

Is There a Natural Rate of Unemployment?

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The idea that a nation's unemployment rate gravitates toward some "natural" rate has been a mainstream theory in macroeconomics for the past 20 years. According to this theory, the natural rate of unemployment is determined by factors related to the economy's supply side, such as labor force demographics. Actions that influence aggregate demand, such as monetary and fiscal policies, can affect how

much unemployment varies over the business cycle, but they cannot affect its average level.

The unemployment situation in Europe has forced economists to reevaluate the *natural rate theory*. During the early 1980s, recessions in Europe and the United States boosted unemployment rates to their highest levels since the Great Depression. Since then, unemployment has returned to more normal levels in the United States. But in Europe, unemployment remains high even now.

Citing the European experience, some economists are advocating that the natural rate theory be replaced with a theory of "hysteresis," a theory that explains how aggregate-demand

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policies can permanently raise the unemployment rate. Although the debate is still in its early stages, at issue is the long-run impact of demand-management policies on unemployment.

THE NATURAL RATE THEORY

Regardless of how healthy the economy is, some unemployment is inevitable. Some people quit their jobs, some workers are fired, and some industries reduce employment levels while others increase them. The unemployment that these shifts create constitutes the nation's natural rate of unemployment.¹

Frictional and Structural Unemployment. One component of the natural rate is "frictional" unemployment, represented by unemployed workers who are temporarily between jobs or who have just come into the labor force. A worker who quits his job to find work in another trade or another industry would be considered frictionally unemployed.

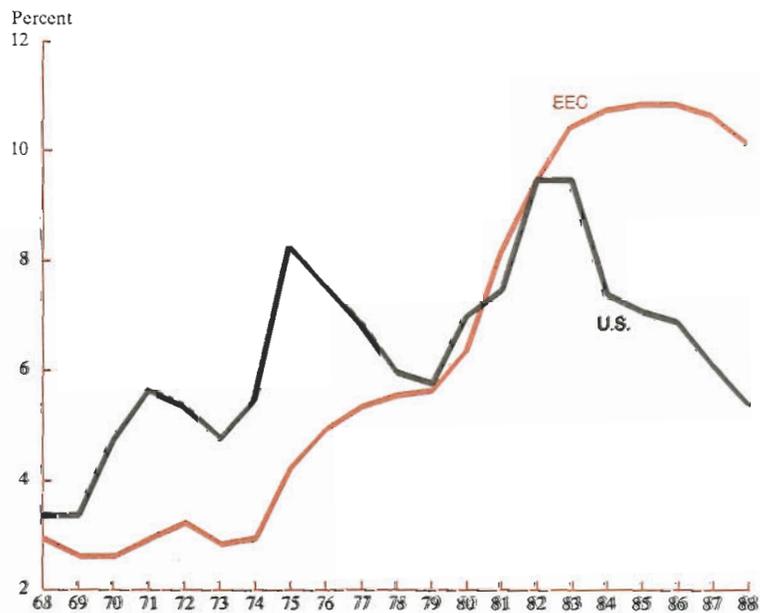
The other component of the natural rate is "structural" unemployment. This occurs when workers do not have the necessary skills to meet the current demands of employers. Often, young workers lack sufficient education or training to find work. Sometimes, even expe-

rienced workers find themselves unemployed when their skills are no longer in demand because of declining demand for the goods they once produced or because of changes in technology. For example, in the United States the demand for steel workers has been depressed since the mid-1970s. Now these structurally unemployed workers must either relocate or develop new skills in order to find jobs.

According to the natural rate theory, the average level of both structural and frictional unemployment is relatively unaffected by monetary or fiscal policies. Over the long run,

Unemployment Rates in Europe and the U.S. over the Past Two Decades

After peaking in 1982, U.S. unemployment has returned to more normal levels of between 5 percent and 6 percent—levels thought to represent the "natural" rate of unemployment. But unemployment in Europe kept rising after 1982 and has remained high. It's easy to see why many economists have questioned the natural rate theory, at least for the European economies.



¹Edmund Phelps, "Phillips Curves, Expectations of Inflation and Optimal Unemployment Over Time," *Journal of Political Economy* (August 1967), and Milton Friedman, "The Role of Monetary Policy," *American Economic Review* (March 1968), are generally credited with developing the natural rate theory of unemployment.

frictional and structural unemployment is determined by supply-side factors: the demographic composition of the labor force, shifts in employment between industries and regions, minimum-wage laws, and government benefits to the unemployed.

