

# Past and Prospective Causes of High Unemployment

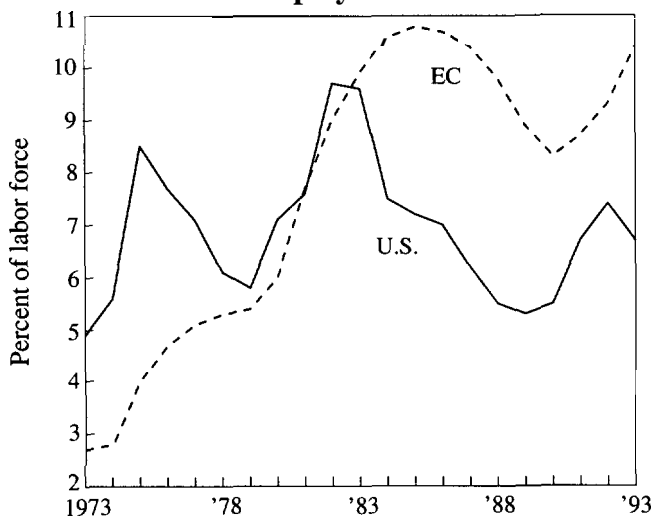
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*Paul Krugman*

Twenty years ago, on the eve of the first of the great post-Bretton-Woods recessions, unemployment did not appear to be a major problem for advanced economies. Among what would later be dubbed the G-7 nations, the United States had the highest unemployment rate at 5.5 percent; but very little of this unemployment was long-term, and the extent of short-term unemployment could be rationalized as the inevitable and even desirable result of a dynamic economy. Western Europe had an unemployment rate that, measured on a comparable basis, was only 3 percent. Japan's unemployment rate was a trivial 1.4 percent, a performance nearly matched by West Germany's 1.6 percent. Whatever their other economic and social problems, the world's industrial nations seemed to have left fears of mass unemployment far behind.

Today, of course, unemployment is back with a vengeance. In Europe, in particular, the seemingly inexorable rise in the unemployment rate (Chart 1) has led to the creation of a new word: Eurosclerosis. The United States has not seen a comparable upward trend—indeed, the unemployment rate in 1989-90 was lower than in 1974, and the current recovery may already have pushed the unemployment rate into the same range (changes in the survey method, introduced this year, blur the picture slightly). However, many people on both sides of the Atlantic believe that the United States has achieved low unemployment by a sort of devil's bargain, whose price is soaring inequality and growing poverty.

**Chart 1**  
**Unemployment Rates**



The purpose of this paper is to address the big questions about unemployment in the Organization for Economic Cooperation and Development (OECD) countries: Why has it risen? Will it continue to rise? What can be done to reverse the trend? These are daunting questions. Luckily, there is no need to be original. Not only has the OECD unemployment problem been the subject of massive amounts of research, many economists have coalesced around a common view of the nature of the problem. This common view does not exactly represent a consensus, since there are important dissenting voices, but it is the conventional wisdom. For the most part, this paper restates that conventional wisdom.

Why is such a restatement necessary? Because while economists who think about OECD unemployment may have reached a considerable degree of agreement, educated opinion more broadly defined, and the opinion of policymakers in particular, remains far more diverse. In part, this may be because the instincts of the broader public do not accord with what the economists have to say. It may also be because the standard view is far from comforting, and seems to imply some harsh choices that the public and the policymakers would rather not

face. And in part, the failure of the standard economist's view to become equally standard among non-economists may result from a failure to explain that view clearly. This last failure, at least, may be correctable.

This paper is in five parts. The first part addresses the crucial distinction between cyclical and structural movements in unemployment, a.k.a. fluctuations around and movements in the natural rate. The second part lays out the central theme of the conventional wisdom about rising unemployment in advanced economies: that high unemployment in many industrial nations is an unintended byproduct of their redistributionist welfare states, and that the problem has worsened because the attempt to promote equality has collided with market forces that are increasingly pushing the other way. The third part of the paper turns to the question of the sources of the apparent tendency toward greater earnings inequality, and in particular, the relative roles of globalization and technological change. Finally, the last two parts of the paper are concerned respectively with possible policies and realistic prospects.

### **Cyclical versus structural unemployment**

The starting point for most analytical discussion of unemployment trends is the hypothesis, introduced by Friedman and Phelps a generation ago, that at any given time a national economy is characterized by a "natural rate" of unemployment. Expansion of aggregate demand may push unemployment below this rate, but only at the cost not merely of higher but of accelerating inflation. Similarly, a shortfall of aggregate demand may push unemployment above the natural rate, but this will lead to decelerating inflation. Given any policy environment that avoids explosive inflation or deflation, then, the economy cannot remain persistently either above or below the natural rate of unemployment, although it may fluctuate around that level.

It follows from this hypothesis that changes in unemployment must be separated into two components: "cyclical" fluctuations around the natural rate, which can be attributed to changes in aggregate demand, and "structural" movements in the natural rate itself, which can result from changes in labor market institutions, demographic shifts, and so

on. How one assesses the prospects for reversing a rising trend in unemployment, and what policies one advocates to help turn it around, depend crucially on whether the rise is cyclical or structural.

The natural rate hypothesis has received near-universal acceptance among academic economists since the 1970s.<sup>2</sup> My sense is that it is less well accepted among policymakers and journalists, who seem to regard it as an abstract idea whose very neatness makes it suspect. It is therefore worth pointing out that for the United States, at least, the natural rate hypothesis has a very solid basis in experience.

