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Steady Anticipated Inflation: Mirage or Oasis?

THE TWIN PHRASES "FULL EMPLOYMENT" and "reasonable price stability" usually appear at the beginning of any discussion of the goals of stabilization policy, whether it is a President's economic report, a journalist's financial column, or an economist's principles course. Unemployment and inflation are both "bads," which should be eliminated. Price stability is sufficiently important that if an increase in unemployment is required to eliminate inflation, either that extra unemployment must be tolerated (Nixon-Shultz pre-August-1971 "gradualism") or the inflation must be suppressed by partial or complete controls (many "Democratic economists" and post-August Nixon).

But full employment and price stability do not deserve equal primacy as stabilization goals. Most of the evils commonly associated with inflation occur only when the actual inflation rate deviates from that which is expected, that is, when the inflation is a surprise. The welfare costs of a fully anticipated inflation, although a popular subject in economics journals and graduate theory exams, are not widely discussed or understood elsewhere. In this paper I first discuss the costs of maintaining a steady inflation at a rate similar to the 5 percent annual average that has obtained in the United States since the beginning of 1968.[1] This analysis does not depend on the existence of a long-run tradeoff between the expected rate of inflation and the unemployment rate. The "accelerationist" position that no long-run

1. Five percent was the annual average rate of increase in the deflator for total gross national product in the fourteen quarters between 1968:1 and 1971:2.

tradeoff exists is relevant for the choice of the optimal unemployment rate, not the inflation rate: In the absence of a long-run tradeoff, steady inflation can be maintained only at a single "natural" rate of unemployment, whereas a negatively sloped long-run tradeoff allows the choice among many alternative unemployment rates.

Following the discussion of the welfare economics of inflation, two sets of qualifications are considered. First, Okun's paper in this volume raises the possibility that the response of government may cause the inflation rate to accelerate or vary widely rather than remain constant, even if a long-run tradeoff exists in the private economy by itself. Second, Fellner's paper, also included here, suggests that the benefits of a reduction in unemployment below the natural rate should not be held out as an advantage of steady inflation, because no long-run tradeoff exists in the private economy, despite supporting evidence from historical U.S. data recently offered by Perry and myself.

The Small Burden of Accurately Anticipated Inflation

The widespread public antipathy to inflation is mainly due to an asymmetric response to its costs and benefits. Price increases are believed to reduce real income, whereas the larger wage increases that accompany inflation are thought to be largely a reward for individual accomplishments and are expected to be retained even if the inflation that permitted them is eliminated: Leaving aside these *imagined* losses of inflation, most of the *actual* costs it imposes are the consequence of income redistribution when the inflation is unanticipated. Debtors gain, as do workers whose contracts are renegotiated frequently, at the expense of creditors, retired persons living on fixed incomes, and workers whose contracts are renegotiated rarely. But when an inflation is not a surprise, and continues at the rate that is generally anticipated, and when institutions adjust to this anticipation, the redistributional effects disappear. Nominal interest rates rise to increase costs to debtors and rewards to savers, and wage agreements, life insurance policies, and pension benefits include compensation for the expected inflation.[2] Government regulations, including minimum wages and

2. The conclusion reached by Robert Mundell, in "Inflation and Real Interest," *Journal of Political Economy*, Vol. 71 (June 1963), pp. 280–83, that the nominal interest

ceilings on savings bonds and time deposit interest rates, as well as private institutional rigidities, such as the negotiation of conventional life insurance policies in fixed nominal values, are major factors preventing a complete adjustment to inflation, because these regulations tend to be changed at infrequent, discrete intervals.