The demographic composition of the labor force can affect the natural rate of unemployment significantly. For example, workers under the age of 25 have higher average rates of unemployment than older workers. This is because young workers change jobs relatively frequently in their search for appropriate career employment. In other words, young workers have higher rates of frictional unemployment because they either quit or are fired more frequently than older workers.

Rapid shifts in employment across industries also tend to increase the levels of structural and frictional unemployment. When workers must shift from one industry to another, they usually experience a period of unemployment while searching for new jobs. Moreover, workers in declining industries may not have the appropriate skills for the industries that do have job openings. All of this would lead to higher levels of structural unemployment.

Increases in minimum-wage benefits and in government benefits to the unemployed tend to increase the level of structural and frictional unemployment. A higher minimum wage will increase structural unemployment, since employers are less inclined to hire poorly educated workers with little work experience if they must be paid a higher wage. Similarly, an increase in government benefits to the unemployed will increase frictional unemployment, as these higher benefits tend to make unemployed workers less willing to accept lower-paying jobs.

Cyclical Unemployment. According to the natural rate theory, normal rates of structural and frictional unemployment are invariant to demand-management policies, but the cyclical

component of unemployment is not.²

For example, a contractionary monetary policy lowers the demand for goods and services, which tends to reduce inflation. But wage increases do not slow commensurately. Workers' wages are often set a year or so in advance, many by contract. And rarely are wages indexed completely to the inflation rate.³ So firms, faced with declining demand for their product and inflexible labor costs, lay off workers and cut back on output. Thus, the tighter monetary policy reduces inflation but raises unemployment.

According to the natural rate theory, this trade-off between inflation and unemployment is short-lived. The economy eventually adjusts to the lower inflation rate. Workers and firms write new wage contracts based on the lower inflation rate, and real wages once again reflect the fundamental supply and demand conditions. Producers find it profitable to rehire workers and raise output. In the end, the contractionary monetary policy permanently lowers the inflation rate, but unemployment returns to its natural rate.

THE NATURAL RATE THEORY EXPLAINS THE U.S. EXPERIENCE— BUT NOT EUROPE'S

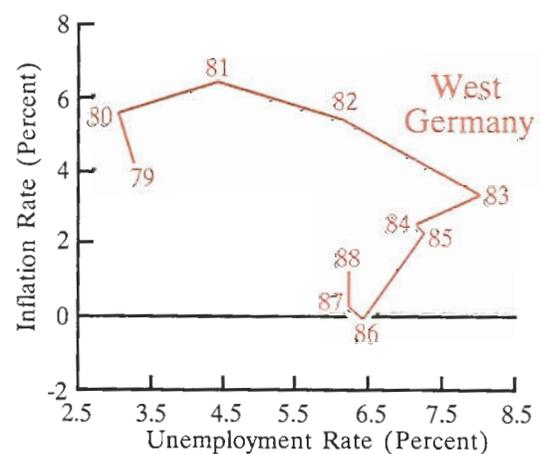
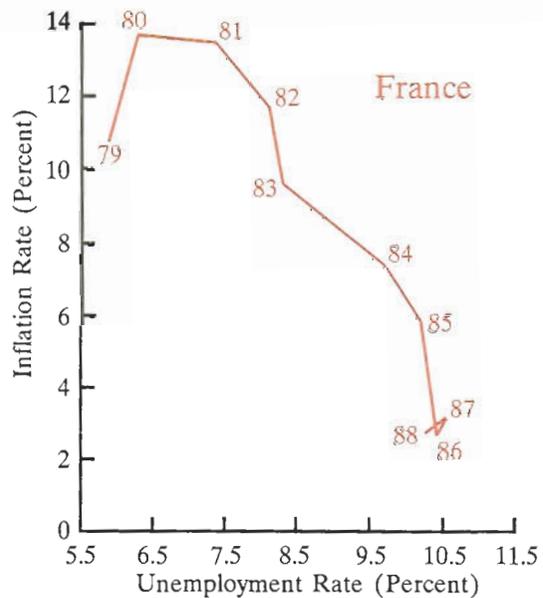
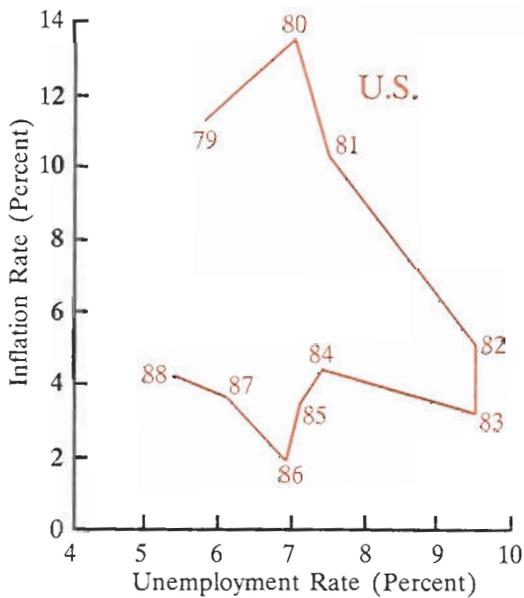
The natural rate theory associates an economic downturn with declining inflation and

