DEVELOPMENTS WITHIN THE ECONOMY and the profession in recent years have generated a marked swing toward pessimism in the appraisal of the tradeoff between inflation and unemployment. During the fifties and the sixties, a 4 percent unemployment rate was generally accepted as a target for full employment. At that time, it was expected that it might be accompanied by an inflation rate of 2 or, at most, 3 percent. In contrast, some recent readings of the Phillips curve reported in this journal suggest that, under present circumstances, a 4 percent unemployment rate means as much as 5 percent inflation for the long run, while holding the inflation rate down to 2 percent would require an unemployment rate of 5½ percent. Some economists have responded to this unhappy news by espousing either "brake riding" or "gas pumping," as I have characterized these positions elsewhere.

The brake rider would accept a higher unemployment rate. Although some brake riders have urged actions to ameliorate the adverse human and redistributive impact of unemployment, their program still involves large

social costs and a significant reduction of total output and real income. Given that reduction, I find it politically unrealistic to believe that society will become even more generous in compensating the victims of economic adversity. Moreover, I believe—admittedly without strong empirical evidence—that firm labor markets have a significant catalytic value in breaking down arbitrary hiring standards, opening avenues to promotion and career ladders, and generating valuable on-the-job training for low-skilled workers. Hence I cannot accept the brake-riding strategy, in general, and reject it in particular as a rationale for inaction at a time when the unemployment rate is 6 percent.

The gas pumper, on the other hand, would tolerate the higher rate of inflation that now seems required in order to achieve full employment. I am tempted by that argument, and for that very reason wish to spell out some reservations. The case for tolerating a high rate of inflation that I shall characterize—and try not to caricature—is really part of an oral tradition that has gained momentum, along with inflation itself, during the past five years. It has been presented to me most often across the luncheon table, sometimes as an argument for strongly stimulative fiscal-monetary policies but more often as a brief against the need to develop wage-price policies. Only in 1971 has the thesis been advanced in sophisticated fashion by professional economists writing in a policy-oriented context.5

The Welfare Economics of Inflation

Brake riders and gas pumpers agree that significant social costs and distortions are created by an inflation that develops out of a tranquil environment of price stability. In the short run, nearly all recipients of pensions, interest, and rents; most salaried employees; and many wage earners are essentially on fixed incomes. Thus sudden inflation redistributes income in

4. See the discussion in ibid.
inequitable and inefficient ways. It also impacts strongly on balance sheets, reducing liquid wealth in real value and enhancing leveraged portfolios containing real assets partially offset by debt.\textsuperscript{6}

Similarly, a highly variable and uncertain state of price movement imposes significant costs by exposing individuals to large risks with respect to the value of their wealth and their incomes. In a defensive response to these risks, people may take the very steps most costly in a period of inflation—adding to their holdings of liquid assets and forgoing the purchase of goods in order to hedge against possible failure of their incomes and wealth to keep pace with the price level.\textsuperscript{7}

The gas pumper stresses that these social costs stem from potential or actual \textit{acceleration} of the price level. If, however, a steady rate of price increase were maintained year after year, the seriousness of these costs would diminish. Nominal interest rates would ultimately reflect the pace of inflation; salaries and other sticky incomes and the entire institutional framework would be increasingly adjusted.

The gas pumper concedes that even a perfectly steady, fully anticipated, and completely reliable rate of inflation would impair the use of the pecuniary yardstick in cost and income calculations; it might exacerbate balance-of-payments problems in a world of fixed exchange rates; and it would add to the cost of economizing on cash balances. At extremely high rates of inflation, the high real cost of holding cash can destroy a money economy. But at completely steady inflation rates of 5 or even 10 percent a year, the toll of social costs would amount to a minor annoyance rather than a major disaster. A predictably steady inflation rate of 5 percent is not significantly inferior to a rate of 2 percent; and if it permits the unemployment rate to be lower by as much as 1 \(\frac{1}{2}\) points, the 5 percent inflation rate seems a small price to pay. And even if it yielded no \textit{permanent} reduction in unemployment, as an "accelerationist" would contend, acceptance of inflation near the current rate of 5 percent would save the nation from the needless agony of the prolonged transition period of high unemployment required to wind down the inflation rate.\textsuperscript{8}


