting the short-run dynamics of the economy. Price stability would remain a goal of policy, to be traded off in the short run against unemployment, with due awareness on the part of the **policymakers** of the problem of dynamic inconsistency that can transform a sequence of desirable short-run policy decisions into undesirable long-run **outcomes**.[31]

Is that all?

Surely inflation is associated with the decline of public morality, the rise and fall of nations, and more weighty matters than money triangles and

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30. In a heavily indexed system, the lags in wage and other adjustments are important elements in the dynamics of the inflationary process.

31. The notion of dynamic inconsistency was introduced to macroeconomics by Kydland and Prescott (1977), and is seen by them and others as the main argument in favor of monetary rules. An alternative interpretation is that it can become a self-denying prophecy, by emphasizing to policymakers the difference between policy choices that are desirable in the short and the long run.

the efficiency of the price system. Buchanan and Wagner are merely more explicit than Keynes (1919), who claimed that Lenin declared "that the best way to destroy the Capitalist System was to debauch the currency" (p. 77).[32]

The view that comparatively low rates of inflation are a serious problem is reflected also in the results of public opinion polls: Figure 2 shows the results of a University of Michigan Institute for Social Research poll asking, "Which of the two problems—inflation or unemployment—do you think will cause the more serious economic hardship for people during the next year or so?" The inflation aversion index is defined to be the share of those answering "inflation" plus half the share of those answering "both."[33] Note that the inflation aversion index was at its lowest level at the end of 1982 as the recession reached its trough, and that concern over inflation began to increase as soon as unemployment stopped rising. Early in 1984, nearly as many people thought inflation would cause more hardship over

FIGURE 2
Inflation Aversion Index, Inflation, and Unemployment
1974-1984
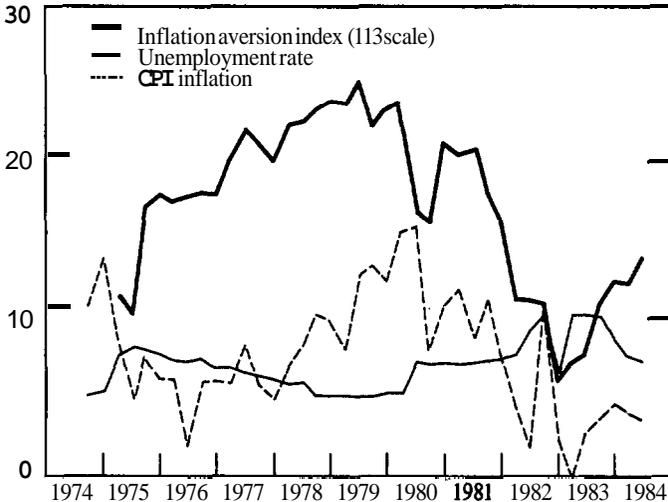
Note: Inflation aversion index has been divided by 3. (For details of the index, see text.)

32. Leijonhufvud (1981), Chapter 10, struggles with the view that economists' analyses of the costs of inflation miss the seriousness of the issue.

33. Fischer and Huizinga (1982) present an analysis of opinion poll results about inflation, including a regression that explains the behavior of the inflation aversion index, with changes in the unemployment rate and the expected rate of inflation as prime determinants of the index. In this article we also attempted to track down the common view that polls have shown people attribute inflation—caused increases in their incomes to their own merit rather than inflation. We found the evidence for this view weak—see the discussion surrounding Table 4.

the next year as would unemployment, even though low rates of inflation were expected.[34]

The views expressed in the opinion polls are probably a result of the mixture of genuine vulnerability of many people—holders of nominal assets and those whose nominal wages are fixed for the next year—to price level changes, and their failure to recognize that they also have nominal liabilities. Because wages are adjusted infrequently, even someone whose nominal wage increase is adjusted for expected inflation is worse off the higher the inflation rate.

More passionate concerns about inflation reflect the fear that it is a signal of a society and a government out of control—and that hyperinflation, which destroys the "existing basis of society" (Keynes, 1919, p. 78), waits at the end of the road.[35] Accounts of hyperinflations make it clear that they were profoundly disturbing events, including most of the phenomena described by Buchanan and Wagner.

But hyperinflation is not the inevitable result of low double-digit inflation. More likely, an equilibrium is established with the inflation rate fluctuating around a moderate level. But with no long-run tradeoff between inflation and unemployment, there is nothing favorable to be said for moderate rates of inflation except that they are costly to reduce. The inflation is itself costly because of the money triangle, uncertainty, relative price distortions, and institutional non-adaptations. The marginal cost of inflation is high enough for inflationary disturbances to be countered by contractionary policy. Society has at that point to make the hard choices it did not make at a lower inflation rate, and is in addition paying a price for having decided not to fight earlier. But none of this is to say that the costs of low rates of inflation, 5 percent or less, are such as to justify the typical inflationary rhetoric.

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34. Peretz (1983) reviews much of the recent evidence on the effects of inflation and measures of output or unemployment on presidential popularity and voting patterns.

35. It is sometimes pointed out that Hitler came to power during a period of high unemployment, and not as a direct result of the German hyperinflation. Keynes' dictum stands even so.

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