

Time to Ditch the NAIRU

James K. Galbraith

The concept of a natural rate of unemployment, or nonaccelerating-inflation-rate-of-unemployment (NAIRU), has ruled macroeconomics for about 25 years. Yet it is still controversial. A wide range of views exists over how the NAIRU should be estimated, a fact that in itself raises questions about the practical usefulness of the concept.

This essay presents a brief for no-confidence, in four parts. First, the theoretical case for the natural rate is not compelling. Second, the empirical evidence for a vertical Phillips curve and the associated hypothesis that lowering unemployment past the NAIRU leads to unacceptable acceleration of inflation is weak, and has become much weaker in the past decade. Third, viewed collectively, attempts to estimate the location of the NAIRU have become a professional embarrassment; disagreements remain on too many basic issues. Fourth, adherence to the concept as a guide to policy has major costs and negligible benefits. Conversely, the risks of dropping the natural rate hypothesis are minor, while the benefits from a sustained pursuit of full employment could be substantial.

Unresolved Theoretical Questions

The idea of the “natural rate of unemployment” is usually traced to the work of Milton Friedman (1968) and Edmund Phelps (1968). Specifically, the natural rate was born in Milton Friedman’s remarkable 1968 presidential lecture to the American Economics Association, as close as economists get to delivery from Olympus. Perhaps no other presidential address has ever been so influential.

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Before Friedman's lecture, most American economists accepted a stable Phillips curve as the best concise statement of the relation between the unemployment rate and inflation. Friedman introduced an expectations function into the Phillips curve, so that the inflation rate would now depend on both unemployment and past inflation expectations. Friedman showed that in his model, the expected rate of inflation predicts the actual rate of inflation only when unemployment is held at an equilibrium value, the natural rate.

Thus, Friedman drew the distinction between the short run, when variations of unemployment could affect inflation, and the long run, when, by construction, unemployment could not vary. Within the terms of this thought experiment, efforts to reduce unemployment below its natural rate equilibrium would appear successful in the short run, but would soon generate accelerating inflation, whose intolerability would force a retreat to the natural rate.¹

This argument swept the field, yet it is open to questions that were not widely raised at the time. First among these concerns are the shortcomings of the Phillips curve itself and, specifically, its lack of theoretical justification. The Phillips curve had always been a purely empirical relation, patched into IS-LM Keynesianism to relieve that model's lack of a theory of inflation.² Friedman supplied no theory for a short-run Phillips curve, yet he affirmed that such a relation would "always" exist. And Friedman's argument depends on it. If the Phillips relation fails empirically—that is, if levels of unemployment do not in fact predict the rate of inflation in the short run—then the construct of the natural rate of unemployment also loses meaning. This empirical issue, which is more troubling than most suppose, will be discussed in the next section. For the moment, it is sufficient to note that a theoretical argument that rests on an atheoretic foundation is likely to run into trouble sooner or later.

Friedman may have sensed this. For while his core argument was macroeconomic, a gloss on then-prevalent Keynesianism and the Phillips curve, he also phrased a version of it in microeconomic terms. According to this alternate version, the natural rate of unemployment is the point of intersection of supply and demand curves in an aggregative, classical market for labor. The two versions are quite distinct. If the main line of Friedman's argument concerning a vertical Phillips curve led toward a nonaccelerating inflation rate of unemployment, the notion of an aggregate labor market pointed the way toward the New Classical model. Friedman (1968, p. 8, emphasis added) said:

¹ Some readers may find it helpful to see this argument in algebraic form. Assume a linearized, expectations-augmented Phillips curve of the form $P_t = \alpha - \beta U_t + \gamma_{t-1} P_t$, where P represents the rate of inflation, U the rate of unemployment, $\gamma_{t-1} P_t$ represents the expectation held at time $(t - 1)$ of inflation at time (t) , and γ is a parameter governing the speed of adjustment of actual to expected inflation. The Phillips curve must be vertical at a long-run equilibrium unemployment rate: $U^* = \alpha/\beta$. Under the conditions discussed in the text, it follows that if $U < U^*$, then $P_t > \gamma_{t-1} P_t$, the conditions for equilibrium are violated, and expectations and actual inflation must chase each other upward in an accelerating spiral. Only at U^* will inflation be sustainably stable.

² James Tobin once elegantly described the Phillips curve as a set of empirical observations in search of theory, like Pirandello characters in search of a plot.

At any moment of time, there is some level of unemployment which has the property that it is consistent with equilibrium in the structure of *real wage* rates. At that level of unemployment, real wage rates are tending on the average to rise at a “normal” secular rate. . . . *A higher level of unemployment is an indication that there is an excess supply of labor that will produce downward pressure on real wage rates.* The “natural rate of unemployment,” in other words, is the level that would be ground out by the Walrasian system of general equilibrium equations, provided there is embedded in them the actual structural characteristics of the labor and commodity markets. . . .