\textsuperscript{8} The accelerationist view that steady inflation can do the economy no harm—as well as no good—is developed by Edmund S. Phelps, "Unreasonable Price Stability—
Public Policy and Inflationary Expectations

I agree that, if there were such an economic state as steady, fully anticipated inflation, it would impose only minor social costs. But I would emphasize that such a state has never existed and can never be attained. The adoption of a public policy designed to yield steady, fully anticipated inflation would commit the government to an impossible goal. Economic policy making is a highly imperfect art and it cannot produce steady inflation any more than it can produce steady unemployment or a steady price level. Moreover, the very acceptance by government of a higher, though hopefully steady, inflation rate would influence expectations in such a way as to make prices rise more rapidly and less steadily. In short, the case for accepting steady inflation fails to recognize both the imperfect capability of public policy and its influence on price expectations.

Pathetically little is known about how people form their expectations about the variability and the trend of future inflation. Nonetheless, it seems reasonable to assume that (1) what the government does (and says) about inflation is one important influence on the inflationary expectations of the private sector; and (2) an increase in expected inflation has some tendency to worsen the tradeoff and thus make a higher rate of actual inflation accompany any given unemployment rate.9

The words and deeds of policy makers reveal that they believe the first proposition. Whenever inflation is a threat or reality, the nation is flooded by vigorous and highly moralistic official pronouncements excoriating inflation and expressing determination to defeat it. These verbal efforts are far more energetic than any devoted to "talking up" aggregate demand in a slump through bright forecasts or diagnoses of prosperity. It is also rather striking that American presidents have been willing to specify 4 percent as a target rate of unemployment, thus expressly indicating that they would tolerate that much of that bad thing; on the other hand, so far as I know, no U.S. administration has ever explicitly defined its level of tolerance for inflation. At least in part, this asymmetry seems to reflect concern that a display of equanimity about any degree of price increase would encourage

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9. This qualitative proposition does not imply the existence of any equilibrative mechanism that equates actual and expected rates of price increase. Indeed, in my view, models that invoke such a mechanism do not offer useful insights into the real world.

expectations of inflation. Hence, the government is not willing to concede publicly even the first point or two on the inflation rate. Apparently, a "credible neurosis" about inflation is expected to ease the stabilization task by holding down inflationary expectations. In recent years, this posture has become less and less credible—nobody could believe that the government would wage a battle for unconditional surrender of inflation without any regard to the high and lasting toll of unemployment that such a battle would levy.

But neither has anyone had reason to believe that the government would accept a sustained inflation rate as high as 5 percent. Whatever the extent of inflationary expectations embodied in the recent tradeoff (prior to August 15), it could not have assumed that much tolerance for inflation. If, instead of the program he announced, the President had told the nation on August 15 that he was now prepared to accept 5 percent inflation, surely his statement would have been followed by a most dismal day in the bond market.

Moreover, once the government's strategy raises the expected inflation rate, the second proposition above becomes operative, and the tradeoff is worsened. If the statistically estimated Phillips curves are right and 5 percent inflation was required to achieve full employment when the government was expected to battle against that much inflation, then a somewhat higher rate would be required when it became clear that the government had decided to tolerate 5 percent inflation.

Moreover, the change in the target of public policy is bound to raise questions about how the government will respond when the inflation rate goes above target. The one safe forecast about the inflation rate is that it will fluctuate; and the government's response to unforeseen inflationary spurts is subject to uncertainty and indeed to warranted suspicion. The historical record illustrates the political difficulties of invoking restrictive measures when unanticipated excess demand emerges from either a spurt in private spending or, more often, from prior decisions of government made for military or other nonstabilization purposes. In such a case, the required medicine is very unpleasant—squeezing credit, raising interest rates, hiking taxes, or cutting back public services. The basic social question is whose demand should be cut, and the answer is bound to be politically painful. Hence, it is tempting to let inflation make the decision.

