The Natural Rate of Unemployment: Concepts and Issues

By Stuart E. Weiner

The unemployment rate in the United States currently stands at 6.9 percent. That translates to 8 million workers out of work. How should policymakers respond?

In the past, policymakers might have responded by aggressively pursuing expansionary monetary and fiscal policies in an attempt to substantially lower the unemployment rate, perhaps to the 4 percent target established by the Council of Economic Advisors in the 1960s or the identical target established by the Humphrey-Hawkins Act of 1978. Today, however, with the emergence of the "natural rate" theory of unemployment, it is generally believed that there is an unemployment limit below which aggregate policies cannot go. And that limiting natural rate of unemployment is currently thought to be in the 5 to 7 percent range. Attempts to lower unemployment below this natural rate will only result in accelerating inflation. Thus, where 15 years ago a 6.9 percent unemployment rate would have elicited a highly stimulative aggregate policy response, today such a response is unlikely.

But while macroeconomic policymakers' hands are tied, microeconomic policymakers' hands need not be tied. Several labor market imperfections underlie the natural rate. And microeconomic policies can be used to eliminate these imperfections. The natural rate of unemployment is not necessarily full-employment unemployment, nor is it necessarily optimal unemployment. It changes over time and can be changed at any time.

This article examines these and other issues relating to the natural rate of unemployment concept. It echoes the sentiment that large-scale macroeconomic policies cannot be used to permanently lower unemployment below its natural rate. But it also stresses that the natural rate itself can be lowered with microeconomic policies designed to remove labor market imperfections.

The first section of the article provides an overview of the natural rate concept. How is the natural rate defined, and in what sense is it

---

Stuart E. Weiner is a senior economist at the Federal Reserve Bank of Kansas City. Kermit Daniel and Tom Dean, research associates at the bank, helped in the preparation of the article.

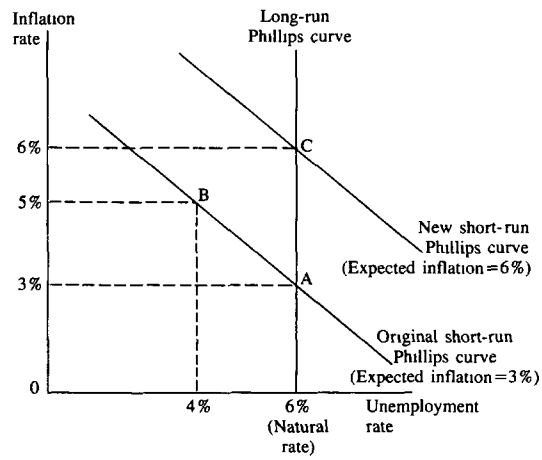
a barrier to macroeconomic policy? The second section reviews estimates of the natural rate of unemployment. How is the natural rate measured, and what is its value today? The third section examines the underlying sources of the natural rate. Why is the natural rate of unemployment so high, and what can be done to lower it? The article closes by emphasizing that a lowering of the natural rate of unemployment is an essential ingredient to a successful long-run anti-inflation strategy.

The natural rate: a barrier to macroeconomic policy

The natural rate of unemployment is defined as that rate of unemployment at which there is no tendency for inflation to accelerate or decelerate. When the economy is at the natural rate, inflation is constant from one year to the next. Workers and firms come to expect this inflation rate and base their decisions on it. For this reason, the natural rate of unemployment is also sometimes called the constant inflation rate of unemployment or the nonaccelerating inflation rate of unemployment.[1]

To gain a better understanding of how and why the economy eventually settles at the natural rate of unemployment, consider the hypothetical example depicted in Figure 1. In this diagram, the inflation rate is measured along the vertical axis and the unemployment rate is measured along the horizontal axis. Suppose the economy is initially at point A. At that point, the inflation rate is 3 percent and the unemployment rate is at its assumed natural rate of 6 percent. Because the unemployment rate is at its natural rate—with workers and

FIGURE 1
The natural rate hypothesis: hypothetical example



firms expecting and getting 3 percent inflation—there is no pressure for change. Consequently, the economy will stay at point A.

Now suppose policymakers increase aggregate demand in an attempt to lower the unemployment rate below 6 percent. They could do so, for example, by running a larger budget deficit or by pursuing a more expansionary monetary policy. In either case, with the increase in aggregate spending, firms will want to hire more workers. And to get those types of workers in short supply, firms will have to bid up wages. These higher wages, in turn, will likely be passed on into higher prices.[2] Thus, the initial effect of the expansionary policy will be a decline in the unemployment rate and a rise in inflation. The

[1] It is also sometimes referred to as the equilibrium unemployment rate or, perhaps misleadingly, as the full-employment unemployment rate.

[2] Prices would generally be rising anyway because of the aggregate demand pressures.

economy will move to a position like point B.

Point B might be preferable to point A. Although inflation is higher (5 percent instead of 3 percent), unemployment is lower (4 percent instead of 6 percent). The issue is moot, however, because point B is not sustainable. The economy will not stay at point B but will move to point C.