Suppose we ask the question, is it true that inflation consistently accelerates when the unemployment rate is low, and decelerates when that rate is high? The answer is yes, it is. The consistency is particularly apparent if we look not at the overall unemployment rate, whose interpretation shifts somewhat with changes in the age and sex mix of the labor force, but at a more stable group. Table 1 compares the level of the unemployment rate among married men with the change in the rate of inflation, measured by the GDP deflator, over the subsequent year. Between 1973 and 1992, the unemployment rate for married men was above 4 percent in eleven years, below that rate in eight years. If there were nothing to the natural rate hypothesis, there should be little systematic relationship between the unemployment rate and the change in the inflation rate. In fact, the correspondence is very close: in all but two years in which the reference unemployment rate was above 4 percent, inflation fell; in every year but one in which it was below 4 percent, inflation rose. In other words, the evidence is overwhelmingly consistent with the idea that the U.S. economy will suffer accelerating inflation if the unemployment rate for married men drops below about 4 percent.<sup>3</sup>

**Table 1**  
**Unemployment and Inflation 1973-93**

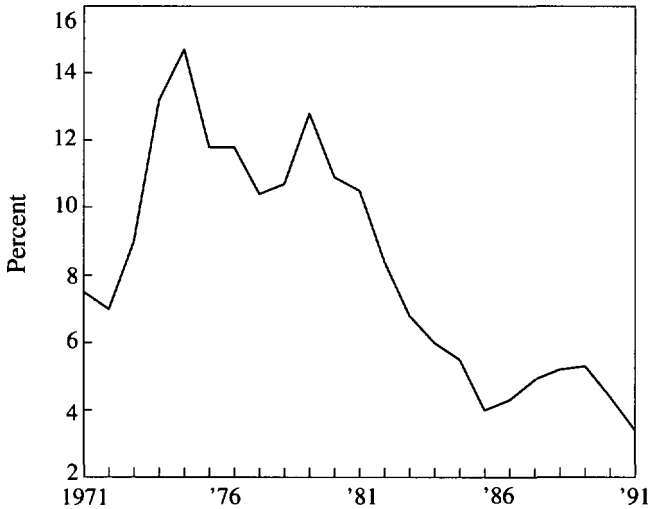
	Unemployment rate (married men)		
	<4 percent	>4 percent	
<u>Change in inflation rate</u>	Positive	7 years	1 year
(fixed-weight GDP deflator)	No change	0 years	1 year
	Negative	1 year	9 years

Admittedly, a simple table like this can be constructed only for the United States among advanced countries. The reason is that the United States is unique in having no visible long-term trend in its unemployment rate, suggesting that the natural rate has been more or less constant. For other industrial countries it is necessary to attempt to estimate shifts in the natural rate as well as the relationship between deviations from the natural rate and inflation. If there were no "clean" case like that of the United States, this might raise suspicions that the hypothesis is not so much confirmed by the data as imposed on them, that economists are simply adding epicycles until their model fits. Luckily, however, the United States experience does provide a pretty convincing demonstration of the natural rate hypothesis.

Given that hypothesis, unfortunately, a discouraging conclusion immediately follows: most of the upward trend in OECD unemployment rates since the early 1970s represents a rise in structural unemployment. We know this because the unemployment rates consistent with stable inflation have unambiguously risen, especially in Europe. Chart 2 shows inflation in the EC since 1960. Inflation was stable in the early 1960s, despite an average unemployment rate of little more than 2 percent; it was rising in the late 1980s, in spite of an average unemployment rate of more than 8 percent, suggesting that the natural rate of unemployment has risen by at least 6 percentage points. Admittedly, the deceleration of inflation in OECD countries since 1992 suggests that current unemployment rates also contain a cyclical component; most economists would agree that there is considerable room to take up economic slack in both Europe and Japan, although not at this point in the United States. Nonetheless, the bulk of the unemployment problem clearly seems to arise from an upward trend in the natural rate, and this paper will proceed on the presumption that this is the essence of the problem.

Before doing so, however, it may be worth briefly addressing two alternative views that have, in effect, been used to argue that this pessimistic view about the prospects for reducing unemployment by expanding demand is wrong: the serious argument that the natural rate itself may be affected by the business cycle, and the silly but popular view that globalization has somehow repealed the limits on expansion of aggregate demand.

**Chart 2**  
**EC Inflation Rate (GDP Deflator)**



### *Hysteresis*

In an influential 1986 paper, Olivier Blanchard and Lawrence Summers argued that sustained increases in the unemployment rate due to inadequate demand get built into the natural unemployment rate, so that attempts to recover from these slumps are blocked by fears of inflation. Their formal analysis was based on a model in which unions represent only employed workers, and ignore the impact of their wage demands on the employment prospects of those not currently working (a formulation which linked their work to the still influential "insider-outsider" approach of Lindbeck and Snower, (1988); temporary negative shocks to labor demand, which disenfranchise some of the work force, can therefore permanently raise real wages and reduce employment. Informally, advocates of the "hysteresis" hypothesis argue that a variety of mechanisms, including loss of skills and loss of reputation, cause the long-term unemployed to become perceived as unemployable.