Because such tendencies to escape hard choices appeared historically and were recognized, countervailing taboos and myths developed, such as the balance-of-payments and balanced budget disciplines. These were poor
safeguards for a democratic society, first and foremost because they misled the public, and also because they were applied unwisely, sometimes, as in 1958–63, swinging the balance too far. On the other hand, the built-in tendencies toward political paralysis in anti-inflationary policy were demonstrated anew in 1965–68. The stabilization choices of that period did not reflect anybody’s wish to operate the economy at such high pressure; rather, they revealed the impotence of the fiscal decision process in allocating the costs of Vietnam. Who paid for the war was determined by the marketplace through an inflation that had uneven effects on the purchasing power of income and wealth for various individuals. The extra output and employment that resulted constituted a slight, undesired, and almost irrelevant consolation prize for the temporary breakdown of the democratic process.

Fortunately, the nation does not get frequent readings on the response of public policy to major inflationary surprises, and we can hope that such instances will be even rarer in the future. But the very infrequency may make the government response particularly influential on long-run expectations about future responses. Those in the fifties and the sixties who espoused a 4 percent target for the unemployment rate did not expect an accompanying inflation rate as high as 5 percent. Indeed, many would have thought that 3 percent unemployment could be achieved by accepting that much inflation and yet found that alternative less attractive. A willingness to take 5 percent inflation now that the tradeoff seems less favorable would indicate that the social preference function had been made of Jello.

Would not such a shift in policy have to be read as indicative of future action? Can a government that shifts its inflation tolerance level from 2 to 5 percent convince anyone that it will vigorously combat 8 percent inflation in the event of unforeseen excess demand or another unfavorable surprise in the Phillips curve? Of course, the next surprise may be a favorable one and perhaps it will right the balance. But perhaps that opportunity will be used to shoot for lower unemployment and to carve up the resulting fiscal dividend. There are grounds for suspicion that the government’s strategy is asymmetrical and will let the inflation rate accelerate over the long run, even though no accelerationist mechanism exists in the private economy. If my introspection has any resemblance to the way the public would react, then a decision to live with inflation would trigger off expectations of larger and more variable rates of price increase. That consideration need not be decisive, but neither should it be ignored.
Cushions against Inflation

The adjustments of a steady, fully anticipated inflation that are predicted by comforting analytical theorems have little resemblance to the actual experience of the recent inflationary period. Even after three years of fairly steady inflation at a rate close to 5 percent, the U.S. economy is nowhere in sight of fully anticipated inflation. One of the defining characteristics of such a state, as R. J. Gordon points out below, is that holders of bonds would be fully protected against inflation. In fact, the bond market has undergone enormous, virtually unprecedented fluctuations from the summer of 1970 to that of 1971. How much of the big swings represents a change in inflation premiums and how much a change in real interest rates is impossible to determine. But the bond holder is clearly not protected against inflation or anything else when the new issue yield on prime corporate bonds is riding a roller coaster between 9.4 percent and 6.8 percent. Another characteristic of steady, fully anticipated inflation is that holders of equities are assured of capital gains; but a characteristic of the past six years of inflation is the disappearance of such gains. Interest rates on thrift accounts have barely moved upward in response to inflation, partly—but only partly—because of federal controls. Life insurance premiums have not readily adjusted. The property tax and specific excise systems of state and local governments have not been reformed. Private pensions have shown very little adjustment.

Because the dollar is a standard that is embedded in our institutions, protection against inflation develops only very slowly in response to the natural forces of a real-world inflation. Hence any serious program of living with inflation should include public policy action to provide increased cost-of-living protection, as Tobin and Ross have espoused.10 Once the government issues cost-of-living escalated bonds, private financial institutions can hold these assets as a hedge; and they, in turn, can make promises to pay in “real” terms. Only when such assets are readily available can individuals who worry about inflation be assured of the means to protect their wealth.