²As already discussed, a government's social welfare policy may have an impact on the levels of structural and frictional unemployment.

³There are, of course, different versions of the natural rate theory. Modern Keynesians emphasize the role of rigid wages and prices in explaining the short-run effects of monetary policy. The New Classical economists argue that only the unexpected components of monetary policy affect unemployment. However, the crucial issue for our discussion is that both versions of the natural rate theory have argued that monetary policy, over the long run, has no effect on the average unemployment rate.

How Different Are the Inflation-Unemployment Experiences for the U.S. and Europe?

These graphs show the unemployment rate (horizontal axis) and the inflation rate (vertical axis) for the United States, France, West Germany, and the United Kingdom over the 1979-88 period. Note the U.S. economy's proclivity to return to a "natural rate" of unemployment: U.S. unemployment increased from 1979 to 1982 while inflation had begun to decline in 1980; after inflation had stabilized by 1983, unemployment reversed direction to settle in 1988 at a rate even lower than 10 years before. Inflation also plummeted in the three European economies; however, unemployment there has actually increased in the past decade.



high unemployment in the short run. Over the longer run, unemployment returns to the natural rate while inflation remains low.

The recent paths of inflation and unemployment in the U.S. fit the natural rate theory. Between 1979 and 1982, the United States adopted disinflationary money and credit policies that drove the unemployment rate to nearly 10 percent. But since 1983, inflation has leveled off and unemployment has fallen even below its 1979 level. While its precise level is debatable, the natural rate of U.S. unemployment seems to be somewhere between 5 percent and 6 percent.

The inflation and unemployment levels for several European countries tell a dramatically different story. For example, between 1979 and 1985 the inflation rate in France fell and unemployment rose. But after 1985, when the inflation rate stabilized at about 3 percent, the unemployment rate remained in double digits. While the French example is the most dramatic, the unemployment rates for West Germany and the United Kingdom seem to have stabilized at significantly higher levels as well.

HAS EUROPE'S NATURAL RATE RISEN?

In principle, changes in normal rates of structural or frictional unemployment could have boosted Europe's natural rate above the U.S. rate. However, the factors most commonly cited fail to support this view.

Demographic Changes. One explanation commonly given for the notion of a higher natural rate in Europe is the increase in the relative shares of women and youth in the labor force.⁴ The

⁴The argument for higher average rates of unemployment among women may be losing some of its force, as women

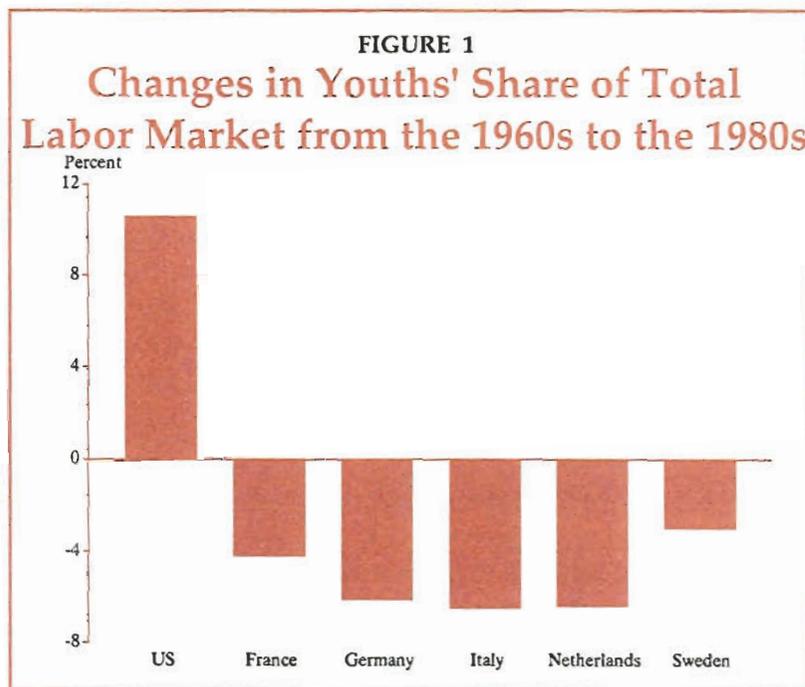
structural and frictional unemployment rates for both groups are higher than those for male workers. However, demographic changes alone do not justify a relative rise in many European countries' average unemployment rates.