Why will the economy not stay at point B? Recall that at point A workers were expecting inflation of 3 percent. With the increase in aggregate demand and the subsequent move to point B, inflation rises to 5 percent. But workers are still expecting 3 percent. While some workers are receiving higher wages at B, others are not so that, on average, workers' real wages (wages adjusted for inflation) are lower than expected. As a result, as labor contracts expire and new ones are negotiated, workers will update their inflation expectations and demand higher wages. These higher wages will cause prices to climb even higher. And as wages rise—with no further increase in aggregate demand—firms will cut back on their hiring. This means that the unemployment rate will rise. Eventually, the economy will settle at point C, with an unemployment rate of 6 percent and an inflation rate of 6 percent.[3]

Point C is a sustainable position for the economy. At point C, the unemployment rate is once again at its natural rate. Workers and firms are expecting and getting an inflation rate of 6 percent. There is no pressure for change. Thus, the sole long-run impact of the expansionary macroeconomic policy has been a doubling of the inflation rate.

The hypothetical example in Figure 1 illustrates the limitations of large-scale aggregate demand policies. In the short run, lower unemployment may be "bought" with higher inflation, as in moving from A to B. But in the long run, there is no tradeoff between inflation and unemployment. The economy will simply move from A to C. Efforts to reduce the unemployment rate below its natural rate will only result in accelerating inflation.

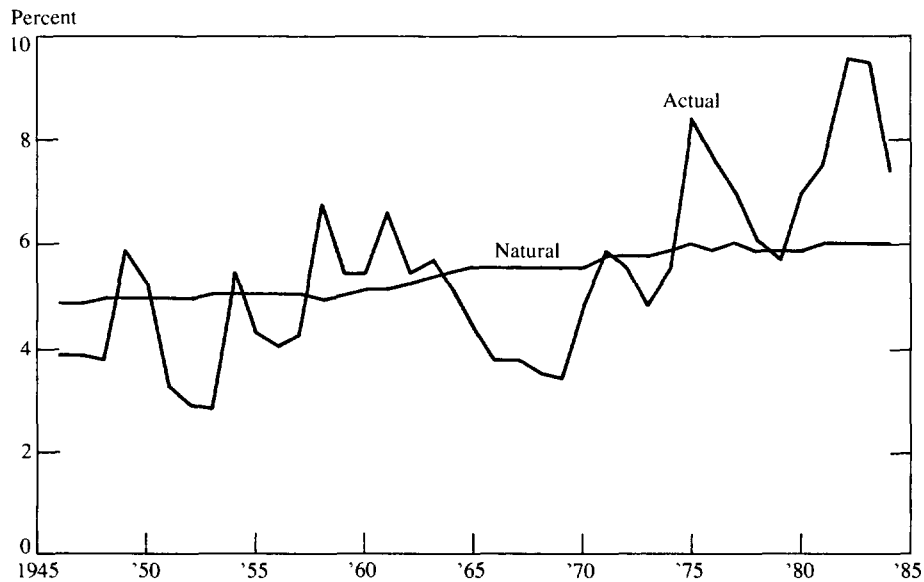
This "natural rate hypothesis" has only come to the fore in recent years. Throughout the 1960s and early 1970s, it was generally believed that there was a long-run tradeoff between inflation and unemployment. Possible combinations of inflation and unemployment, it was thought, could be represented by a "Phillips curve" (named after the British economist who popularized it) and policymakers could maintain the economy at any point on that curve. As the inflationary 1970s and early 1980s unfolded, however, it became increasingly clear that a permanent tradeoff did not exist. The Phillips curve was not stable, but rather shifted over time as workers and firms adjusted their inflation expectations. An inflation-unemployment tradeoff might exist in the short run along a given short-run Phillips curve, but as expectations adjusted and the short-run curve shifted, the tradeoff disappeared, resulting in a vertical long-run Phillips curve. Such short-run and long-run Phillips curves are incorporated in Figure 1.[4]

---

[3] How long this process will take is a matter of considerable debate. Some authors believe the return to the natural rate will be quite rapid; models incorporating "rational expectations" and perfect wage and price flexibility yield such a result. Others believe the return to the natural rate will be less rapid; models rejecting rational expectations or, more frequently, the perfect wage and price flexibility assumption, yield this result. For discussion, see Robert J. Gordon, "Price Inertia and Policy Ineffectiveness in the United States, 1890-1980," *Journal of Political Economy*, Vol. 90, December 1982, pp. 1087-1117.

[4] The seminal articles on the natural rate hypothesis are Milton Friedman, "The Role of Monetary Policy," *American Economic Review*, March 1968, pp. 1-17, and Edmund S. Phelps, "Phillips Curves, Expectations of Inflation, and Optimal Unemployment Over Time," *Economica*, August 1967, pp. 254-281.

CHART 1
Unemployment rate: actual and natural



Source: *Actual*. U.S Department of Labor.
Natural. Robert J. Gordon, *Macroeconomics*, 3rd edition, Table B-1, and Robert J. Gordon, "Unemployment and Potential Output in the 1980's," *Brookings Papers on Economic Activity*, 1984:2, Table A-1 (value for 1984:Q4 taken to be 6.0 percent by author). For description of Gordon's methodology, see Robert J. Gordon, "Inflation, Flexible Exchange Rates, and the Natural Rate of Unemployment," in *Workers, Jobs, and Inflation*, Martin Neil Baily, editor, Brookings Institution, 1982.