When inflation is accurately anticipated and artificial government regulations and private institutional rigidities are eliminated, the major cost of inflation becomes the "wasted shoe leather" (or postage stamps) holders of money balances consume in an extra effort to shift into assets paying the higher, inflation-compensated, nominal interest rates. This welfare loss is the consequence of another government regulation, that prohibiting the payment of interest on money (currency and demand deposits); in a steady inflation this amounts to a tax that transfers income from holders of money to bank owners and the government. Leaving aside bank owners, the assessment of the welfare loss caused by the inflation tax depends on the alternative sources of finance available to the government. Since all taxes (other than the super-regressive head tax) misallocate resources to some extent, an optimal tax package may contain some degree of reliance on the inflation tax. Even this remaining welfare cost of steady inflation can be largely eliminated if the government allows free competitive determination of the interest rate on demand deposits (this was part of a package of structural reforms that has allowed the Brazilian economy to enjoy rapid real output growth in the last two years despite 20 percent inflation). This practice still leaves a welfare cost as money holders reduce currency (on which interest payments are awkward to administer) relative to demand deposits, but this cost must be small in today's U.S. society, in which most supermarkets offer a check-cashing service that makes extra trips to the bank unnecessary.

The small and largely avoidable welfare cost of a steady anticipated inflation has two related implications for economic policy (again assuming that the steady inflation is sustainable and does not accelerate). (1) Whether or not a long-run tradeoff exists, any attempt to reduce the anticipated rate of inflation yields negligible returns and imposes two distinct costs: the redistributional impact of the requisite reduction in actual inflation below the anticipated rate, and the waste caused by the particular method chosen

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rate rises less than the inflation rate (in a model with saving behavior dependent on real balances) actually describes a temporary short-run equilibrium and ignores the subsequent adjustment of saving and investment in the long run.

to reduce inflation, whether higher unemployment or wage-price controls. (2) If a long-run tradeoff is believed to exist, a proposal to reduce unemployment to some target level below the natural rate should equate the marginal benefits of lower unemployment with the marginal costs of any accompanying increase in inflation above the currently anticipated rate.

Implication (1) argues against both phases of the current administration's anti-inflation policy, the pre-August unemployment-raising plan and the post-August recourse to direct controls. Implication (2) sets a limit to the economic expansion that Okun's "gas-pumpers" should attain, since beyond some point the diminishing marginal returns of reduced unemployment will be exceeded by the increasing marginal cost of unanticipated inflation.

The choice of a full employment target is usually rationalized by a judgment that a lower unemployment rate would entail excessive inflation. But even if *every* unemployment rate were accompanied by complete price stability, at some point the benefits of reducing the unemployment rate would disappear. The waste of time and loss of income suffered by unemployed workers would be replaced by symmetric losses suffered by employers forced to spend excessive time filling vacancies and by consumers forced to stand in longer queues at short-staffed firms. Further, the benefits of a permanently maintained reduction in the unemployment rate should not be exaggerated by appeal to Okun's (first) law. A policy choice to maintain unemployment permanently at 3 rather than 5 percent does not imply a perpetual gain equal to 6 percent of real output. The contribution of productivity change to Okun's formula is caused by labor dishoarding, a transient phenomenon, and any output gains due to higher hours per man or labor force participation rates must be set against the loss in leisure they entail.

In short, the willingness to live with a steady rate of anticipated inflation does not in itself imply any particular unemployment target, or a reckless economic expansionism. A low unemployment rate may not be worth having in itself, or it may be worthwhile but require too much *un*anticipated inflation to get from here to there.[3] Or, finally, unemployment rates below a certain level may not be achievable with steady inflation, either because

3. We do not really know how much unanticipated inflation would be caused by a reduction in unemployment to 4 percent in 1972, both because our structural equations of the inflation process are subject to error, and because we cannot precisely estimate the currently anticipated rate of inflation, which might be either above or below the recent actual rate.

of the influence of public policy (Okun's point) or because of the adaptation of the private economy (the traditional accelerationist position).

The Public Posture toward Inflation

Okun's first argument is that any softening in the government's attitude toward inflation may raise the steady inflation rate ultimately associated with any given unemployment rate. The welfare argument above suggests that the higher anticipated inflation rate by itself will not cause serious harm, but a serious cost may be imposed when a large temporary divergence between actual and anticipated inflation is required to reach a given unemployment target. If the private sector has grown accustomed to a government-generated recession whenever wage increases accelerate beyond 4 percent, as in the United States in the 1950s, its expectation of next year's wage increase is unlikely to stretch much beyond 4 percent. This behavior would change, as both Okun and Fellner rightly point out, if the government were to change its policy.