Such a labor market is free of money contracts and money illusion. Employment is purely a function of the real wage, acting on the marginal physical productivity of labor and on the marginal disutility of work. In such a market, nominal shocks can have only nominal, not real, effects: money (for which, read macroeconomic policy) is neutral, perhaps even in the short run. Friedman’s formulation states explicitly that persistent unemployment below the natural rate must lead through the labor market to rising real wages, whose nominal element is at least the proximate cause of rising prices.

This story is pre-Keynesian in all its essentials. And the essential theoretical objections to it were set forth by Keynes (1936) in the *General Theory*. First, labor supply and demand cannot be modeled in terms of the real wage, for workers care about relative wages as well as real wages; this introduces an asymmetry between nominal wage cuts and nominal price increases. Second, workers cannot actually negotiate for their own real wages, because of an interdependency between money wages and the price level. These two objections, which are the foundations of the *General Theory*, undermine the concept of the labor supply curve (the “second classical postulate,” as Keynes called it) and hence the very construct of an aggregative “labor market.” The neoclassical synthesis buried these objections issue long ago, but never actually resolved them.

If there is no aggregative labor market in any sense meaningful to economics, then theories based on shifts in wages clearing labor markets will fail to hold. From a proper Keynesian perspective, the correct response to the neo-Walrasian formulation of the natural rate hypothesis is simply, “Sorry, but the ‘labor market’ is a misconception; it doesn’t exist.” Aggregate demand for output, and not supply and demand for labor, determine employment. By these lights, the aggregative labor market, lacking a defensible supply curve as well as any internal clearing mechanism, is simply a failed metaphor, unsuitable for use as the foundation of a theory.

A further line of objection to theory of the natural rate also has its roots in Keynes. Is long-run equilibrium really a good guide to macroeconomic policy? Friedman’s NAIRUvian long run and the more strictly classical natural rate, based on rational expectations, are certainly beguiling. But are they relevant? Information may be asymmetric. Competition may be monopolistic. Nonlinearities and even chaos are possible. Equilibria may be multiple or continuous. In such cases, the long-run equilibrium may be undetermined or incalculable or beyond achievement. To put it another way, the future may be inherently unpredictable. Here, the

political scientists with their concept of “rational ignorance” may have something to teach economists. In a world of rational indifference, of a principled refusal to compute, surely all significant change is essentially unexpected, the short-run relations are what matter, and policies will usually work in the short run. As Robert Lucas (1981) once observed, the long run is no more than a sequence of steps that each occur in the here-and-now. If short-run policies necessarily fail—the Lucas position—you must live by the long run. But if short-run policies actually work—the Keynes position—it is fruitless to look that far ahead, and what you have to do is work from one short run to the next. The point is that one must choose one construct or the other, rather than trying to split the differences or otherwise base policy on both at the same time.

To be sure, these objections are easier to make in retrospect. In 1968, mainstream American Keynesians were committed to Samuelson and Solow’s (1960) version of the Phillips curve, so they could not object to Friedman’s specification that inflation was a function of unemployment and other factors. Being neoclassical synthetists, they could also hardly deny a role for expectations, nor that expectations must be satisfied in the long run, nor the policy relevance of the long run, nor that there existed a Walrasian aggregate labor market—a concept they had themselves resurrected in defiance of Keynes. The rhetorical power of Friedman’s argument was thus especially great against his American Keynesian targets. And so the game Friedman started, which was the search for a macroeconomics with suitably orthodox “microfoundations” in a proper classical labor market, has been going on ever since. Only the truest Keynesians—such as Nicholas Kaldor (1983) in the United Kingdom, Robert Eisner in the United States, and the post-Keynesians, generally speaking—could escape Friedman’s trap.

The Mismeasure of NAIRU

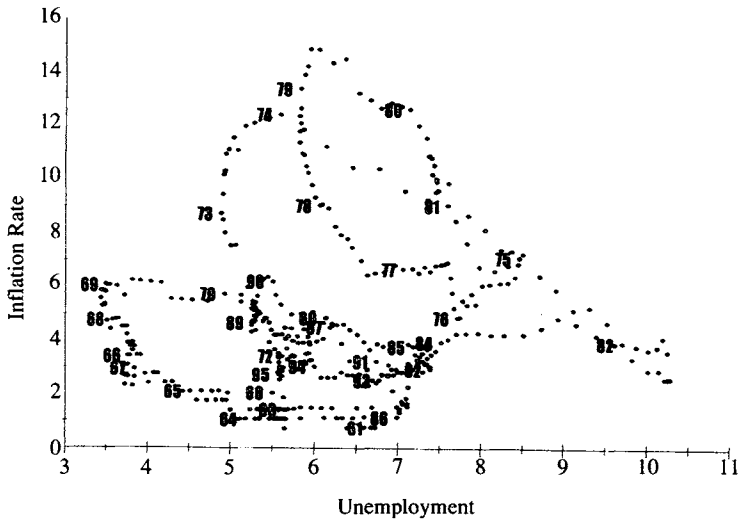
Supporters of the natural rate and the NAIRU tell an enticing story about how the inflation of the 1970s proved their theory correct. Robert Lucas (1981) summarizes the story well:

Now, Friedman and Phelps had no way of foreseeing the inflation of the 1970s, any more than did the rest of us, but the central forecast to which their reasoning led was a conditional one, to the effect that a high inflation decade should not have less unemployment on average than a low-inflation decade. We got the high inflation decade, and with it as clear-cut an experimental discrimination as macroeconomics is ever likely to see, and Friedman and Phelps were right.

This sweeping conclusion has been widely accepted, and it has had the effect of bolstering a weak theoretical argument with the authority of unpleasant fact. But is it right? Do the data still support the claim 15 years further on?

Figure 1, similar to diagrams in many textbooks, shows the breakdown of the short-run Phillips curve after 1969. In Figure 1, the dots represent monthly moving

Figure 1

Inflation and Unemployment*(12-month moving averages, 1960–1996)*

averages (over 12 months), with yearly labels inserted at mid-year. At a glance, Figure 1 does resemble a shifting set of short-run Phillips curves. For example, one can pick out a constellation in the lower left for the 1960s and another constellation in the upper center representing the late 1970s, after the second oil shock. But on average, taking the data as a whole, there is only a very modest inverse relation between inflation and unemployment. Clearly, the range is very wide, with much horizontal movement; it's hard to look at this data and visualize a vertical long-run Phillips curve running down the middle. Moreover, the main upward thrusts contributed by a fairly small number of inflationary months—in the late 1960s, in 1973 and in 1979.

More important, the figure is not symmetric; Eisner (1996) explores this issue in persuasive detail. Leftward movements, when unemployment is falling, are substantially horizontal. In each expansion from the late '60s to the mid-'90s, inflation rose little as unemployment fell. However, rightward movements as unemployment rises do result in a fall in inflation. Recessions are indeed disinflationary, as no one disputes, and the disinflation is strong in the early phases, while unemployment remains comparatively low. However, additional very high unemployment adds little extra to disinflation.³

³ The slope is such that a 1 percent fall in unemployment means nearly a 1 percent rise in inflation. For the sake of the Phillips curve, at least the sign is correct, but the estimate is not statistically different from zero. As unemployment rises, a 1 percent rise in employment brings a 2.75 percent fall in inflation. This estimate has a 95 percent confidence interval of about 1.6, and thus it is significantly different from zero.

Table 1

Simple OLS Regressions of Inflation Acceleration on Unemployment Monthly Data

<i>Sample Period</i>	<i>Constant</i>	<i>Coefficient</i>	<i>R-Squared</i>
1960–1996	.121	–0.019 (3.58 ^a)	.029
1960–1967	.132	–0.020 (2.49 ^a)	.063
1968–1983	.132	–0.021 (2.31 ^a)	.027
1984–1996	.017	–0.003 (0.30)	.0006

^a Indicates significant at 0.01 level.

Notes: *T*-statistics in parentheses. Independent variable is monthly unemployment; dependent variable is monthly change in CPI-U inflation rate, taken as a 12-month moving average for the following year. These regressions are offered for purposes of illustration only.

For further evidence, consider the results of a too-simple regression, offered purely for the purpose of illustration, where unemployment and a constant term are used to explain the acceleration of inflation in monthly data. Table 1 presents the results of this regression for 1960–1996 and for three subsets of that period: 1960 to 1967 (ante-Friedman), 1968 to 1983 (the years of monetarist ascension) and 1984 to the present. The first two periods provide nearly identical, small-but-significant support for the hypothesis that lower unemployment leads to accelerating inflation. The third period offers no such connection.

Even when the relationship between unemployment and inflation was statistically significant, the very low *R*-squareds in Table 1 make clear that unemployment explained only a small part of the variation in inflation. The coefficient estimates also argue that even if a persistently low unemployment rate would have accelerated inflation, it would have done so quite slowly, with plenty of time to reverse policy if need be. (This point is strongly supported by other work in this symposium, including the papers by Gordon and by Staiger, Stock and Watson, and does not depend on whether one accepts the NAIRU as a theoretical device or not.) The fundamental policy implication of the natural rate hypothesis is that of tight limits on the rate of economic growth, lest inflation accelerate beyond control. However, the empirical evidence is in almost uniform agreement that inflation is highly inertial and that whatever limits may exist are at worst highly elastic.