Estimating the natural rate

Because the natural rate of unemployment is a theoretical concept, it is not directly observable and thus has to be estimated. Chart 1 shows one such estimated series, calculated by Robert J. Gordon, and compares it with the actual unemployment rate over the postwar period.

Three features stand out. First, the actual unemployment rate has rarely equaled the natural unemployment rate. Second, the natural rate is at a relatively high level. And third, the natural rate has trended upward over time.

The divergence of the actual and natural rates of unemployment reflects the vagaries of the business cycle. The economy does not grow at a smooth, constant rate, but rather starts and stalls as cyclical forces take the economy first into an expansion, then a reces-

Other highly readable accounts include Robert J. Gordon, "Recent Developments in the Theory of Inflation and Unemployment," *Journal of Monetary Economics*, Vol. 2, 1976, pp. 185-219, and Thomas M. Humphrey, "The Evolution and Policy Implications of Phillips Curve Analysis," *Economic Review* Federal Reserve Bank of Richmond, March/April 1985, pp 3-22. Friedman, who coined the term "natural rate of unemployment," makes the point that the natural rate of unemployment is natural only in the sense that it reflects real forces as opposed to monetary forces. See Friedman, "The Role of Monetary Policy," pp. 7-9.

sion, then another expansion.[5] Along the way, the actual unemployment rate will deviate from the natural unemployment rate. As workers and firms adapt to changing conditions, however, adjusting their inflation expectations, the economy will gravitate back toward its natural position. At that point, the actual unemployment rate and the natural unemployment rate will coincide.

The relatively high level of the natural rate reflects imperfections in labor markets, imperfections that exist regardless of the overall state of the economy. For this reason, unemployment at the natural rate is often referred to as structural unemployment to distinguish it from cyclical unemployment. Structurally unemployed individuals may be unemployed for a variety of reasons. They may have the wrong skills, live in the wrong areas, face institutional barriers, be inefficient in job search, or have little incentive to accept the jobs they are offered. Some portion of this structural unemployment is nevertheless beneficial because it represents normal turnover and job search, two key ingredients in a dynamic, thriving economy. This portion of structural unemployment is usually referred to as frictional unemployment.

The gradual rise in the natural rate over the years is generally attributed to the changing composition of the U.S. labor force. Thirty years ago, the labor force was dominated by men. Today, the labor force contains a large share of women and teenagers as well. Since women and teenagers typically have higher unemployment rates than men—experiencing more structural (and frictional) unemployment—the overall unemployment rate consistent with constant inflation has risen.

Divergence of estimates

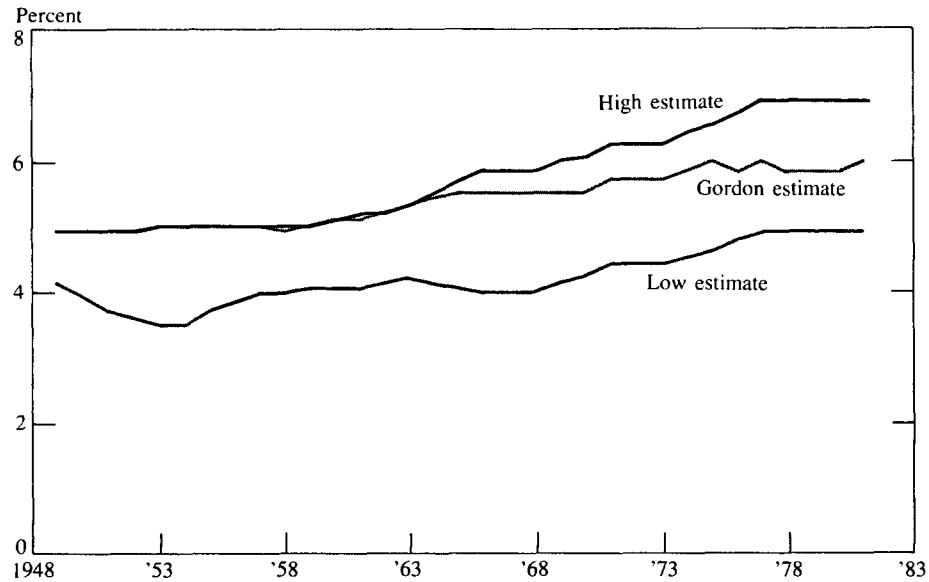
The natural rate series plotted in Chart 1 is only one of many that have been advanced in recent years. Other series based on other estimation techniques have been generated for part or all of the postwar period. All of the series tend to show the natural rate rising over time. But individual estimates vary widely.

Chart 2 gives some idea of this divergence. Surrounding the Gordon series of Chart 1 is an uncertainty band for the natural rate, the boundaries of which have been constructed from the upper and lower estimates of eight additional series.[6] The band has averaged

[5] These cyclical forces emanate from a variety of sources, including private aggregate demand shocks (such as investment booms and consumption booms), public aggregate demand shocks (such as wartime defense buildups), and exogenous supply shocks (such as crop failures and OPEC price rises). Countercyclical monetary and fiscal policies attempt to offset such cyclical disturbances, mitigating movements away from the natural rate.