After an initial period of considerable popularity, the hysteresis hypothesis has lost some of its influence. This loss of favor appears

to represent an empirical judgment. We might note three particular pieces of evidence. First, the U.S. experience shows no evidence of hysteresis at work: even though the American economy passed through an extended, double-dip recession from 1979-1982, and did not get **back** to late 1970s levels of unemployment until the late 1980s, the natural rate showed no signs of having increased during that time. Second, European nations like Sweden that managed to avoid **large-scale** unemployment during the 1980s, and should therefore according to the hysteresis hypothesis have avoided a large rise in their natural rates, now show all the symptoms of full-blown Eurosclerosis. Third, as discussed below, differences in national unemployment rates seem to be fairly well explained by differences in how well countries treat their unemployed; the hysteresis story would predict a larger role for accidents of history.

I personally find the hysteresis hypothesis intellectually very appealing, and suspect that Blanchard and Summers are right in arguing that some version of that hypothesis is essential in explaining earlier episodes of mass unemployment—that, for example, the Great Depression was an aggregate demand slump which was met with new institutions that in effect ratified the high level of unemployment. But its relevance to the current situation is unclear, and it will be left on one side for the rest of this paper.

### ***Globalization***

Recently, there has been a vocal movement in the United States which has protested against actions by the Federal Reserve to slow demand growth as the economy approaches standard estimates of the natural rate. These critics argue that the economic realities have changed and that there is no longer any risk that a rapid recovery will set off renewed inflation.

The basic argument of these critics is that globalization—the increased openness of the United States to international trade—has changed the rules of the game. Economic expansion cannot produce bottlenecks, because firms can always turn to suppliers abroad. Firms will not raise prices, no matter how hot the market, because they fear foreign competitors. And workers, constantly threatened with loss of their

jobs to other nations, will not demand higher wages no matter how low the unemployment rate goes. According to this view, internationalization has either drastically lowered the natural rate or even made the whole concept irrelevant.

Many people find this argument extremely attractive. It is hard to see, however, how anyone who has looked at recent economic experience, or is familiar with basic economic data, can take the argument seriously.

First, the whole emphasis on the importance of international competition ignores the fact that both the U.S. economy and the economy of Western Europe (considered as a unit) are still primarily in the business of producing goods and services for their own use. Imports are only 11 percent of U.S. GDP. While it is true that a somewhat wider range of goods is subject to international competition than is actually traded, at least 70 percent of each economy remains effectively insulated from foreign markets—and therefore is capable of experiencing inflation regardless of international conditions.

Second, the challenge to conventional wisdom seems to take it for granted that the United States faces a perfectly elastic supply of imports at given prices in *dollars*. But the United States has a floating exchange rate; and any effort to promote continued recovery by keeping interest rates low would drive down the dollar, and therefore raise import prices in U.S. currency. The normal view of international macroeconomists has been that an open economy with a floating exchange rate faces a *steeper* tradeoff between unemployment and inflation than a closed economy (indeed, this has been the traditional rationale for policy coordination); it is hard to see why this view should suddenly be abandoned in favor of the idea that an open economy faces no tradeoff at all.

Finally, there are clear recent examples demonstrating that open economies can indeed develop inflation problems if they overexpand. The U.S. economy itself found inflation accelerating in the late 1980s, as the unemployment rate dropped below 6 percent. Has the structure of the economy really changed so much in five years? But this experience pales by comparison with the British experience. The



United Kingdom is a much more open economy than the United States, so if the idea that globalization prevents inflation works anywhere it should work there. But a rapid UK boom during the late 1980s produced an explosion of inflation, forcing an abrupt U-turn in the country's economic policies.

In short, there is no reason to believe that the increased openness of advanced economies has changed the basic logic of the natural rate hypothesis, or that it should lead us to modify the conclusion that a rise in the natural rate, rather than inadequate demand, is the main source of the unemployment problem in advanced economies.

### **Why has the natural rate risen?**

A wide variety of explanations have been offered for the apparent rise in the natural rate of unemployment. Most papers on the issue are either careful tests of one of these explanations, or comprehensive surveys of the different explanations. In this paper I will avoid being judicious, and offer just one explanation, in two parts. The first part is that persistent high unemployment can be explained by the disincentive effects of welfare state policies. The second part is that market forces pushing toward greater inequality have worsened the unemployment consequences of the welfare state.

### ***The welfare state and unemployment***

A welfare state may be loosely defined as a system that collects taxes from the population at large and uses the proceeds to provide support to the poor, the unemployed, and other groups believed to need help. All advanced countries are welfare states to some degree. The extent of the redistribution, however, varies substantially across countries. In particular, by just about any measure the United States taxes less and provides less support to the unemployed than European nations. The United States has also, of course, been able to avoid the upward trend in unemployment that has afflicted Europe. It is only natural to suspect that the two facts are related: that the generosity of Europe's welfare states is in some sense responsible for the rise in their unemployment rates.

How might a welfare state create unemployment? Taxes (such as required employer contributions to social insurance funds) and regulations may raise the cost to firms of offering jobs, and thus reduce the wages they are willing to pay; simultaneously, benefits such as unemployment insurance may reduce the incentive for workers to accept jobs, and thus raise the wages they demand.