But this change has already occurred. It is not the word of public policy, but the deed, that matters. Expectations were altered first by the refusal of both the executive and legislative branches to create a recession "on schedule" in 1966–68, and second by the failure of the 1970 recession, when it finally arrived, to slow down the inflation as had the recessions of the 1950s. If the 1970 episode has loosened the connection between the expectations of the private sector and the stance of public policy, symmetry suggests that a change in that stance may not have a serious feedback on expectations.[4]

My recent Brookings paper contains an estimate that the U.S. economy could return to an unemployment rate of about 4 percent with a very moderate increase in inflation above the average rate of the 1968–71 period, and hence with only a modest deviation of actual from expected inflation (assuming expectations have now adjusted to the average experience of this period).[5] This estimate already takes account of the stance of public policy in an indirect fashion, through the relatively long lags in the formation of price expectations. Expectations of inflation in 1957 are estimated to be a

4. Let us not speculate here on the effects of the August 15 measures. It is more appropriate to discuss the behavior of an uncontrolled economy, both because the end result of the August 15 package is yet unknown, and because part of the object of this debate is to judge whether those measures were in fact needed.

5. "Inflation in Recession and Recovery," *Brookings Papers on Economic Activity* (1:1971), pp. 105–58, especially p. 144.

small fraction of the actual rate, because the 1956–57 inflationary episode was so short, and for this reason the regressions are able to explain the slowdown in wage increases in 1958, whereas expectations of inflation in 1970 were much closer to the average rate, because inflation had lasted four years, and no wage slowdown is predicted for 1970. In effect, the lags already incorporate Okun's point, since they indicate that the public did not incorporate inflationary experience into its expectations immediately in the 1950s because it believed that the government was likely to create a recession.

Okun imagines that the acceptance of steady inflation would require the government to post an engraved announcement on the doors of the White House and the Federal Reserve. An alternative would be for public officials to state their policy objective simply as the achievement of a given unemployment rate and to emphasize the positive aspects of expansion to reach that rate, particularly the temporary cost-cutting benefits of rapid productivity growth and any tax cuts used to spur the economy. Meantime, legislative proposals could be prepared to end interest rate ceilings and establish an escalator in social security, with a sales message phrased in terms of "equity for the little man" rather than any explicit acceptance of inflation.

Further, there is little reason for the government to initiate formal and publicized cost-of-living escalators for its employees if present institutions are effectively adapting to inflation without them. In the three inflationary years 1968, 1969, and 1970, the average annual increase in the real wage of government employees was actually more rapid than that in the previous seven years, in contrast with the slowdown suffered by private employees.[6] The less public institutions need to be explicitly altered to accommodate inflation, the less the private sector needs to take notice of the government's change in priorities.[7] If Okun is worried about the destabilizing effect of

6. The annual increase in the price deflator for general government divided by the GNP personal consumption deflator (PCD) averaged 2.9 percent in 1961–67 and 3.6 percent in 1968–70. The respective figures for private compensation per manhour divided by the same price index are 3.4 and 2.6 percent. The PCD is chosen for this comparison in preference to the consumer price index, because the CPI exaggerates the acceleration of inflation in the late 1960s owing to its treatment of the expenses of homeownership.

7. Okun emphasizes the need for the government to issue "cost-of-living escalated bonds . . . [because] only when such assets are readily available can individuals who worry about inflation be assured of the means to protect their wealth." (This volume, p. 492.) Although holders of bonds do suffer from an unanticipated acceleration of inflation, they are completely protected during a steady anticipated inflation as long as nominal interest rates are free to adjust to the appropriate level. Holders of equities, of course, are compensated by capital gains. Thus the case for cost-of-living escalators in

cost-of-living adjustments in government pay, pensions, and interest rates, he is worried about a horse that is already out the barn door.

Okun's second major point is his most important. His inspection of the historical performance of other Western nations between 1951 and 1968 reveals a high correlation between the magnitude of inflation and its variability. Relatively rapid inflation may not be undesirable by itself, but it appears to bring in its wake a greater deviation of actual inflation from mean (that is, expected) performance, which does impose a welfare loss.