[6] The boundaries have been smoothed by means of a three-year symmetric moving average. The series considered, in addition to the Gordon series referenced in Chart 1, are as follows: the U_1* and U_2* series (1955-77) from Jeffrey M. Perloff and Michael L. Wachter, "A Production Function—Nonaccelerating Inflation Approach to Potential Output," in *Three Aspects of Policy and Policymaking: Knowledge, Data, and Institutions*, Carnegie-Rochester Conference Series on Public Policy, Vol. 10, Karl Brunner and Allan H. Meltzer, eds., pp. 113-163, supplemented by the U_N series (1948-54) from Michael L. Wachter, "The Changing Cyclical Responsiveness of Wage Inflation," *Brookings Papers on Economic Activity*, 1976.1, pp. 115-159; the UNAT series (1946-78) from Robert J. Barro, "Unanticipated Money Growth and Unemployment in the United States," *American Economic Review*, March 1977, pp. 101-115; the U1, U2, and U3 series (1948-82) from Peter K. Clark, "Okun's Law and Potential GNP," unpublished manuscript, Board of governors of the Federal Reserve System, June 1983; the "potential" series (1950-76) from George L. Perry, "Potential Output and Productivity," *Brookings Papers on Economic Activity*, 1977:1, pp. 11-47; and the estimated natural rate range (1965-82) from Stanley Fischer and Rudiger Dornbusch, *Economics*, McGraw-Hill, New York, 1983, p. 731. Some of these authors, reluctant to explicitly recognize their series as natural rate series, elect instead to call them normalized, potential, or benchmark series.

CHART 2
Natural rate of unemployment: divergence of estimates



Source. See note 6.

about one and a half percentage points in width. This divergence reflects the inherent difficulty of obtaining a precise estimate of the natural rate.[7]

There are two principal techniques for estimating the natural rate. The first follows an aggregated approach and is used by Gordon and some others. A statistical equation relating inflation and aggregate unemployment is estimated. A natural rate series is then generated by solving for that unemployment rate for which inflation is not changing.[8] The second estimation technique follows a disaggregated approach. Natural rates are estimated for several demographic groups based on historical relationships between their unemployment rates and the unemployment rate of a reference group, where the reference group's natural rate is assumed known and constant. These disaggregated series are then weighted by labor force shares to construct an aggregate

[7] The difficulty of estimating the natural rate has long been acknowledged, from Friedman's early lament that "we have as yet devised no method to estimate accurately and readily the natural rate of ... unemployment" ("The Role of Monetary Policy," p. 10), to Robert J. Gordon's contention that "the exact value of the natural rate will always be uncertain" ("The Welfare Cost of Higher Unemployment," *Brookings Papers on Economic Activity*, 1973:1, p 135), to Fischer and Dornbusch's observation that "no one knows for sure what the natural rate is" (*Economics*, p. 731).

[8] Gordon's natural rate series and Barro's UNAT series are based on this methodology Such methods usually proceed in one of two ways: (1) estimating a series of short-run Phillips curves and then inverting them, solving for the unemployment rate that keeps inflation constant, or (2) estimating unemployment equations in which unemployment is made a function of unexpected inflation and then solving for that unemployment rate that arises when there are no inflationary surprises—that is, when actual inflation equals expected inflation. Although these procedures have the advantage of solving directly for the natural rate, specification of the relevant equation is rarely clearcut

natural rate series.[9] Neither technique is necessarily superior to the other. Both are inherently imprecise.

Benefits of accurately estimating the natural rate

The inherent imprecision in estimating the natural rate is unfortunate. The more uncertainty there is about the natural rate—that is, the wider the uncertainty band of Chart 2—the more cautious aggregate policymakers have to be. If they are not careful, they can temporarily push the actual unemployment rate below the natural unemployment rate, causing a permanent increase in inflation. And because of this self-imposed caution, potential output will be foregone. Suppose, for example, that there is some belief that the natural rate could be 7 percent when in fact it is 6 percent. And further suppose that, to be safe, policymakers keep the actual unemployment rate at 7 percent. According to recent estimates of Okun's Law, this extra percentage point in the actual unemployment rate would result in roughly $40 billion of lost output per year.[10]

This pure economic loss understates the total social cost, of course, because an additional percentage point of unemployment means additional personal stress for some one million individuals, stress that some researchers have linked to increased health and crime problems.[11] Foregone output also means a larger federal budget deficit than necessary. Adding one million people to the employment rolls would increase the tax base and, therefore, revenues and lower expenditures on such social assistance items as unemployment insurance and welfare. Given the numerous benefits of accurately estimating the natural rate, further research in this area is clearly warranted.

Lowering the natural rate

The natural rate hypothesis asserts that large-scale fiscal and monetary policies cannot be used to permanently lower the unemployment rate below its natural rate. But the natural rate itself can be lowered through microeconomic policies aimed at its many sources.