Let's look at the change in the share of young workers in the U.S., French, German, Italian, Dutch, and Swedish labor markets between the 1960s and the 1980s (see Figure 1). Of all these countries, only the U.S. has seen an increase in that share. The European countries have experienced declining shares.⁵

Women's labor force shares increased for all the countries (see Figure 2). However, there is no strong correlation between those countries showing large gains in this share and those

workers are becoming more firmly attached to the labor force. In fact, in the U.S., the female unemployment rate is now roughly equivalent to the male unemployment rate.

⁵This may seem surprising, since European countries also experienced a baby boom. However, young people in Europe stay in school longer and thus remain out of the labor force longer than their U.S. counterparts.





countries with large increases in unemployment. Sweden, which has not experienced sustained high unemployment, shows the largest expansion in the percentage of working women. The U.S. is in the middle in terms of growth in the share of women in the labor force when compared to France, Germany, Italy, and the Netherlands; yet all of those European countries have experienced greater increases in unemployment rates.

In short, the European countries with large increases in average unemployment have not seen relatively big increases in the shares of women and young people in their labor forces. This suggests that demographic shifts are not inducing a higher natural rate of unemployment for these countries.

Job Shifts Across Industries. Another popular explanation for why Europe's natural rate may have risen is that the secular movement of employment away from manufacturing and toward services has increased both structural and cyclical unemployment. Even if the average number of jobs to be filled remains unchanged, shifting employment from one sector

to another increases unemployment, because workers in the declining industries must learn new skills and search for jobs in healthier industries.⁶

On the surface, this explanation seems to fit with the developed nations' rapid shifts in employment from the manufacturing sector to the service sector. But several studies have found that sectoral shifts have little impact on overall unemployment rates.⁷

To identify national shifts in employment, economists often develop a "mismatch index" for the country. The index captures the divergences in employment growth among the industries in

the economy. When the index number is low, employment rates in all industries are growing at about the same pace. When the index number is high, the industries' employment growth rates are diverging significantly—some may be growing rapidly, some more slowly, and some not at all.

Having calculated mismatch indexes for several OECD countries, researcher Robert Flanagan found that the indexes for France and West Germany were lower in the late 1970s than they had been in the previous 15 years and

⁶Probably the most influential paper on this subject is by David Lilien, "Sectoral Shifts and Cyclical Unemployment," *Journal of Political Economy* 90 (August 1982) pp. 777-93.

⁷See, for example, Richard Jackman, Richard Layard, and Christopher Pissarides, "On Vacancies," Discussion Paper 165, London School of Economics, Centre for Labour Economics, 1985; Orley Ashenfelter and David Card, "Why Have Unemployment Rates in Canada and the United States Diverged?" *Economica* 53 (Supplement 1986) pp. 171-96.

that they remained low in the 1980s. And while the index value for the United Kingdom rose in the early 1980s, the rate of increase only matched that of the U.S., where unemployment has fallen back to its earlier levels.⁸ (See *Mismatch Indexes*.) So, at least by this measure, a shifting industrial mix does not seem to have raised natural rates of unemployment for France, West Germany, and the United Kingdom recently.

Flanagan examined other types of mismatch indexes, including measures of shifts in labor market conditions across regions. He concluded that any mismatch effect on the relative rise in European unemployment has been small.

Minimum-Wage Laws and Government Programs. Government programs and minimum-wage laws, the last factors cited as possibly having an effect on the natural rate of unemployment, could in principle have generated increases in Europe's natural rate. There is little evidence, however, that Europe's minimum-wage laws and government benefits to the unemployed have been more generous over the last decade than before. If anything, government programs have tended to be more stringent than in the past.

Government programs may be contributing to the increase in European unemployment indirectly. When there are employment declines in high-wage industries, workers may be unwilling to accept low-wage jobs if they are receiving substantial unemployment benefits from the government. But it would be difficult to argue that government benefit programs are the sole explanation for high European unemployment.