Fortunately, Okun's correlation is heavily influenced by his choice of sample period. The variability of inflation in most countries was much higher in the 1950s than in the 1960s, probably both because of the aftermath of the Korean war (Okun excludes the 1950–51 inflation) and because of the readjustment to wartime dislocations. The correlation between the mean and standard deviation of the inflation rate is 0.78 for 1951–68, but this can be subdivided into a correlation of 0.90 for 1951–60 and 0.40 for 1960–68, and the latter figure is not statistically significant.

Figure 1 illustrates the much looser relationship for 1960–68. During that period about half of Okun's seventeen countries achieved roughly the same low standard deviation of inflation as the United States did, despite their higher mean rates. And the five countries that maintained the correlation at a positive value rather than zero—Ireland, Italy, the Netherlands, Denmark, and Finland—all have economies in which agricultural and import price fluctuations carry a larger weight than they do in the United States. France, Sweden, Japan, and Switzerland are relatively industrial countries that managed to sustain inflation rates at 4 percent or above without greater variability than that of the United States, and all but Japan also enjoyed a smaller standard deviation of output growth.[8] So if the 1960s are considered a more normal and reliable basis for extrapolation than the 1950s, the evidence does not suggest that the acceptance of steady inflation in the 4 to 5 percent range will inevitably raise the variability of either inflation or output. Okun's elaborate "bumpy road" analogy describes a process that is far from universal.

Okun's final point is that the response of public policy to "surprises" in the observed tradeoff between unemployment and actual inflation is likely

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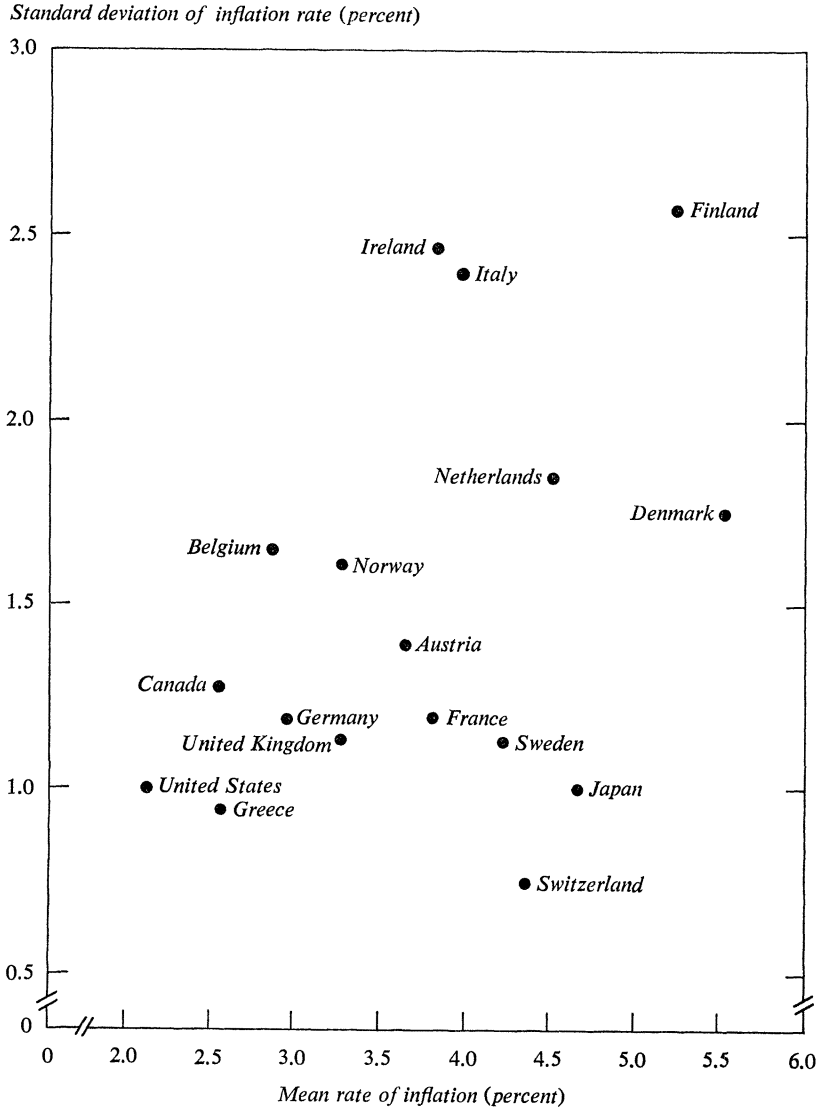
bonds, which protect holders against *un*anticipated inflation, depends on an assessment of Okun's argument that steady inflation is impossible, and that the mean and variability of the inflation rate are highly correlated for developed Western countries.