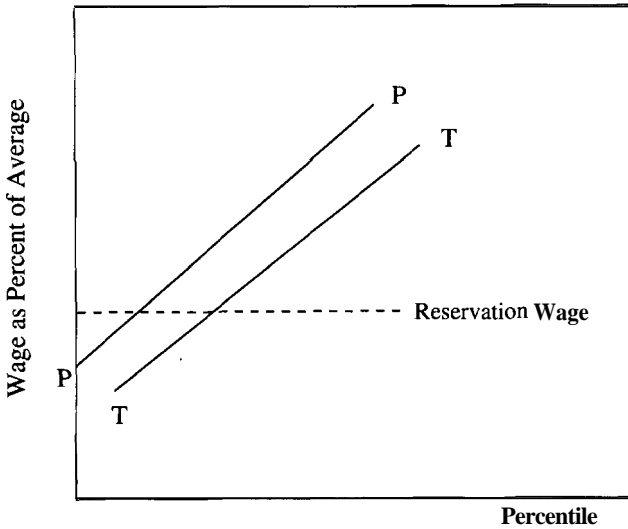
Figure 1 presents a schematic representation of these ideas, which represents a drastic oversimplification but may prove useful as an organizing device. In drawing the figure, I suppose that workers vary considerably in the real wage that they could earn in an unregulated market. I will, for the sake of brevity, refer to the real wage the market is willing to pay a worker as her "productivity," without necessarily committing to the view that wages actually equal marginal products. We may then calculate a schedule that relates the percentile of a worker to her relative productivity. For example, a worker who is in the 10th percentile of the wage distribution might have a productivity that is 25 percent of the average productivity for all workers, and so on. In Figure 1, **PP** represents that productivity schedule. In the absence of welfare state policies, **PP** would also represent the actual wage schedule.

But now introduce policies that include both taxes on employment and benefits to the unemployed. This will have two effects. First, a wedge will be driven between the productivity of workers and their take-home pay; the take-home pay schedule is represented by **TT**. Second, workers will be discouraged from accepting employment; this can be represented by introducing a *reservation wage*, a floor on the wages workers will accept. (Or the wages that they are allowed to accept, if there are high minimum wages imposed either by law or by organized labor.)

The result is obvious: all those workers whose take-home pay is less than the reservation wage will become unemployed.

Is this a reasonable picture? It implies two testable empirical propositions. First, it implies that in cross-country comparisons there should be a positive relationship between unemployment and both the level of benefits to the unemployed (which raise their reservation wage) and

Figure 1



the tax wedge. Second, it implies that within countries unemployment should be higher among low-productivity workers, a category that should be correlated with though not necessarily exactly matched to workers with low skill.

Both propositions have some empirical support. Cross-country regressions, like those of Layard, Nickell, and Jackman (1994) do find that measures of the level of benefits have strong positive effects on long-term averages of national unemployment rates. And it is true that within countries, unemployment rates are strongly correlated with skill levels. Table 2 provides some illustrative British data.

These are not extremely stringent tests. Nonetheless, they do confirm that a story along the lines of Figure 1 is at least broadly consistent with the evidence.

But this is a story about the level of the unemployment rate, rather than its trend. It suggests that generous welfare states will tend to have higher unemployment rates than nations which allow markets to

**Table 2**  
**Skill Level vs. Unemployment in the UK, 1984**

<u>Occupational group</u>	<u>Unemployment rate</u>
Professional and managerial	5.3
Clerical	8.0
Other non-manual	12.2
Skilled manual	12.6
Personal services/other manual	15.5

Source: Layard, Nickell, and Jackman (1994).

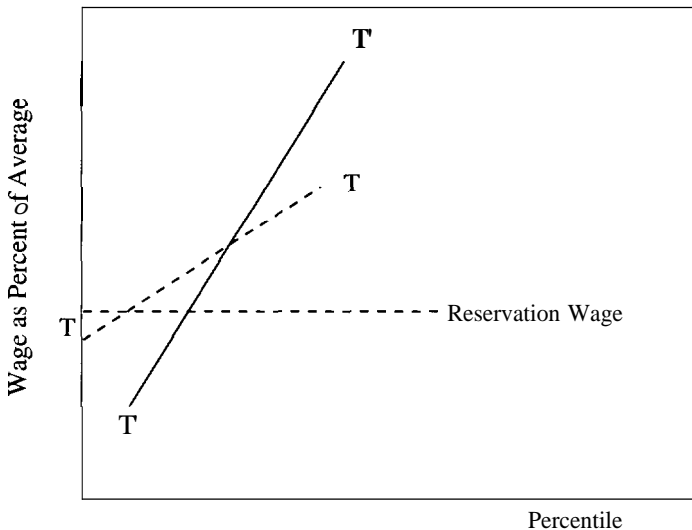
function with a greater degree of brutal freedom, a prediction that seems to accord with the situation today. It does not, however, explain why unemployment rates in Europe should have risen so much.

One reason for a rise in unemployment rates might be an increase in the generosity and cost of the welfare state. It is hard to believe, however, that this is the key factor. While there has been a rise in the tax burden in Europe since 1970, especially in social insurance contributions, European welfare states were already notably generous in the low-employment era of the early 1970s. Most analysts have therefore looked for the explanation of the upward trend not in changed policies but in a changed environment. In particular, it has become increasingly common, to argue that the upward trend in unemployment is the result of market forces that "want" to produce greater inequality of earnings. The collision between these market forces and the attempts of the welfare state to limit inequality then lead to higher unemployment.