This point is illustrated in the hypothetical example in Figure 2. Here, points A, B, and C have been recast from Figure 1. Suppose the economy is initially at point A. At that point, the inflation rate is 3 percent and the unemployment rate is at its assumed natural rate of 6 percent. Now suppose policymakers desire a lower unemployment rate, say 4 percent. They could stimulate aggregate demand, taking the economy to point B. But as discussed earlier, point B cannot be sustained. The economy will not stay at B but will move on to point C, with no improvement in unemployment and an

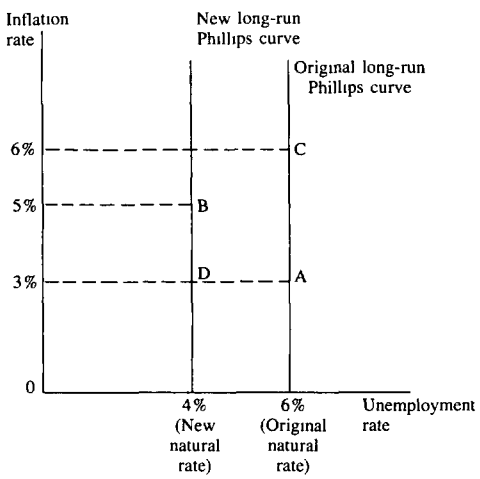
---

[9] Perloff and Wachter's U_1* series, Wachter's U_N series, and Clark's U1 series are based on this methodology. A variant is Perry's "potential" series. The principal shortcoming of this demographic normalization method is its assumption that the reference group's (typically prime-aged men, aged 25-54) relation to inflation has not changed. There is no guarantee, for example, that a 3 percent unemployment rate among prime-aged men is necessarily consistent with constant inflation in 1985 even though it might have been in an earlier base year. Demographic normalization is only an indirect method for estimating the natural rate, a point its practitioners readily concede.

[10] This estimate is based on Table 4 of Douglas M. Woodham, "Potential Output Growth and the Long-Term Inflation Outlook," *Quarterly Review*, Federal Reserve Bank of New York, Summer 1984, pp 16-23.

[11] Robert J. Gordon surveys some of this literature in *Macroeconomics*, 3rd edition, Little, Brown, and Co , Boston, 1984, pp. 353-354. See also Kay Lehman Schlozman and Sidney Verba, "The New Unemployment: Does It Hurt?" *Public Policy*, Vol. 26, no. 3, Summer 1978, pp. 333-358, and James Q. Wilson and Philip J. Cook, "Unemployment and Crime—What is the Connection?" *The Public Interest*, Spring 1985, pp. 3-8.

FIGURE 2
Lowering the natural rate: hypothetical example



even higher inflation rate. Alternatively, policymakers could try to lower the natural rate to 4 percent, taking the economy to point D.[12] Such a reduction is possible in principle, provided the underlying sources of the natural rate have been identified and appropriate actions taken.

[12] Any other point along the new long-run Phillips curve would also be possible, provided an appropriate aggregate demand policy was followed. For example, an inflation rate of less than 3 percent (that is, a point below point D) could eventually be realized if a contractionary aggregate demand policy were adopted An inflation rate of higher than 3 percent, say the 5 percent at point B, could eventually be realized if an expansionary aggregate demand policy was adopted. (The desirability of a higher inflation rate is, of course, dubious.) In all cases, the actual unemployment rate would settle at the now-lower natural unemployment rate of 4 percent.

Underlying sources of the natural rate

Five types of labor market imperfections underlie the natural rate of unemployment, that is, are sources of structural unemployment. These include skill mismatches, location mismatches, institutional barriers, imperfect information flows, and transfer payment disincentives. For each, microeconomic policies exist that could potentially serve as remedies. Of course, a given policy would be advisable only to the extent that its incremental benefits exceeded its incremental costs.

The first type of labor market imperfection is the mismatch between the skills possessed by available workers and the skills required for available jobs.[13] Job openings and unemployed individuals can coexist because the individuals do not have the requisite qualifications for the jobs. New entrants into the labor force, reentrants into the labor force, and workers displaced from dying industries often confront this type of unemployment. So, too, do chronically low-skilled individuals who for one reason or another never acquire the skills that would widen their employment opportunities.

Skill mismatch unemployment would decline if available workers were better educated and better trained. Consequently, any policies that furthered those ends would serve as partial remedies to the high natural rate. Better elementary and secondary educational programs, of course, would constitute a basic first step. In addition, vocational training loan programs, similar in design to present college loan programs, could be instituted to assist low and middle-income youths in acquiring training at

[13] This discussion of labor market imperfections draws heavily from Stuart E Weiner, "Enterprise Zones as a Means of Reducing Structural Unemployment," *Economic Review*, Federal Reserve Bank of Kansas City, March 1984, pp. 4-8.

technical schools. And wage subsidy programs designed to encourage on-the-job training might be even more effective in augmenting the skills of the labor force.[14]

The second type of labor market imperfection is the mismatch between the location of available jobs and the location of available workers. Locational mismatch unemployment can be said to exist when job seekers living in one location could qualify for vacancies in another location.