8. Japan's high standard deviation of output growth is at least partly a consequence of its high mean (11.0 percent), and its coefficient of variation is as low as that of France.

Figure 1. Mean and Standard Deviation of Inflation, Seventeen OECD Countries, 1960–68



Source: Derived from data in Organisation for Economic Co-operation and Development, *National Accounts Statistics, 1950–1968* (Paris: OECD), pp. 366–415.

to be asymmetrical. Once the government reveals a tolerance for 5 percent inflation, another unfavorable surprise will lead it to tolerate, say, 8 percent inflation. Yet a favorable surprise will, according to Okun, be seized upon to justify a reduction in unemployment rather than in inflation. Since the upward push on the inflation rate coming from unfavorable surprises will not be countered by an offsetting downward pressure when surprises are favorable, the inflation rate will accelerate even if good and bad surprises occur with equal frequency.

Yet in this case the accelerating inflation will be accompanied by a continually decreasing unemployment rate. Okun is simply describing a negatively sloped long-run tradeoff, and there is nothing in his argument that denies the possibility of remaining at a steady inflation rate when a *single* given unemployment target is firmly maintained.

Does a higher toleration for inflation now than in 1965 imply a revealed social preference function that is "made of Jello"? There are alternative interpretations. For one, the emergence of the de facto dollar standard in 1968 eliminated the balance-of-payments constraint as a major reason to minimize inflation. Another, more general interpretation is a social welfare function in which the marginal social disutility of increased anticipated inflation is relatively constant.

If a combination of 4 percent unemployment and 3 percent inflation was the social consensus of 1965, and 4 percent unemployment now is associated instead with 5 percent inflation, what considerations can guide us to an estimate of an equivalent "consensus point" on the new 1971 tradeoff curve? For the sake of concreteness, let us say that the shift in the long-run tradeoff curve is due entirely to a greater dispersion in the unemployment rates of prime-age men, on the one hand, and "secondary workers," on the other. Then the new consensus point depends on the social welfare weight on a marginal unit of secondary unemployment relative to a marginal unit of primary unemployment. If the relative weight is zero, the appropriate social goal is whatever primary unemployment rate was implied by a 4 percent aggregate rate in 1965, and hence a higher aggregate rate in 1971. If the relative welfare weight on secondary unemployment is unity, and the marginal social disutility of increased steady inflation is constant in the relevant range, a 4 percent aggregate unemployment rate is implied.[9]

9. Actually, the shift in the long-run tradeoff curve occurred before 1965. The prime-age male unemployment rate that accompanied a 4 percent aggregate unemployment rate in late 1965 also accompanied a 4 percent aggregate rate in early 1970. The long-

The subject of the relative welfare weights cannot be settled here. Although the loss of dignity and respect caused by extra unemployment above the frictional level is less serious for secondary than for primary workers, the increase in concern over ghetto problems since 1965 may justify high relative welfare weights for some secondary groups like black teenagers. For example, some evidence is beginning to emerge that links crime rates to high teenage unemployment.[10]

Accelerationist Tendencies in the Private Economy

If, as Fellner suggests, the long-run response of the unemployment rate to a change in the expected rate of inflation is zero within the private economy itself, an unemployment rate below the "natural" rate cannot be counted as one of the benefits of accepting a steady rate of inflation. To live with the currently anticipated rate of inflation is still preferable to raising unemployment above the natural rate in an attempt to reduce anticipated inflation. But any effort to push unemployment below the natural rate will cause an accelerating inflation. What qualifications should be made to the empirical case made in my Brookings paper referred to above against the accelerationist hypothesis? (I limit the discussion to my paper because I am most familiar with the areas in which its results are sensitive; George Perry and others who reach the same conclusions will not necessarily agree with my particular set of qualifications.)