### ***Inequality and unemployment***

It is straightforward, in our stylized framework, to see how a rise in the inequality of market wages could lead to increased unemployment. An increase in inequality implies that the wages of low-paid workers fall relative to the average, while those of high-paid workers rise relative to the average. That is, it implies a *rotation* of the wage curve  $TT$  in Figure 1. This is shown in Figure 2, as the shift from  $TT$  to  $TT'$ . If the reservation wage as a percentage of average wages remains unchanged, the effect is clearly to raise the fraction of workers

**Figure 2**



unemployed. The logic is simple: if the wages that the market is willing to pay workers of low productivity fall relative to the average, while the level of benefits keeps up with the average, more workers will find that available pay rates are below their reservation wage.

This rise in unemployment only takes place, of course, if the reservation wage is high enough to be binding. If the reservation wage is very low, as it would be in a weak welfare state, the market push toward greater inequality will simply result in greater inequality! Conversely, in a strong welfare state the increase in underlying pressures toward inequality may not be clearly visible in the actual distribution of earned wages, since those workers whose relative wages would have fallen the most are instead priced out of the labor market.

These observations suggest two points. First, if a tendency toward greater inequality is an important cause of rising unemployment, we might expect to see less of that trend in countries with niggardly welfare states. In other words, the difference in institutions may explain the striking contrast between U.S. and European experience,

shown in Chart 1. Second, in those countries where there is no upward trend in unemployment, we should expect to see a marked rise in wage inequality.

The fact, of course, is that there has indeed been a dramatic increase in wage inequality in the United States. It is the observation of that increase which has led many observers to conclude that growing U.S. inequality and growing European unemployment are different sides of the same coin. There has been a great deal of dispute over the issue of inequality in America, for obvious political reasons, but labor economists are unanimous in finding a massive increase since 1970 both in the dispersion of wages and in the premium for skill. This increase in dispersion reversed what had appeared to be an earlier trend toward greater equality of earnings. Table 3 shows some representative numbers.

**Table 3**  
**Indicators of U.S. Wage Inequality**

A. Ratio of earnings of college to high school graduates,  
1-5 years experience

1964	1.59
1979	1.30
1989	1.74

Source: K. Murphy and F. Welch, "The Structure of Wages," *Quarterly Journal of Economics*, (February, 1992).

B. Log difference in earnings of 90th and 10th percentile, men 35+

1940	1.45
1970	1.18
1985	1.46

Source: C. Goldin and R.A. Mayo, "The Great Compression: The Wage Structure in the United States at Mid-Century," *Quarterly Journal of Economics*, (February 1992).

These numbers represent a dramatic change in the wage structure. It is a testimony to the flexibility of U.S. wages that the American labor market was able to accommodate such large shifts without massive disruption. Correspondingly, if the same forces were trying to produce similar results in other countries, it is not hard to believe that different and less flexible labor market institutions could easily have responded in ways that led to considerable unemployment. The obvious question, of course, is why this happened. What were these

"market forces" that led to radically increased inequality in the United States and, perhaps, to greatly increased unemployment in Europe? We turn to this question shortly. First, however, it is important to stop and consider a factor that is widely believed to be crucial to employment but that does not appear to make much difference in practice.

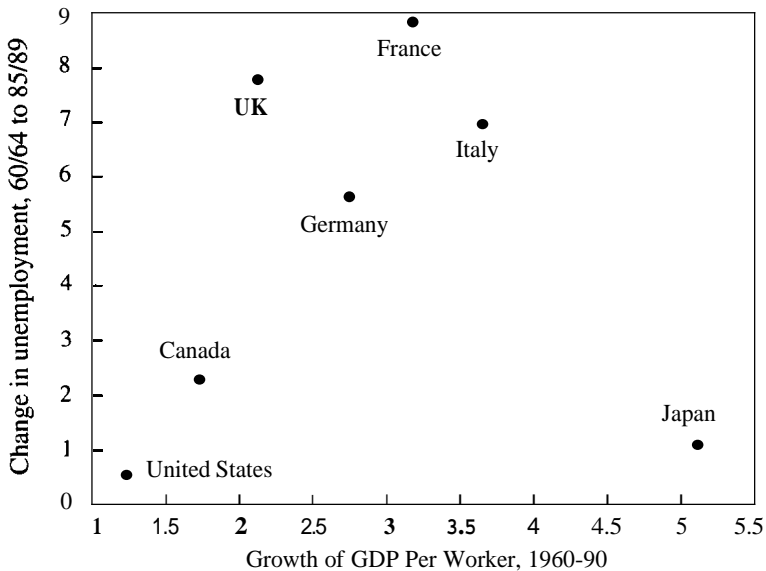
### *Productivity and employment*

Nearly all official reports on long-term unemployment problems stress the importance of raising productivity. In many cases, as in the 1993 European Commission White Paper (discussed below), they call for industrial policies such as support for high technology industries that are expected to promote productivity growth as an answer to employment problems. Moreover, the rise in unemployment after the early 1970s coincided with a global slowdown in productivity growth. So it seems obvious to many policymakers that there must be a straightforward connection. But is there?

At first glance it might seem that the framework shown in Figure 1 would imply that higher productivity would imply an upward shift in the wage curve, and thus a fall in unemployment. The schedules in Figure 1 are all drawn, however, to show wages and productivity *relative to the average*; an across-the-board rise in productivity, if matched by an increase in minimum wages, benefits, and so on that raises the reservation wage at the same rate, will have no effect on unemployment.