Locational mismatch can arise when one region of the country grows more quickly than another. One example that has received considerable publicity in recent years is the movement of jobs and people to the Sunbelt. Rapid industrial growth in the South and Southwest has come partly at the expense of the Northeast and Midwest, with the result that some of the unemployment in these northern regions is locationally derived. Potential remedies for regional locational mismatch unemployment include worker relocation subsidies and an extensive and more efficient national employment service.[15]

Locational mismatch can also arise in the same metropolitan area. Such intrametropolitan mismatch occurs when vacancies exist in the suburbs but available workers in the central city are unable to reach them, either because of high commuting costs or because such individuals do not learn about the vacancies due to high search costs or distance-related deterioration of job information flows. This type of mismatch has also come to the fore in recent years. Firms have increasingly abandoned central cities for sites in the suburbs, with possible adverse effects on the employment prospects of inner-city residents. One possible solution to this intrametropolitan locational mismatch is to encourage firms to stay in the inner cities. Several states have established enterprise zone programs in an attempt to do just that.[16] Alternatively, rapid transit routes from the inner city to surrounding suburbs could be improved.

The third type of labor market imperfection is the existence of institutional barriers. Various laws and social practices prevent labor markets from working as efficiently as possible. Minimum wage laws, union membership restrictions, and racial and sexual discrimination provide three examples.

Minimum wage laws, despite their good intentions, have a deleterious impact on the employment prospects of low-skilled, low-wage individuals. Wages are not permitted to fall below an artificial floor even when market conditions dictate such a decline. Consequently, wages are higher than they otherwise would be, causing employers to hire fewer workers and causing more individuals to enter the labor force. The net result is an excess supply of low-skilled, low-wage individuals, which increases unemployment. If wages were free to settle at market-clearing levels, unemployment among such individuals would decline.[17]

---

[14] A wage subsidy program, the Targeted Jobs Tax Credit (TJTC) program, was part of federal law from 1978 to 1985 Its provisions were somewhat modest, however, and it applied to a limited set of individuals. See Weiner, "Enterprise Zones," footnote 25, p. 16, for further discussion. For a general discussion of wage subsidy programs, see Robert H. Haveman, "The Potential of Targeted Marginal Employment Subsidies," in *Marginal Employment Subsidies*, OECD, Paris, 1982.

[15] National relocation subsidies already exist to some degree through the deductibility of moving expenses in the federal income tax.

[16] See Weiner, "Enterprise Zones," pp. 3-16, for an analysis of enterprise zones.

[17] Charles Brown, Curtis Gilroy, and Andrew Cohen survey the empirical evidence on minimum wage effects in "The Effect of Minimum Wage on Employment and Unemployment," *Journal of Economic Literature*, Vol 20, no. 2, June 1982, pp. 487-528

Union membership restrictions are another type of institutional barrier. Individuals excluded for one reason or another from joining a union are unable to work at union shops and unable to take advantage of union training programs. Such restrictions reduce employment opportunities, both now and in the future. Racial and sexual discrimination in hiring has a similar impact. Qualified individuals are shut out of potential positions, losing valuable on-the-job training in the process. Like minimum wage laws and union membership restrictions, discriminatory hiring obstructs the smooth functioning of labor markets.

The remedy for unemployment resulting from institutional barriers is, of course, to remove the barriers. Abolishing minimum wage laws, banning union membership restrictions, and prohibiting discriminatory hiring would all serve to lower the natural rate.

The fourth type of labor market imperfection is imperfect information flows. Job vacancies may exist but go unfilled simply because job seekers are unaware of the vacancies.

Individuals can search for employment in several ways. They can apply directly to employers, place and answer classified ads, use public and private employment agencies, and exchange information through word of mouth. Some methods of job search may not be as efficient as others. Sole reliance on public employment agencies, for example, may be ineffective because of a large number of applicants per vacancy. Alternatively, some methods of job search may be inefficient for certain groups only. For example, word of mouth is likely to be ineffective for inner-city residents because a large percentage of such individuals' peers are unemployed.

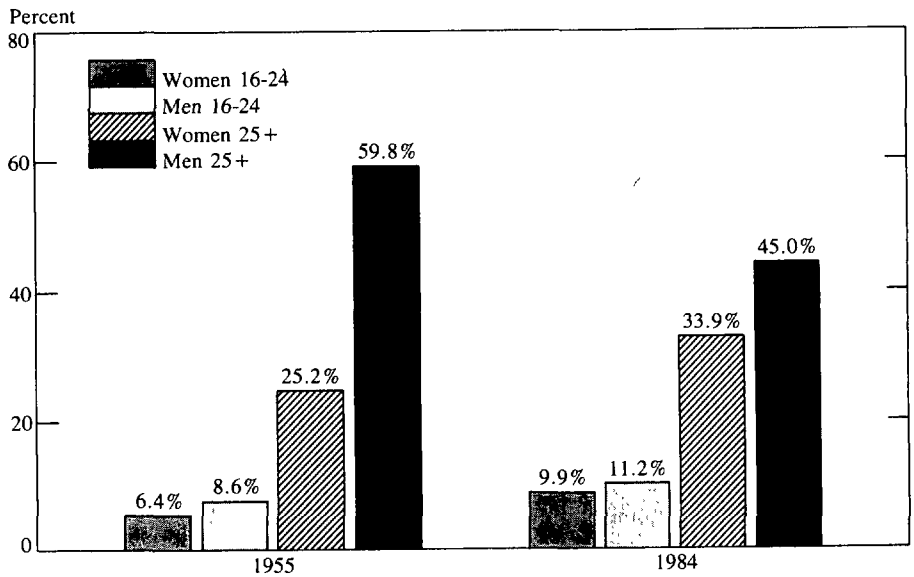
Establishing a more efficient and extensive public employment service would be one way to improve the flow of information to job seekers. Beyond that, however, policy options appear limited. It is difficult, and perhaps undesirable, to develop measures that would influence how individuals search for work.