The NAIRU hypothesis is related to the older Keynesian idea, introduced in the 1962 *Economic Report of the President*, of potential GDP and the GDP gap. As an empirical matter, gap analysis is often still used for rough-and-ready assessments of distance to the NAIRU. Here too, there are reasons to treat the evidence with caution.

A typical method of calculating the growth rate of potential GDP is to look at, say, the peak-to-peak annual growth rate from 1973 to 1989 to show that 2.5 percent,

or thereabouts, represents the long-run growth ceiling of the economy. But this extrapolation from one business cycle peak to the next interjects a fatal assumption: that the peaks are exogenous. All a peak means is that something happened to slow down productivity growth; the economy hit a new set of limits. Just what those limits were and why they changed remains a professionally troublesome mystery—unresolved at present after 25 years of research—as troublesome as the estimation of the NAIRU and, I believe, for a closely related reason.

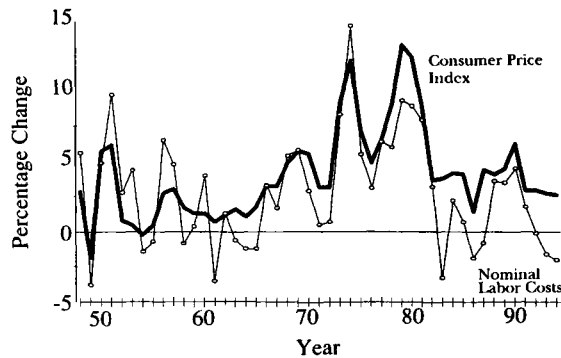
To understand the potential difficulty, suppose that erring policymakers have in the past reacted imprudently to “supply shocks” in ways that prematurely and systematically curtailed economic expansion. In that case, the business cycle peak is endogenous to policy. Suppose they did this because of the rise of a false doctrine of limits—such as the natural rate hypothesis. It is then possible that if growth policies had been more sustained, disciplined and aggressive, then the perceived decline in the trend productivity growth rate would have been smaller than it was, and the estimated natural rate would also have been lower than it has appeared to be.

The point is not that I can offer proof of such a hypothesis, but that economists cannot distinguish this possibility from the idea of an exogenous peak. We cannot reject the possibility that macroeconomic policy has been in thrall to the illusion of a supposedly objective, but in fact self-induced, decline in the trend rate of productivity growth, and that we have been running from the phantom of accelerating inflation for more than two decades. The result: a self-inflicted wound, a sociopsychological disability, of colossal proportions.

One disquieting clue in all of this, which like the productivity slowdown is usually treated as an empirical puzzle, concerns the behavior of wages. Surely, if the natural rate hypothesis means anything at all, it must imply that inflation stems from pressure in the labor market and is therefore wage driven. As noted earlier, Friedman’s formulation states this explicitly, arguing that a link exists from persistently low unemployment in the aggregate labor market to higher wages, which in turn lead to rising prices. While Gordon in this symposium argues that including wages in the model is a mistake, it is very hard to understand what the theory of a special link between unemployment and inflation can be, if it does not involve pressure through the labor market on wages and costs.

But the United States has not experienced wage-led inflation since the 1950s, except briefly in 1973, as shown in Figure 2. Since 1973, average real wages have by most measures been stable or falling. All accelerations of inflation have been led by commodities, especially oil, or by import prices via devaluation. Why not therefore conclude that the economy has almost always been *above* the NAIRU during this time and that the inflation rate should have been falling and even negative, but for these other factors? For that matter, why are no general equilibrium theorists proposing the NAIROP, or non-inflation-accelerating rate of oil production, or the NAIRODD, non-inflation-accelerating rate of dollar devaluation? What we seem to hear, instead, is an argument that NAIRU estimates ignoring wages “work better,” leaving us in the dark as to *why* the unemployment rate should be connected to the price level, and with the suspicion that, as with the old unexplained Phillips curve,

Figure 2
Inflation and Labor Costs, 1948–1994



the empirical good times (such as they are) must sooner or later come to an unexplained end.

The Shifting NAIRU

A large literature now exists on estimating the natural rate of unemployment, or the NAIRU. For a stationary NAIRU, simple expressions can be derived. In general, these rest on a regression framework that explains inflation with unemployment, some proxy for inflationary expectations such as lagged inflation, and other economic variables. In this approach, when the other factors are held constant, and the coefficient on the past inflation is such that inflation is not changing, then all that's left is to find the unemployment rate that matches this stable rate of inflation. One alternative approach rests on the individualized ratio of job separation to job finding—a structural characteristic of the labor market in steady state (Hall, 1979).