Nonetheless, a number of caveats must be registered about the introduction of cost-of-living cushions into bonds, pay, or pensions. First, the an-

nouncement of such government-sponsored innovations may be read as evidence that the government has raised its tolerance level of inflation or perhaps even given up the fight against inflation. This announcement effect is hard to appraise and perhaps easy to exaggerate. By analogy, one could argue that seatbelts will make drivers careless and hence frighten, rather than reassure, passengers. But the announcement effect is bound to be somewhat adverse. Second, it is quite rational to expect that the more effectively the government can minimize the social costs of inflation, the more inflation it will accept. If inflation becomes relatively less costly, the unemployment target “should” be shifted downward and the inflation tolerance level upward. As a result, the more effective the cushions look, the more they are likely to raise the expected inflation rate.

Third, the proposed federal cushions against inflation would be automatic destabilizers, in contrast with cushions against unemployment, which have favorable aggregate effects as well as favorable distributive effects. Insulating the victims of unemployment from some of the impact of lower earned income bolsters aggregate demand in a slump and thereby serves as an automatic stabilizer. Insulating the victims of inflation against its costs raises their ability to command goods and services during a boom and is thus destabilizing. To the extent that cost-of-living escalators in government pay, social security benefits, and bonds swell federal outlays in inflation, the fiscal system is saddled with an automatic destabilizing element. Or, to put it another way, to the extent that reductions in the real value of liquid assets or of disposable income help to restrain private expenditures during an inflationary boom, this automatic stabilizer of the private economy is impaired by cost-of-living protection. The cushion against inflation for the individual becomes a spur to inflation for the society.

More generally, to the extent that cost-of-living escalation becomes a feature of the economic system, any development of excess demand is transmitted into costs and prices more rapidly—the lags that sometimes save us from intense inflation are shortened. Where stabilization and equity objectives conflict, the stabilization objectives are not overriding. A nation with cost-of-living protection may be a better society, but it also tends to be a more inflationary society. Moreover, that prospect is likely to be read properly by the public when the institutions are introduced.

11. That result would be avoided if cushions against unemployment are improved in parallel so that the relative costs of moving along a given tradeoff locus are unchanged.
Inflation in a Stop-Go World

Western industrialized countries have not really faced up squarely to the tradeoff problem. Rather than aiming at some feasible combination of utilization and inflation rates, nations have tended to operate a more adaptive type of stabilization policy. While demand management has been normally conducive to growth and economic expansion, the brakes have been applied whenever inflation seemed to be a more serious problem (in domestic or balance-of-payments terms) than idle resources. Such fiscal-monetary "stops" have produced the characteristic stop-go pattern of the economic time series in Western nations.

The stop-go pattern can be roughly approximated by the following model: A vehicle is traveling along a road that contains substantial and uneven amounts of bumpiness as well as some uphill and downhill stretches. The vehicle has a single forward setting on its throttle and is equipped with brakes. The driver cares about both speed and bumpiness. The faster he travels over any bump, the more discomfort he feels; and he can reduce the impact by applying the brakes. A driver who is relatively sensitive to the discomfort of the bumps (compared with the benefits of speed) will make more use of his brakes, thus holding down "bump discomfort" but also, of course, sacrificing speed. A driver who cares relatively less about bumpiness and relatively more about speed will obviously average greater speed and greater bumpiness. But, a little less obviously, the bumpiness of his ride will also be more variable. Like the other driver, he will have some fairly smooth stretches, but he will tolerate greater bumpiness before moving to the brakes. In a sense, he applies a more permissive quality control standard in deciding whether to accept or reject a given amount of bumpiness. That raises not only the average, but also the variability.

If speed represents economic expansion and growth, while bumpiness is interpreted as inflation, and if the driver is identified as the maker of fiscal, monetary, and wage-price policies, this model suggests that countries with high inflation rates would also experience more variable inflation rates. I formulated that hypothesis before looking at time series data on industrialized countries, and the data confirmed my conjecture. In the period covered by data from the Organisation for Economic Co-operation and Development for most industrial countries (1951-68), those with high average rates of inflation have had more widely fluctuating rates from year to year. This finding is shown in Figure 1, which uses, as the measure of
Figure 1. Average and Variability of Percentage Changes of GNP Deflators, Seventeen OECD Countries, 1951–68

Standard deviation of inflation rate (percent)

variability for each country, the standard deviation of the annual increase in the GNP deflator from the average rate of increase. During that period, the United States had the lowest average inflation rate—2.1 percent, and also the lowest standard deviation of annual changes—1.0 percent. The other three countries with average inflation rates below 3 percent (Belgium, Germany, and Canada) had standard deviations of about 1½ percent. For any country with an inflation rate above 3 percent, however, the lowest standard deviation was 1.7 percent.