The fifth type of labor market imperfection relates to the disincentives associated with various public transfer programs. An individual receiving unemployment compensation or welfare payments has little incentive to search for or accept a job paying only a marginally higher income. Public transfer payments clearly serve a useful purpose in providing some measure of income security to individuals facing adversity. However, they also tend to lengthen the duration of unemployment spells.

Several proposals have been made for reducing this type of incentive-based unemployment. Suggestions range from reducing benefit levels or eligibility to establishing a voucher system in which transfer payment recipients could in effect buy employment from employers. The issue continues to generate a great deal of debate.

While all unemployment at the natural rate inherently reflects imperfections in labor markets, some of this unemployment may nevertheless be beneficial from a personal standpoint. This component of structural unemployment, the frictional component, mirrors a healthy search process. When an individual quits a job to look for a better one or enters the labor force after a spell of nonparticipation, the time spent in job search represents in part an investment in the future. (This unemployment is structural because if job information networks were perfect, job search would be unnecessary.) An individual entering the labor force from college, for example, would probably not want to accept the first job offered. Instead, the new entrant would want to "shop around," talking to a number of potential employers and weighing the alternatives. Similarly, a woman reentering the labor force after several years in the home would

CHART 3
Labor force shares



Source. U.S. Department of Labor

probably want to take some time to explore her employment opportunities. In a world of imperfect sequential information, such a strategy is optimal.[18]

Society also profits from this extended job search. A dynamic economy generates a continuum of jobs requiring a continuum of skills. The better matched workers and jobs are, the more productive workers will be. An economy without frictional unemployment is either an economy with perfect information—an unlikely event—or an economy with little vitality and diversity. From a societal as well as a personal standpoint, therefore, some unemployment at the natural rate is beneficial.

[18] Robert J Gordon develops this argument in *Macroeconomics*, 3rd edition, pp. 342-344.

Past and future trends in the natural rate

Charts 1 and 2 indicate that the natural rate of unemployment has been gradually rising. As noted earlier, this rise is generally attributed to the influx of women and young adults into the U.S. labor force. Chart 3 shows the growing prominence of women and young adults in the work force. In 1955, men aged 25 and older made up nearly 60 percent of the labor force. By 1984, their share had fallen to 45 percent. Women, meanwhile, increased their share of the labor force from 25 percent to 34 percent. And young people—combining males and females—watched their share grow from 15 percent to 21 percent. Because women and young adults traditionally have higher unemployment rates than men, the overall unemployment rate consistent with constant inflation has risen.

Part of the reason that women and young adults tend to have higher unemployment rates than men is that their frictional unemployment rates tend to be higher. Young adults are more likely to be entering the labor force for the first time. Women are more likely to be entering after an extended absence. As discussed earlier, such entry and reentry imply a higher normal level of frictional unemployment. But women and young adults may also be more vulnerable to some of the underlying labor market imperfections. Newly entering teenagers, for example, are more likely to face minimum wage barriers and, because they have not had an opportunity to receive on-the-job training, are more likely to face skill mismatch problems. Similarly, reentering women are more likely to face skill mismatch problems because the skills they acquired years ago may have become obsolete. It is not enough, therefore, to categorically dismiss higher unemployment rates among women and young adults as simply reflecting higher levels of frictional unemployment. More serious underlying problems may also be present.

Another potential source of the rise in the natural rate is secular demand shifts, that is, fundamental changes in the composition of demand for domestically produced goods and services. Some authors believe, for example, that the rise in the U.S. natural rate since the early 1970s partly reflects a demand shift from durable goods to services.[19] Long-term employees, it is argued, have increasingly been displaced from shrinking manufacturing industries, their skills no longer needed or needed only in other parts of the country. As a result, skill and locational mismatch unemployment may have increased, particularly among adult men.[20] [21]

Under the assumption that the natural rate is in the 5 to 7 percent range today, where is it likely headed? There appears to be some consensus that it will decline a bit because of demographic trends. The baby boomers, who entered and swelled the ranks of the labor force in the 1960s and 1970s, are now mature workers. Accordingly, the young adult share of the labor force, which peaked in 1978, should continue to fall off. Women's share of the labor force, which climbed to new highs in the 1970s and early 1980s, might also be expected to level off. Thus, one can probably look for a mild decline in the natural rate in the years ahead.[22]

---

[19] David M. Lilien, "Sectoral Shifts and Cyclical Unemployment," *Journal of Political Economy*, August 1982, pp. 777-793, and Robert J. Barro, *Macroeconomics*, John Wiley & Sons, New York, 1984, pp. 212, 229-30, share this view. Michael Podgursky also examines this issue in "Sources of Secular Increases in the Unemployment Rate," *Monthly Labor Review*, July 1984, pp. 19-25.