When these studies have specified that the natural rate be fixed, the estimates have had rather large statistical error terms. When the studies have allowed the natural rate to move, it has shifted considerably. For example, according to characteristic estimates by Adams and Coe (1990):

The natural rate of unemployment is estimated to have increased steadily from 3.5 percent in the mid-1960s to a peak of 7.25 percent in 1980, and then to have fallen back to about 5.75 percent in 1988. . . . Thus, roughly half of the increase in actual unemployment rates from the mid-1960s to their peak in the early 1980s can be attributed to increases in the natural rate.

Estimates of the NAIRU were at 6.0 percent or so for the overall unemployment rate following the recession of 1990, and many insisted they would stay there. At

present writing, they have generally fallen to 5.5 percent or lower.⁴ As in the past, the present estimates and reestimates seem largely a response to predictive failure, though models are now emerging that incorporate time variation (Gordon, this issue). Yet since the general abandonment of Perry-weighting for the changing demographic composition of the workforce some years ago (Perry, 1970), we still have no theory, and no external evidence, governing the fall of the estimated NAIRU. We simply observe that inflation hasn't occurred, and so the previous estimate must have been too high.

In general, the estimated NAIRU in a variety of studies has tracked the actual unemployment rate sluggishly. When unemployment rises, analysts tend to discover that the demographic characteristics of workers are deteriorating, or that the job-wage and wage-price dynamic has become unstable (Gordon, 1988). And then the unemployment rate drifts down again, those flaws mysteriously begin to disappear, and a lower NAIRU is estimated. Recent empirical studies like Eisner (1996) and Fair (1996) have confirmed this instability, both across time and in transnational comparisons.

It is often necessary to revise a parameter once or twice in light of new information. Differences of specification are also normal in the early stages of scientific inquiry. But to hold to a concept in the face of 20 years of unexplained variation and failure of the profession to coalesce on procedural issues is quite another matter. This record has become an embarrassment to the reputation of the profession. In saying this, I do not disparage any individual's work. My point is that momentous decisions of public policy cannot depend on the track record of any individual theorist or econometrician, however reliable that person's work has proven. It is necessary for the issue to be settled. If professional economists want to be taken seriously on the NAIRU, they have to come to agreement. Judging from this symposium, agreement on even the present location of the NAIRU or its confidence interval remains far away. Nothing remotely resembling the unified policy view of the 1960s Keynesians, with their commitment to the pre-NAIRU Phillips curve, exists today.

The innovation of a time-varying NAIRU, though attractive in the face of the record of stationary models, seems unlikely to resolve the practical problem. For now we need agreement not only on a value, but on the process generating the value. How likely is this, given for instance the present disagreement over so basic an issue as whether wages belong in a price equation? Or consider what time variation adds to policy discussion. If the implication of time-varying NAIRU models is that unemployment can be pushed down slowly, well past previously imagined limits, with the NAIRU in tow, well and good. But you can reach that conclusion without a NAIRU model; nobody argues for a crash program to achieve 3 percent unemployment next year. On the other hand, if the implication is that one must base interest rate policy on the ever-changing output of a computer model, I think

⁴ Mercifully, Akerlof, Dickens and Perry (1996, p. 43, Table 5) have produced estimates of the NAIRU ranging from 4.6 to 5.3 percent, in good time for the September 1996 reduction of the actual unemployment rate to 5.1 percent.

policymakers will wisely assign estimates a low weight to estimates of the time-varying NAIRU. And if the implication is that next year's NAIRU is a random walk from this year's, the practical consequence is not much different from that of abandoning NAIRU models altogether.

Can you imagine a petition, even from those contributors to this symposium who defend the idea of the NAIRU in their own research, calling on the Federal Reserve to raise interest rates sharply at the present 5.1 percent unemployment in order to ward off imminent inflation? Can you imagine such a petition being greeted with general approval across the economics profession? If you cannot imagine such a thing—for a contrast, one thinks of Einstein's 1939 letter to Roosevelt on the possibility of the bomb, something that conveyed definite information from a figure of authority backed by his colleagues—then we as a scientific profession have not advanced this concept to the point where it is suitable for practical use. Almost 30 years after Friedman's (1968) address, it is a fair question whether we will ever do so.

The Costs of NAIRUvianism

Speaking politically, the natural rate hypothesis has served a conservative cause. Since Friedman's speech, orthodox macroeconomics has virtually always leaned against policies to support full employment. In spite of stagnant real wages, it has virtually never leaned the other way.