⁸Robert J. Flanagan, "Labor Market Behavior and European Economic Growth," in *Barriers to European Growth*, Robert Z. Lawrence and Charles L. Schultze, eds. (Washington, D.C.: Brookings Institution, 1987) pp. 175-211.

Mismatch Indexes Divergences in Employment Growth Among Industries, 1960 - 1983

Years	France	West Germany	U.K.	U.S.
1960-64	2.3	2.6	1.9	2.4
1965-69	2.8	3.2	2.2	2.1
1970-74	2.8	3.2	2.5	2.3
1976-79	2.0	1.9	1.4	1.5
1980-83	1.7	1.8	3.4	2.9

Based on data in Robert J. Flanagan, "Labor Market Behavior and European Growth," in *Barriers to European Growth*, Robert Z. Lawrence and Charles L. Schultze, eds. (Brookings Institution: Washington, D.C., 1987) p. 181. Data for 1975 were not available.

THEORIES OF HYSTERESIS: THE IMPACT OF AGGREGATE-DEMAND POLICIES

The prolonged slump in Europe has helped revive the notion that aggregate-demand policy can have long-run impacts on the level of unemployment.⁹ The term "hysteresis" has been used to describe theories in which temporary shifts in aggregate demand cause permanent or long-term changes in unemployment.

If there is a natural rate of unemployment,

⁹*Unemployment, Hysteresis and the Natural Rate Hypothesis*, Rod Cross, ed. (Basil Blackwell Ltd., 1988), presents various papers on this subject by European and American authors. In "On the History of Hysteresis," Rod Cross and Andrew Allan note that the term "hysteresis" comes from the Greek word meaning "to come after" or "to be behind." It was originally used by physical scientists to describe the tendency for a previous state or condition to persist. Economists apply the term to theories that attempt to explain why high unemployment in one period tends to produce high unemployment in subsequent periods.

then a recession causes only temporary changes in unemployment. The unemployment rate returns to the natural rate during the subsequent economic expansion. If there is hysteresis in the unemployment rate, the unemployment rate remains permanently higher. That is, there is no inherent tendency for the unemployment rate to fall back to its pre-recession level.¹⁰

Wage Rigidities. Almost all theories of hysteresis in unemployment have in common the notion that real wages are not fully flexible, even in the long term. For one reason or another, real wages remain high even when there are large numbers of unemployed workers willing to work for less.

Recent discussions of hysteresis have focused on microeconomic rationales for wage rigidity. In particular, theorists are exploring the idea that employed workers have the power to prevent wage cuts and thus introduce the rigidities that cause hysteresis in unemployment.

Insider/Outsider Models. In insider/outsider models, employed workers, called "insiders," are able to maintain wages at high levels even though unemployed workers, or "outsiders," are willing to work for lower wages. Insiders can prevent firms from hiring the low-wage workers by making it more costly for firms to fire employees and hire others in their place.

To some extent, every firm that hires new workers incurs some cost in training them. Insiders can raise the costs by refusing to participate fully in the training process. And they can punish firms that hire outsiders at low wages in other ways. They can take some overt action to disrupt production, such as staging a strike or a slowdown. Or they may simply put

less effort into their jobs.¹¹ Forming a labor union can enhance insiders' power to act collectively, but insiders can punish the firm even without a union.

The key insight of the insider/outsider models is that once workers become unemployed, they lose their status as insiders. The now-smaller group of insiders is unwilling to reduce wages in order to get the unemployed rehired, because these former employees no longer exercise any influence in the group. In other words, the more exclusive the group, the less willing the group will be to make wage concessions to increase employment.

The Permanent Impact of Aggregate Demand. To explain permanent shifts in the unemployment rate, theories of hysteresis add to the insider/outsider model the notion that aggregate-demand swings can cause persistent productivity shifts.

Suppose a monetary contraction slows the economy and induces firms to lay off workers. According to the insider/outsider model, the remaining insiders will keep real wages from falling, despite the slack in the labor market. But if the economic contraction somehow reduces labor's productivity, then firms will not rehire laid-off workers unless real wages decline. So the combination of rigid wages and lower productivity keeps unemployment from returning to its old level. Now the question is, how does the economic contraction permanently lower productivity?