[20] As noted in the text, potential policies exist for alleviating this mismatch, policies that demand serious consideration. But it is highly doubtful whether policymakers should try to head off demand shifts before they occur. Such shifts are symptomatic of a dynamic economy responding to changing tastes and technologies. Resisting such shifts appears ill advised.

[21] A third potential source of the rising natural rate is aggregate supply shocks. OPEC price increases in the mid and late 1970s and slower productivity growth throughout the decade may have contributed to the natural rate's ascent. When such supply shocks occur, the cost of producing a given amount of output increases, with the result that firms desire to produce less and to hire fewer workers. To the extent that these workers stay in the labor force, unwilling to work at the now-lower equilibrium real wage, the natural rate rises. Such a rise is presumably temporary, however, since reservation wages would eventually be expected to decline. Offsetting policies may sometimes be possible, for example, encouraging productivity-enhancing investment in the face of a productivity decline. In other cases, such as an oil shock, little can be done.

[22] For further discussion, see Henry F Myers, "High Unemployment Is Likely to Linger On," *Wall Street Journal*, February 25, 1985, p. 1, and William C. Freund and Mel Colchoniro, "The Boon of Shrinking Jobless Rolls," *Wall Street Journal*, November 28, 1984, p. 26.

The natural rate will still be high, however, representing potential waste and hardship. Policymakers will still have to decide whether to continue to tolerate a high natural rate or to take steps to lower it with microeconomic policies.

Desirability of reducing the natural rate

A legitimate question to ask is how low, if at all, should the natural rate be lowered? Clearly, as previously noted, cost-benefit analysis would be in order before adopting any or a combination of the corrective microeconomic policies outlined above. A more extensive national employment service, for example, would not come cheap. Nor would a vocational loan program or improvements in rapid transit. But abstracting from these cost considerations, how low should the natural rate be pushed? What is an appropriate target for the natural rate?

Lowering the natural rate would produce several clear benefits. For one thing, more output would be generated. More persons working would mean more product produced. Second, the federal budget deficit would narrow. Tax revenues would expand while social assistance expenditures would contract. Third, less personal hardship would be endured. And fourth, the Federal Reserve and other policy authorities would be under far less pressure to use large-scale macroeconomic policies to maintain a potentially unsustainable and inflationary actual unemployment rate.

But it is very difficult, perhaps impossible, to say what the target natural rate should be. Economists have debated the meaning of "full employment" unemployment and "optimal" unemployment for decades. No consensus has emerged. It is generally acknowledged that some unemployment—frictional unemployment—is useful. But while some positive unemployment rate may be advantageous, a rate in the 5 to 7 percent range—reflecting, as it does, numerous labor market imperfections—is probably too high. Removing some of these imperfections would appear beneficial.[23]

Summary

The natural rate of unemployment concept has emerged in the past 15 years to become the dominant guide for macroeconomic policy. According to this theory, there is an unemployment limit below which aggregate demand policies cannot go. This limiting "natural rate of unemployment" is thought to be currently in the 5 to 7 percent range. Attempts to lower unemployment below this natural rate with large-scale monetary and fiscal policy, it is believed, will only result in accelerating inflation.

But the natural rate itself can be lowered with microeconomic policies designed to remove labor market imperfections. And such policies would likely pay large social dividends. As Anthony Solomon, past president of the Federal Reserve Bank of New York, recently observed:

> Obviously labor market issues are not part of monetary policy. But to me, the other side of a successful long-run anti-inflation strategy would have to do with the functioning of our labor markets. The level of unemployment rates consistent with nonaccelerating inflation has been

---

[23] For a far-ranging discussion of such notions as full employment unemployment, optimal unemployment, and voluntary unemployment, see James Tobin, "Inflation and Unemployment," *American Economic Review*, March 1972, pp. 1-18. Formal models that imply that the natural rate is always, in some sense, efficient or optimal include Edward C. Prescott, "Efficiency of the Natural Rate," *Journal of Political Economy*, Vol. 83, no. 6, 1975, and Robert E. Hall, "A Theory of the Natural

too high in recent years given the social costs. If I were to name the single most important issue in domestic macro-economic policy, I would say it is the need to lower the average unemployment rate consistent with price stability.[24]

Unemployment Rate and the Duration of Employment," *Journal of Monetary Economics*, April 1979, pp 153-170. A model implying the opposite, that the natural rate can contain involuntary unemployment, is Steven C. Salop, "A Model of the Natural Rate of Unemployment," *American Economic Review*, March 1979, pp. 117-125. Robert J. Gordon examines the factors involved in determining the "optimal" unemployment rate in "The Welfare Cost," pp. 133-195.

[24] Anthony M. Solomon, "Some Problems and Prospects for Monetary Policy in 1985," *Quarterly Review*, Federal Reserve Bank of New York, Winter 1984-85, p. 5.