For strict New Classics, this effect must be forgiven. The logic of their case imposes opposition to all policies affecting employment through aggregate demand. But for NAIRUvians, who believe that demand policy may have an appropriate role in engineering "soft landings" at the NAIRU, it seems to be a matter of curiously irrational, systematic error. Some economists have been more eager to raise their estimate of NAIRU than to cut it. The NAIRU, like the wage rate, is downwardly sticky.

When a higher NAIRU accompanies higher unemployment, it cuts against the case for a policy of expansion, since a higher proportion of the existing unemployment is seen as necessary to preserve stable inflation. When unemployment is falling, a downwardly sticky NAIRU bolsters the natural caution of many economists concerning progrowth policy intervention. In consequence, policymakers are almost *never* presented with a clear case, based on natural rate analysis and supported by a consensus of NAIRU-adhering economists, for a proemployment policy.⁵ This pattern continues right up to the present, as some economists who a year ago insisted that the natural rate was 6 percent now insist on 5.5 percent, or perhaps 5 percent. Lower estimates will be forthcoming, after the fact, if unemployment continues to fall and inflation does not increase. But by then it will be too late, and potential gains from having the estimates in hand now will have been lost.

⁵ Come to think of it, if the process were symmetric, wouldn't New Keynesian economists be expected to take this position about half the time? An interesting hypothesis, suitable for further research.

Economics has in this way talked itself out of a role in solving the central macroeconomic problems of unemployment and stagnation. Taxonomy—the empty art of labeling existing unemployment as “structural,” “frictional” or “cyclical”—has substituted for the development of theory bearing on action. The theories that have developed reinforce the message implicit in the taxonomy chosen: once frictional, structural and cyclical unemployment are allowed for, there is truly nothing left to be done. The cost of unnecessarily high unemployment itself must therefore, to some extent, rest on the conscience of the economics profession.

There is a second cost to this style of thinking, one that falls on the economists rather than on the economy. This is a loss of influence. It is one thing to position oneself in the center of gravity of a national political debate, where one can condition theory with circumstance, address important problems, and recommend now one thing, now another, as conditions change. It is something else again to be always singing the same note, always revisiting the same issue, always revising past estimates, coming up with the “new NAIRU” and the “new new NAIRU” as though it were a matter of a political makeover. People stop paying attention, and rightly so.

All of this matters, of course, only if the unemployment itself is truly costly, all things considered. If a 5.1 percent unemployment rate is no improvement over 5.5 percent, why not go back to the estimated NAIRU and play it safe?

Analyses of the costs of unemployment typically focus on the unemployed themselves or on their immediate families and neighborhoods. When the actual unemployment rate falls to its present 5 percent range, opinions differ. Seven million citizens continue to seek work they cannot find. Another 700,000 or so are counted as discouraged, and some 4 million more are working part-time involuntarily. Millions more are working full-time in jobs that they would like to change if alternatives existed.

I believe these numbers remain far too high, particularly given the maldistribution of unemployment and the social pathology of having high rates of it concentrated in inner cities or among minority groups. Other economists obviously take a more sanguine view. But my point here is that the effects of unemployment are not isolated or confined to the unemployed; rather, they extend throughout the economy, to a matter that affects us all. Specifically, empirical researchers are now increasingly finding a link between unemployment and economic inequality, generally speaking (Danziger and Gottschalk, 1995; Karoly, 1996).

My own work strongly confirms the link between unemployment and inequality in the structure of wages. In recent and forthcoming work, Ferguson and Galbraith (1996) and Galbraith (in progress) have examined this relation for the periods 1920–1947 and 1958–1992, for fairly comprehensive wage data sets covering manufacturing, agriculture, utilities and transportation in the earlier period and all of manufacturing in the later one. The focus on the wage structure is a departure, with the virtue that it disregards the influence that unemployment undoubtedly has on inequality of income between those who are employed and those who are not. Our data isolate the change in dispersion of hourly wages among those who remain employed, when unemployment varies. We find that unemployment is a predominant cause of increased hourly wage dispersion in both periods, though

the picture is somewhat more complicated in recent years than in the earlier ones—inflation and the exchange rate also play a role in increasing inequality in the modern wage structure. The underlying intuition is straightforward. In periods of high unemployment, low-paid and weakly protected workers suffer wage erosion, relative to those in better paid, better organized and more skill-intensive occupations. In the pre-World War II data, this effect occurs mainly through the co-occurrence of mass unemployment and price/income depression in agriculture.

My conclusion is that high measured unemployment reflects conditions that have pernicious effects throughout the structure of wages and incomes. These conditions work to split the wage structure. They undermine the middle-class character of society, and they separate the comfortable from the poor. The relation between unemployment and inequality is therefore an additional reason for devoting intellectual and material resources to the pursuit of full employment. It also makes it reasonable to ask that advocates of speed limit theorems and natural rate hypotheses prove their cases convincingly and in a unified way, something that in three decades they have not done.⁶

What To Do About Inflation?