A number of mechanisms other than the particular model set forth above could account for this relationship. For example, suppose simply that countries are equally able to control the time-path of money GNP within some given percentage range; for those operating in the steep, high-inflation part of the Phillips curve, more of the variation in money GNP would take the form of unsteady price movements, while for those in the low and flat end of the Phillips curve, there would be less variability in prices (and more in real output). Whatever the explanation, however, if the United States were to accept a higher inflation rate, Americans would have an excellent basis from world experience to expect a more variable inflation rate in the future.

It would be interesting to inspect the other side of the coin to determine whether the nations that have tolerated more rapid and more variable inflation have, in fact, been more successful in economic expansion and utilization. But I see no way to get that information out of the time series data. While rates of price increase are reasonably comparable among nations, unemployment rates are not. And while average real growth rates for the longer run tell us much about the supply side of various economies, they do not illuminate the record of demand management: Fiscal-monetary strategy surely is not the source of the difference between the 10 percent growth rate of Japan and the 3 percent growth rate of the United Kingdom.

There may be some interest in the relationship between the variability of the inflation rate and the variability of the growth rate, country by country. If fluctuations in the inflation rate are caused primarily by changes in private demand moving along a given Phillips curve (the equivalent of changes in speed over uphill and downhill stretches of the road), countries that tolerate wider swings in the inflation rate should also be found to experience wider swings in utilization. If, on the other hand, the primary source of fluctuation stems from shifts in the Phillips curve (the equivalent of changes in bumpiness along the road), countries that held down and stabilized the
Table 1. Annual Percentage Changes in Real Gross National Product and GNP Implicit Price Deflators, Most Industrialized OECD Countries, 1951–68*

<table>
<thead>
<tr>
<th>Country</th>
<th>Real GNP</th>
<th>GNP deflator</th>
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<tbody>
<tr>
<td></td>
<td>Average</td>
<td>Standard deviation</td>
</tr>
<tr>
<td>Canada</td>
<td>4.5</td>
<td>3.0</td>
</tr>
<tr>
<td>United States</td>
<td>3.7</td>
<td>2.5</td>
</tr>
<tr>
<td>Japanb</td>
<td>9.6</td>
<td>3.6</td>
</tr>
<tr>
<td>Austria</td>
<td>4.8</td>
<td>2.7</td>
</tr>
<tr>
<td>Belgiuma</td>
<td>3.7</td>
<td>1.9</td>
</tr>
<tr>
<td>Denmark</td>
<td>4.1</td>
<td>2.3</td>
</tr>
<tr>
<td>Finland</td>
<td>4.3</td>
<td>3.2</td>
</tr>
<tr>
<td>France</td>
<td>4.9</td>
<td>1.5</td>
</tr>
<tr>
<td>Germany</td>
<td>6.0</td>
<td>2.7</td>
</tr>
<tr>
<td>Greece</td>
<td>6.4</td>
<td>3.3</td>
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<tr>
<td>Irelandd</td>
<td>2.4</td>
<td>2.0</td>
</tr>
<tr>
<td>Italy</td>
<td>5.6</td>
<td>1.3</td>
</tr>
<tr>
<td>Netherlands</td>
<td>5.0</td>
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<td>Norwayd</td>
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</tr>
<tr>
<td>Sweden</td>
<td>4.1</td>
<td>1.4</td>
</tr>
<tr>
<td>Switzerland</td>
<td>4.2</td>
<td>2.3</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>2.8</td>
<td>1.6</td>
</tr>
</tbody>
</table>


a. Data on the following OECD countries are not included either because the observations on the GNP deflator were extreme or because data were unavailable for a substantial part of the period. The three values for the GNP deflator—average, standard deviation, and mean deviation—are, respectively:

- Luxembourg (1960–67) — 2.7 2.5 2.0
- Iceland — 9.4 4.7 3.5
- Portugal (1956–68) — 2.3 1.7 1.4
- Spain (1958–68) — 5.4 2.9 2.1
- Turkey — 7.9 5.3 4.2

b. Data are for 1952–68.
c. Data are for 1953–68.
d. Data are for 1951–67.