In practice, welfare state economies do tend to raise benefits along with average wages, and in many cases to raise them even faster when the inequality of wages is increasing, as a way of leaning against the wind.<sup>4</sup> As a result, we should not expect to see any strong relationship between productivity growth and unemployment trends. And in fact, there is no such relationship in the data. Chart 3 compares long-term productivity growth rates for advanced countries with the change in their average unemployment rates between the first half of the 1960s and the second half of the 1980s. There is no visible pattern in the scatter: the best unemployment performances were turned in by the country with the worst productivity performance (America) and that with the best (Japan).

**Chart 3**  
**Productivity Growth vs. Unemployment**



The moral is that good things do not necessarily go together: high productivity growth need not imply favorable employment performance, or vice versa. There is a strong tendency on the part of policy-makers to presume that the economic problem must be one-dimensional—that growth and job creation are both aspects of some underlying quality, typically labeled with words such as "competitiveness." The available evidence suggests, however, that the unemployment problem has a life of its own, and is not simply part of a generalized deterioration in economic performance.

### **The tendency toward greater inequality**

At this point we have made two main points. First, the rise in unemployment rates in the OECD primarily represents a rise in the natural rate of unemployment. Second, a likely explanation for this rise is the collision between welfare state policies that attempt to equalize economic outcomes and market forces that are pushing toward greater inequality. But what are these market forces?



It is at this point that there is perhaps the greatest gap between professional economic research and the conventional wisdom as expressed in official reports and presentations to such prestigious forums as the Davos conference. Before turning to analysis, it may be useful to illustrate the tone of much nonprofessional discussion with a passage from a report that was at any rate intended to serve as the basis for European Union strategy in coping with unemployment: the European Commission's White Paper of 1993.<sup>5</sup>

The White Paper asks why European unemployment remained so high even during the business cycle recovery of 1987-90—in effect, it asks why the natural rate is so high, though without using that term—and offers four reasons:

"—The role we have come to play in the new international division of labor has not been an optimum one because we have neglected future growth markets in concentrating too much on the revenues and positions established in traditional industries.

"—The relatively high cost of unskilled labor is encouraging investment in rationalization and holding back job creation in services.

"—Our employment systems have aged: by this term we mean the whole complex of issues made up nowadays by the labor market, labor legislation, employment policy, the possibilities of flexibility within or outside enterprises, the opportunities provided or not provided by the education and training systems, and social protection.

"—Finally and more especially, other countries are becoming industrialized and competing with us—even in our own markets—at cost levels which we simply cannot match."

Of these explanations, the second essentially fits into the framework described in the last section of this paper. The third is fairly mysterious; whatever it means, it may have something to do with the incentive effects of the welfare state. The important observation, however, is that in a four-point explanation of unemployment, the Commission

report offers two points related to international competition. In particular, the last explanation, which the report highlights as being the most important, explicitly blames rising European unemployment on competition from newly industrializing nations.

These views are not unrepresentative. Indeed, it is probably fair to say that many if not most intellectually minded European business and political leaders would list external competition, and especially competition from the Third World, as the single most important reason for rising unemployment in their nations. A significant number of their American counterparts would similarly blame external competition for growing inequality and declining real wages among the less skilled. Are they right?

### *Globalization, inequality, and unemployment*

Despite the normal presumption of gains from international trade, it is possible to conceive of a number of ways in which increased competition on world markets could adversely affect economies. In a Keynesian situation, a trade deficit could depress aggregate demand and thus output. Increased foreign production of goods that compete with exports could worsen a country's terms of trade. More speculatively, foreign competition could drive a country out of industries that for some reason are especially desirable, either because capital **and/or** labor consistently earn more in those industries than elsewhere, or because the industries yield valuable external economies. In practice, however, these potential channels for damage seem either not to be operative for the advanced nations, or to be irrelevant for the issue of unemployment. Most OECD unemployment is not Keynesian, and in any case the advanced nations as a group (and the European Union in particular) have not run consistent trade deficits.<sup>6</sup> The terms of trade of the industrial nations as a group have improved, not worsened, over the past generation. It is conceivable that Europe has been pushed out of some desirable industries, that "the role we have come to play in the new international division of labor has not been an optimum one," but this should show up as a slower growth of productivity; yet European productivity growth has continued at respectable rates, and in any case productivity and unemployment seem to be unrelated.

There is, however, one more way in which international trade could affect the economy, which could explain both the increase in U.S. inequality and the rise in European unemployment: increased trade with countries abundant in **unskilled** labor could increase the premium on **skill**.

This idea is attractive at several levels. First, it offers a broad common explanation of what is happening on both sides of the Atlantic. Second, it ties the great labor market trends in advanced nations directly to other major trends in the world economy: the growth of international trade and the rise of newly industrializing nations. Finally, the idea that trade produces a tendency toward factor-price equalization is well-grounded in economic theory, going back to seminal work by none other than Paul Samuelson. All in all, the proposition that globalization explains the simultaneous growth in inequality and unemployment makes a nice, intellectually appealing package; it is not surprising that it should command wide acceptance.

Unfortunately, empirical research is nearly unanimous in rejecting the idea that imports from the Third World have been a major factor in reducing the demand for **less-skilled** workers.

To understand this evidence, it is necessary to understand not just that international trade can in principle change the relative demand for **skilled** and **unskilled** labor, but how the *mechanism* of that change must work.