If we are stuck in the short run with a still-serious unemployment cum inequality problem, and if we reject the practice of using an estimated NAIRU as a serious guide to where to stop the reduction of unemployment, then what theory of inflation should we hold and what should we do about that risk?

I have devoted most of this essay to an attack on the NAIRU as it often enters the policy discussion, in the post-Friedmanian or New Classical versions under which inflation begins to accelerate promptly once the barrier is breached. But almost no one working seriously on this issue appears to believe in this hair-trigger version of the NAIRU anymore. Instead, what we have are analyses, including those in this symposium, showing very slow increases in the inflation rate over many years following a reduction of unemployment. For example, Gordon (this issue) argues that a reduction of unemployment one point below his estimated NAIRU will generate a rise in annual inflation from 2.3 to 5.4 percent by the year 2005. That is three full years after, according to present plans, the federal government will have balanced its budget. It seems a long time into the future for so little acceleration.

If Gordon is right, then we can enjoy a decade of 4.5 percent unemployment before the inflation rate crests at 6 percent. Or if we accept Akerlof, Dickens and Perry's (1996) estimate of a 5 percent NAIRU, we can have unemployment at 4 percent, full employment by the legal standard, for a decade at the same price,

⁶ Linking the estimates of wage dispersion from separate data sets going back to 1920, I find that unemployment accounts for some 55 percent of the variation in inequality over 72 years of data. Using a method similar to that used to calculate the NAIRU, we can determine that rate of unemployment below which inequality declines and above which it rises. This, the "ethical rate of unemployment" is estimated quite stably to be 5.5 percent.

or 4.5 percent at half the price (assuming approximate linearity in these relations). And of course there is always the possibility that the NAIRU might fall even more.

If this is what is now meant by the NAIRU research, then the basic argument of this essay is already noncontroversial. It hardly matters whether the NAIRU continues to play a role in models, so long as all agree that the benefits of moving below the estimated NAIRU by moderate amounts vastly exceed the costs. This, of course, was never the intent of Milton Friedman nor of most of the theorists and textbook writers who have belabored the natural rate hypothesis over the past three decades.

At the same time, we need to recognize that almost no one seems to think that the major risks of accelerating inflation come from low unemployment. Gordon's estimates, once again, are exemplary: they show a minor risk. But since we observe that major inflations have occurred in the past, we do need to ask ourselves why that was so and what might possibly be done to prevent a recurrence. Looking at history and again at the very few strongly inflationary episodes of the last 30 years as shown in Figure 1, one may reasonably argue that our most serious inflations hit, more or less unpredictably, as a result of war (Vietnam in 1967–69, Yom Kippur in 1973 and the subsequent OPEC oil embargo) and revolution (Iran in 1979 and the second oil crisis).

These events sharply destabilized existing patterns of wage, price and cost relations. Businesses and organized workers reacted, understandably, by trying to reestablish the previous patterns. They therefore set off a spiral, passing price and wage increases around the economy, igniting an essentially nonaccelerating but highly inertial inflation that lasted in each case until a recession broke the spiral and forced all of the players to accept a changed arrangement.⁷

What was needed, in these cases, was an inflation policy addressing problems of wartime supply management and commodity shocks. Vietnam was fought as a peacetime war; the massive civilian mobilizations and control mechanisms that stifled inflation during World War II were not imposed. That was a mistake: wars should be fought on a war footing or not at all. In the case of the oil shocks, the situation is more complex, since the events were abrupt and their genesis remains in some ways mysterious. In any event, not every natural or man-made disaster can be predicted.

It would therefore be reasonable to approach anti-inflation policy in general as a matter, first and foremost, of designing circuit breakers for shock episodes, so as to reduce the cost of adjusting to a new pattern of relative prices and therefore the need to do it through the brute-force method of mass unemployment. Some simple steps, like coordinating the timing of wage bargains and providing the president with limited discretion over cost-of-living adjustments in Social Security, federal pensions and other payment streams might help a great deal, as I once proposed (Galbraith, 1989).⁸ Sterner measures could be held in reserve.

⁷ Adrian Wood's *A Theory of Pay* (1978) provides the best theoretical discussion of this process with which I am familiar.

⁸ To be specific, my idea was that the president be allowed to set a single, uniformly applied, forward-looking rate of indexation for cost-of-living in the year ahead. This single rate of discretionary prospective

If this were done, then the very slow increases in inflation that might or might not happen as a result of pressure from low unemployment might be mitigated in benign ways. To decide what to do, it would be useful first to have some judgment from economists as to the exact mechanism at work. If it is pressure from wages, then a guideposts policy (together with some coordination of wage-bargain timing) might again be useful. If some other sector responding to low unemployment is somehow the villain, then perhaps “tax-based incentive policies” or a “market anti-inflation plan” proposal might be resurrected.⁹ There is time for experiment here, and it should begin while the problem is not serious. The point is that the Federal Reserve need be brought into action only as a last resort, when all else fails (including patience), and not as the first line of defense.