Inflation rate would experience greater variability in real growth. As Table I suggests, the relationship is weak in the aggregate.12 But some interesting pair-wise comparisons emerge. The three large countries with the steadiest and lowest inflation rates—the United States, Canada, and Germany—all have above-average variability in real growth. In contrast to those three countries, France and Italy have greater stability of real growth, while their inflation rates are substantially higher in speed and variability. Basically,

12. The correlation coefficient between the two standard deviations is 0.18, while that between the two variables in Figure 1 is 0.78.
the results confirm casual observations that the United States and Germany have really cared about inflation—enough to stabilize its rate as well as to hold it down. On the other hand, countries such as France and Italy that have cared less about inflation have neither held it down nor stabilized it, but have done a better job of stabilizing real growth. The United States has been extreme in its performance and its indicated preference, seeming to stress a low and stable inflation rate far more (and a high and stable utilization rate far less) than do other countries.

Conclusion

The discussion above leads to the following qualitative conclusions:

1. The government’s attitude toward inflation is one determinant of price expectations. A softening of that attitude, revealed in word and deed, is likely to have some adverse effect on the tradeoff. Thus, in accepting any given increase in the inflation rate as a price of achieving full employment, the government is likely to find that the actual required increase is somewhat greater than that initially indicated.

2. The variability of inflation over time depends particularly upon the ability and determination of public policy to apply corrective measures when the inflation rate exceeds acceptable limits. Both the historical record of industrial nations and analytical reasoning about the political process suggest that toleration of a higher inflation rate would mean less steady inflation.

3. The same reasoning that would argue for more toleration of inflation in 1971 than in 1965 would point toward acceptance of a still higher inflation rate the next time a similar unfavorable surprise is encountered. And there are reasons to doubt that the response to a favorable surprise would be symmetrical. Hence, adoption of such a strategy would create some presumption of a long-run trend toward accelerating inflation, purely as a result of public policy.

There is no easy solution to the nation’s agonizing tradeoff problem. Painless inflation is as much a mirage as painless unemployment. A painless favorable shift of the Phillips curve would also offer only an illusion. But that route deserves a real try through structural reforms, manpower policies, and effective government wage-price policies. The recognition that
government policies affect inflationary expectations puts a particular premium on the development of an effective incomes policy in a period of slack demand, for such a policy would demonstrate that the nation will not blithely accept cost-push inflation.

The failure of prices and wages to decelerate in 1970–71 cannot be reconciled with any notion that competitive market forces prevail in determining the price level. Nor would inflation at an unemployment rate of 4 percent be attributable to widespread excess demand in the sense that most firms would refuse to take and fill more orders at existing prices, or would be unable to get more workers at the going wage. If 4 percent unemployment would be accompanied by 5 percent inflation, some strong inflationary biases must contaminate the process of price-wage determination. A fuller understanding of these biases and a determined policy effort to eliminate them would seem to be top priority for the profession and the nation.

Let me say, finally and unequivocally, that I attach no particular virtue to our past attitudes about the tradeoff. If the tradeoff issue were posed on its merits clearly to the American people, it would neither surprise nor pain me if the resulting choice favored a higher, probably more variable, and even possibly accelerating inflation rate accompanied by better, though highly imperfect, cost-of-living protection for their assets and incomes. And I would expect the nation wisely to reject high unemployment, recognizing it as a far greater evil than inflation. But Americans should not be promised a steady and painless inflation, a new mirage offered in place of old myths about the safeguards of balanced budgets and balanced international accounts. The really big issue is the credibility of government, and that issue is at least as important as jobs and prices to the future of our democratic society.