Suppose that a country in which **skilled** labor is relatively abundant increases its trade with another country in which it is relatively scarce. This will raise the demand for skilled labor, while reducing the demand for unskilled labor—but how? The answer is, through a change in the industry mix. The **skill-abundant** country will export **skill-intensive** goods and import labor-intensive products, and as a result will shift its production toward skill-intensive sectors and away from labor-intensive sectors.

At any given wage rates, a shift in the industry mix toward **skill-intensive** products raises the demand for **skilled** workers while reducing it for **unskilled** workers. This will lead to a rising real wage for

skilled workers, a declining real wage for **unskilled**. The rising wage differential, in turn, will lead firms in *all* industries to reduce the ratio of **skilled** to **unskilled** workers in their employment. When the dust has settled, the wage differential must rise just enough to offset the effects on labor demand of the change in industry mix.

According to this story, then, if international trade is the cause of an increase in the skill premium, the rising relative wage for **skilled** workers must lead all industries to employ a *lower* ratio of **skilled** to **unskilled** workers; this is necessary in order to allow the economy to shift its industry mix toward skill-intensive sectors. Or to put it differently, the skilled workers needed to expand the skill-intensive sector are made available because industries economize on their use when their relative wage rises; and conversely the shift in the industry mix ratifies the change in relative wages.

This analysis carries two clear empirical implications: if growing international trade is the main force driving increased wage inequality, then we should see the ratio of skilled to **unskilled** employment *declining* in all industries, and a substantial shift in the mix of employment toward skill-intensive industries.

In fact, the data look nothing like this prediction. A number of studies, including Bound and Johnson (1992), Katz and Murphy (1992), OECD (1993), and Lawrence and Slaughter (1993), have found either for the United States or for a broader set of countries that both propositions fail to hold. There has been little shift in the mix of employment toward skill-intensive industries; and there has been an across-the-board *increase* in the ratio of **skilled** to **unskilled** workers employed within each industry, in spite of the rise in the relative wages of the skilled. That is, the data strongly indicate that if the relative demand for **skilled** workers has risen, it is because of some common factor that affects all sectors, not because of forces like international trade that change the sectoral mix.<sup>7</sup>

How can the effects of such a dramatic global trend as the rise of the newly industrializing economies be so invisible in the labor market data of advanced countries? There are several answers. For one thing, although the rapidly growing economies of the Pacific Rim have

attracted a great deal of attention, their role in the trade of advanced nations is still fairly small. As late as 1990, imports from newly industrializing economies were only 8.5 percent of the total merchandise imports of the OECD nations, and imports of manufactured goods from these countries were less than 1.5 percent of GDP.

Moreover, the entry of newly industrializing countries is not the only trend affecting the relative supplies of skill-intensive and labor-intensive products in the world economy. Think about two events that are often lumped together: the emergence of China as a major manufacturing exporter, and the rapid increase in the skill level of the labor forces in other East Asian nations, including Japan. Both tend to increase exports of manufactures from East Asia, but they have opposite effects on the relative prices of skill-intensive products. When a country with abundant unskilled labor throws itself open to trade, this tends to lower the relative price of labor-intensive goods, causing other nations to shift out of these sectors. But when a country upgrades its skill level, it tends to produce more skill-intensive and fewer labor-intensive goods, which has the opposite effect. It may be useful to pose the following question: has the skill of the labor force in the average trading nation—where countries are weighted not by population, but by the value of their production—gone up or down over the past two decades? It is by no means clear what the answer is, so we should not be surprised that there is no clear effect of international trade on the skill mix of industries within advanced countries.

The evidence, then, clearly rejects the view that growing competition from the Third World has been the source either of growing inequality in the United States or of rising unemployment in Europe. But what can explain these trends?

### *Technology and the skill premium*

Economists use the word "technology" somewhat differently from normal people. Webster's defines technology as "applied science," which is pretty much the normal usage. When economists speak of technological change, however, they mean "shifts in the production function" — alterations of the relationship between inputs and outputs, regardless of the reason.

In this economist's sense, it seems undeniable that the increase in the **skill** premium in the advanced world is primarily the result of **skill-biased** technological change. Although the relative wages of **skilled** workers have risen, most sectors have increased the ratio of highly **skilled** to **less-skilled** workers in their labor force; this immediately indicates a change in the production function that raises the marginal product of the skilled relative to the **unskilled**. And virtually all of the rise in the relative demand for **skilled** workers seems to have been a result of this intra-industry change in demand, rather than changes in the inter-industry mix of employment. In the economist's sense, then, the growth of earnings inequality in the United States — and quite possibly therefore much of the rise in structural unemployment in Europe — has been the result of technological changes that just happen to work against unskilled workers.

This answer may, however, seem unsatisfying. It is not a tautology: it could in principle have been the case that nontechnological forces, such as international trade, were responsible for much of the growth in the **skill** premium. Still, one would like to relate technological change in the economist's sense to its more normal usage: what is changing in the way that we produce goods and services that has apparently devalued less **skilled** workers?

The short answer is that we don't know. There are, however, several interesting albeit conflicting pieces of evidence.

On one side, there is some evidence that some increased dispersion in earnings can be traced directly to the spread of computers. In a recent study, **Krueger** (1993) has found that workers who use computers achieve noticeable wage premia over workers who do not; he claims that the expansion of computer use in the 1980s can account for one-third to one-half of the rise in the rate of return to education.