¹¹For a fuller treatment of the insider/outsider model, see Assar Lindbeck and Dennis Snower, "Wage Setting, Unemployment and Insider-Outsider Relations," *American Economic Review* 72 (1986). Note that the ability of insiders to punish firms for hiring low-wage workers would not affect new entrants into an industry. Such insider power will play a significant role only when there are fixed costs or other barriers to start-up firms in an industry. It is worth noting that much of the increase in U.S. employment over the past decade is due to small firms, many of them start-up firms. This may help explain why insiders in the U.S. have been less effective in exerting pressure to maintain high real wages.

¹⁰Of course, an expansionary economic policy or other positive economic events may push the unemployment rate below its pre-recession level.

Theorists offer two explanations. First, a contractionary monetary policy raises interest rates and lowers spending on capital goods. The reduction in capital formation, in turn, lowers workers' productivity. Without a commensurate fall in real wages, firms have less incentive to hire workers—and so unemployment is permanently higher.

What is the evidence for this source of hysteresis? While member nations of the European Economic Community have seen substantial increases in their unemployment rates, the ratio of capital to employed worker has remained roughly constant. This has led some to argue that the existing capital stock is inadequate to employ the current available labor force in the EEC countries.

The second possible explanation for hysteresis focuses on the long-term impact of unemployment itself. When an economic contraction throws people out of work, long layoffs may erode their job skills. Without a decline in real wages, these less skilled workers will find firms unwilling to rehire them. Thus, what could have been a temporary increase in unemployment is perpetuated by the wage rigidity.

The argument that prolonged unemployment will erode job skills is difficult to quantify. Direct measures of labor productivity reflect the productivity of workers who are employed, not those who are unemployed. One piece of supporting evidence for this hypothesis is that a large part of the increase in unemployment is due to an increase in the number of long-term unemployed.

In short, theories of hysteresis propose that Europe's high unemployment is due to wage rigidity, insufficient capital formation, and deteriorating job skills.

HYSTERESIS LEAVES SOME QUESTIONS UNANSWERED

While theories of hysteresis seem consistent with some aspects of the European experience, some difficult issues must still be addressed

before these theories gain wide acceptance.

First, the data indicate that the persistence of unemployment has increased over the past 20 years both in Europe and in the United States. Since the current theories of hysteresis rely on various forms of wage rigidity, we would expect those rigidities to have increased as well. But there is little evidence that union or insider power has increased over this period. In fact, labor union power has generally waned over the past two decades in Europe and the United States.

Perhaps the more important question is why the natural rate theory seems to fit the United States but not Europe. The microeconomics of labor markets in the U.S. show some important differences compared to European labor markets. For example, the U.S. has fewer union members as a percentage of the labor force. In addition, social welfare programs in the United States are, on the whole, less generous than in Europe. Both of these factors tend to reduce real wage rigidity in the United States. So perhaps the labor market in the U.S. more closely approximates the type of labor market envisioned by the natural rate theory.

Alternatively, hysteresis may characterize labor markets in both the U.S. and Europe, and their experiences may differ only because of different macroeconomic policies. According to this interpretation, after the 1982 recession the United States decided to reduce unemployment at the risk of higher inflation by engaging in a more stimulative macroeconomic policy than Europe.

The U.S. has yet to experience a sharp acceleration in inflation. Perhaps this is because the recessions of 1980 and 1982 have given the Federal Reserve credibility as an inflation-fighter—and this is keeping the lid on inflation expectations. Oil prices have helped as well. Their sharp increases of the 1970s were largely reversed in the 1980s.

Separating the contributions of macroeconomic demand-side policy from microeconomic

supply-side conditions is crucial to U.S. policymakers. If it is the microeconomics of the labor market that differentiate the U.S. from Europe—that is, if the U.S. has a natural rate of unemployment but Europe does not—then U.S. policymakers face no trade-off between inflation and unemployment in the long run. If it is macroeconomics that separate the two—in other words, if both the U.S. and Europe are subject to hysteresis—then U.S. inflation policies have a lasting impact on unemployment.

CONCLUSION

Stubbornly high unemployment rates in Europe are beginning to undermine economists' confidence in the natural rate theory. The theory says that only supply-side factors, such as demographics and technology, have

any persistent impact on a nation's unemployment rate.

There is little evidence, however, that adverse supply-side shifts have hit Europe in recent years. Now some economists are breaking away from the natural rate idea and are exploring the possibility that aggregate demand shifts—including changes in monetary and fiscal policy—can have persistent effects on the level of unemployment.

According to these theories of hysteresis, Europe's high unemployment is the legacy of policymakers' anti-inflation programs of the early 1980s. If these theories are correct, then policymakers' decisions have much more of a long-run impact on the unemployment rate than economists had realized up until now.