1. The coefficient on expected inflation in my wage equations is both higher than those in most other econometric studies and quite sensitive to specification changes. While the accelerationist value of unity is outside the statistical confidence limits in my "final" wage equation, this is not true of equations with some of the final variables omitted.

2. In my study, much of the acceleration of wage increases between 1966 and 1969 is explained by labor market variables that indicate increased tightness despite the roughly constant official unemployment rate. The

run tradeoff curve shifted gradually between 1956 and 1965, but policy makers in 1965 *thought* they were still operating on the 1956 curve. The discussion of welfare weights here is therefore more accurate if "1965" is replaced by "1956."

10. See, in particular, L. Phillips, H. L. Votey, Jr., and Harold Maxwell, "Crime, Youth, and the Labor Market," *Journal of Political Economy*, forthcoming, which presents evidence that almost all of the increase in the crime rate in the 1960s can be explained by the deterioration of labor market opportunities for youth.

more "work" done by the labor market variables, the less remains to be done by expected inflation and the lower the coefficient on the latter. If expected inflation is mismeasured by the various techniques that I employed, part of the effect of expected inflation may be captured by one or more of the labor market variables acting as proxies. The most common criticism of the expectations estimates, however, does not work in the proper direction. Fellner suggests that there was a shift in the formation of expectations in the mid-1960s, with a reduction in the mean lag before actual experience was incorporated into expectations. If this is true, my estimates, which rely on fixed lag distributions, underestimate the expected inflation rate in the late 1960s, and thus *over*estimate the coefficient on expected inflation. In other words, if expectations were revised more rapidly after the mid-1960s, the relatively moderate wage increases of 1966–69 make the case for widespread money illusion stronger, and the case for the accelerationist hypothesis weaker.

3. The coefficient on price expectations may be biased downward by the use of wage indexes that include previously negotiated increases in the second and third years of union contracts. Currently negotiated increases would be more relevant information, which might change the story. They should be investigated.

4. The most basic qualification is one of principle. For most of the 1950s and 1960s, the expected rate of inflation in the American economy was small, and many workers were unprotected by cost-of-living agreements. The coefficient below unity on expected inflation may reflect in part a temporary situation and may not be suitable for extrapolation to situations of substantial steady inflation, which would be characterized by more generalized cost-of-living protection and more frequent wage agreements. In short, the less inequity caused by a steady inflation, the more likely it is to accelerate when unemployment is below the natural rate.

This last objection has some force, and I am sympathetic to it. A more general statement is that a coefficient on expected inflation below unity is compatible with a constant share of labor income in equilibrium but implies a reduction in labor's share when inflation is increasing. If labor subsequently fights to regain its share, steady inflation is possible only at the natural unemployment rate. This is presumably part of the story explaining the large wage agreements in 1970–71.

The instability of the coefficients on expected inflation, together with objections (3) and (4), flashes a yellow light to policy makers who want to

push unemployment below the natural rate (which is probably now around 5 percent). My advice to push unemployment a modest way below this barrier rests mainly on a plausible theoretical reason to expect a negatively sloped long-run tradeoff: The most appealing method for shifting the tradeoff curve (whatever its shape) in a favorable direction is an improvement in the functioning of the labor market through higher skill levels, the upgrading of workers, and the encouragement of labor mobility, but these ameliorations are likely to occur when firms can best profit by them, in an economy operating at a low aggregate unemployment rate.[11]

11. I do not consider direct controls an alternative technique to accomplish a shift in the Phillips curve, since their effect would be to worsen rather than improve the allocation of resources without any offsetting benefits.