The assignment of sole responsibility for anti-inflation policy to the Federal Reserve, a *de facto* development that is technically illegal under the Full Employment Act of 1978, is a serious underlying problem. Nothing in the law prevents the president and Congress from exerting leadership in this area, which they largely abandoned in 1981 for political reasons and have been prevented mainly by political cowardice from reentering ever since. One of the serious unintended consequences of economists’ preoccupation with NAIRU has been to convey a message to political leaders that they need not feel any responsibility in this area, that the inflation-unemployment tradeoff can be fine-tuned with interest rates by the Fed. It isn’t so.

Conclusion: A World Without the NAIRU?

Can economics live without the aggregative labor market, the natural rate and the NAIRU? Could physics survive without ether? Surely the measure of scientific maturity lies in a willingness to match theory with evidence, to discuss anomalies with an open mind, and to move on when it is appropriate to do so. Occasionally, this may mean reconstructing one’s thinking from the ground up.

I believe that the case for basing anti-inflation policy primarily around the rate of unemployment was never persuasive—not in 1960 when the short-run Phillips curve came onto the American scene, nor when Friedman introduced the vertical version he called the natural rate. The evidence since that time weighs further against drawing implications for policy from either confection, and equally against drawing implications from modern versions. One need not object to the NAIRU as a purely mathematical construct. After all, a steady-inflation unemployment rate is merely an implication of models specified in a certain way. The problem comes when one is asked whether to raise interest rates, *today*, based on the fact that the

indexation would affect all recipients of federal transfer payments to individuals. It would compensate for expected inflation and serve as a signal to the wage process around which inflation expectations might coalesce. Losses in the real value of such transfers due to unanticipated shocks would not be compensated, as indeed they should not be.

⁹ Tax-based incentive policies originated with Sidney Weintraub and Henry Wallich, while the market anti-inflation plan was an idea of Abba Lerner and David Colander (Colander, 1986).

actual unemployment rate has dropped below the estimate of such a rate in someone's model. The uncertainty and disagreement among the best economists working on this issue, and the persistent failure of inflation to accelerate in recent years despite transgressing past NAIRUs, make this an easy call.

Of course, when inflation hits, it can be repressed by recession and stifled by stagnation. The test of policy, however, is to reconcile reasonable price stability with acceptable growth at the highest achievable levels of employment and to manage shocks with the least disruption.

To abandon the NAIRU as a construct in policy discussion is essentially to abandon the pretext of the impossibility of this task. This would open the way to the pursuit of a lower unemployment rate. Accelerated growth is one means toward this end—and Okun's law, a much more reliable empirical rule than the Phillips curve, reminds us that an extra point of growth could bring unemployment down by a half-point or so per year. It is a reasonable bet that lower interest rates, combined with a somewhat less restrictive budget policy, could bring a growth acceleration.¹⁰

Surely, a period of moderately accelerated growth is in order, mainly to recover ground lost to overly restrictive policies in the past. On the other hand, I do believe it would be a mistake to base policy *exclusively* on aggregate monetary and fiscal measures. Dispassionately reviewed, history makes a fair case that targeted employment policies, public capital investment programs and wage-price—but especially wage—guidelines have useful supporting roles in times of general prosperity.¹¹ I would especially argue for innovation now to establish circuit breakers and other institutional mechanisms that would make handling a future exogenous inflation shock an easier and less costly task.

Economists have been a bit too quick to reject such policies outright, on the ground that they have no role in the idealized world of the model, where an assumed market already functions with perfect flexibility. We have also spent too little time discussing how to make such policies as effective, unobtrusive and sustainable as possible. When theory and histories conflict—as they do in the case of the natural rate and as they also do here—we should perhaps pay more attention to history. And we should be less easily tempted, than we sometimes have been, by the siren songs of the gods.

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¹⁰ Friedman's (1968) argument against such policy is aptly inept: "If [the monetary authority] . . . takes interest rates or the current unemployment percentage as the immediate criterion of policy, it will be like a space vehicle that has taken a fix on the wrong star. No matter how sensitive and sophisticated in its guiding apparatus, the space vehicle will go astray." But surely, a space vehicle can fix a course by any star whatsoever. It is only necessary that the star be fixed and visible; the "natural rate of unemployment" is neither.

¹¹ See Galbraith and Darity (1994) and Rockoff (1984) for discussions of this history and related references.

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