On the other side, some of the professions that have seen very large increases in incomes since the 1970s have not exactly been in fields whose practitioners are obviously made more necessary by modern technology (in the normal usage of the word): doctors, corporate executives, and so on. And it is also true that the growth of inequality in the United States has a **striking** "fractal" quality: widening gaps

*between* education levels and professions are mirrored by increased inequality of earnings *within* professions. Lawyers make much more compared with janitors than they did fifteen years ago; but the **best**-paid lawyers also make much more compared with the average lawyer. Again, this is hard to reconcile with a simple story in which new computers require people who know how to use them.

It is surely hard not to suspect that the dramatic progress in information and communication technology over the past two decades has somehow played a central role in the increased premium on **skill**, and perhaps in the growth of European unemployment. The actual linkages are, however, not at all well understood—a point that is important to remember when we turn to policy.

### **What can be done?**

Robert Lucas once scathingly described the report of the **McCracken** Commission on inflation as being marked by "undisciplined eclecticism." Much the same may be said about many official reports on OECD unemployment: **lacking** a clear vision of the nature of the problem, they offer a **kind** of policy salad that mixes together various proposals that seem forward-looking—building smart trains and information superhighways or promoting multimedia are treated at the same level as trade liberalization and reform of unemployment insurance. For this paper, I will perhaps err in the opposite direction, and take it as a maintained hypothesis that the European unemployment problem and the **U.S.** inequality problem are two sides of the same coin, and ask a narrowly focused question: what can be done about the apparent tendency of markets to produce increasingly unequal outcomes, or to produce persistent high unemployment if this tendency toward inequality is repressed?

Once one phrases the question that way, there are a limited number of sensible strategies available.

### ***Human capital***

The most optimistic viewpoint on the **inequality/unemployment** problem, one particularly associated in the public mind with **U.S.**

Labor Secretary Robert Reich (see Reich, 1991), is that investment in human capital—both in basic education and in retraining for older workers—can reverse the tendency toward greater inequality.

In principle, human capital investment could constitute a two-pronged assault on the problem. First, education and training could, in effect, make the 10th percentile worker more like the 90th percentile worker. If a worker who does not go to college has nonetheless received a highly effective basic education, she will be more productive not only in absolute terms but also relative to the college-educated. The same is true of a worker whose former skills have been made obsolete by technical change, but receives training that equips him with a new set of marketable skills. Thus a program of investment in human capital should work directly to flatten the wage schedule in Figures 1 and 2.

At the same time, an increase in the overall level of skill in the workforce would presumably make the premium on skill smaller—and this too should flatten the wage distribution.

Investment in human capital, then, seems to be a magic bullet that solves the problems of both unemployment and inequality, without posing painful tradeoffs. What are the objections?

The big question is whether it is realistic to expect government education and training programs to make a large enough impact on the wage distribution to have any noticeable effect. A skeptic might offer several disturbing observations. First, it is unclear how much of the spread in the earnings distribution is actually tied to formal education; the fractal quality of the increased dispersion suggests that deeper forces are at work, which may continue to yield increasingly unequal outcomes even if formal education levels are made more uniform. Second, improvements in basic education will, by definition, take a very long time to be reflected in the actual labor market. As a result, human capital optimists tend to stress retraining, which might have more immediate payoff; but there is little evidence suggesting that retraining schemes are actually particularly effective in raising worker productivity.



Above all, it is hard to see any evidence in the data that virtue in the form of good education and retraining are rewarded with good labor market performance. Americans who are self-critical about our basic education generally hold up European nations such as France and Western Germany as models, but their success in teaching students basic literacy and numeracy has not translated into sustainable low unemployment. Neither has the massive Swedish retraining scheme.

None of this constitutes a conclusive demonstration that human capital investment cannot have a favorable impact, or an argument against trying to improve education and training. It is, however, hard to escape the feeling that those who place their faith in education and training as the major solution to the problems of jobs and wages are engaging in wishful thinking, driven by an unwillingness to face up to the harshness of the tradeoffs involved.

### *Pruning the welfare state*

If investment in human capital is the feel-good answer to unemployment, scrapping or at least shrinking the welfare state is the tough, hard-nosed answer. Theory, experience, and econometric evidence all suggest that countries with high natural rates of unemployment can bring down those natural rates by reducing both the generosity and duration of benefits to the unemployed, thereby increasing the desperation with which the unemployed must search for jobs. The gross comparison between the United States and Europe is one piece of evidence; cross-country econometric studies like the already cited work of Layard, Nickell, and Jackman (1994) are another. The experience of the United Kingdom, which has lowered its social safety net part way from European toward U.S. levels, provides something of a test case. Both anecdotal evidence and econometric estimates—see, for example, Elmeskov (1993)—suggest that the UK's natural rate has in fact declined both absolutely and relative to those of its European neighbors.

The problem is that this reduced unemployment does not come without a cost. While welfare states do distort incentives, they also provide real benefits to families in the lower end of the income distribution. Thus when the welfare state is scaled back, the lowest-

income members of society are in fact hurt. The new jobs created are, predictably, low-wage (just think of running Figure 1 in reverse). And those who are still unemployed after the reduction in benefits are especially hard hit. It is surely not an accident that the United States, which combines unusually low benefits among industrial countries with an unusually favorable employment performance, also is unique by any measure in the extent of poverty—especially among families with children.

It is common in much discussion of unemployment to use euphemisms in describing policies that will in effect lower the reservation wage; to talk, for example, about increasing the flexibility of the labor market. The reasons for this desire to mask the harshness of the choice are obvious. It is therefore, however, all the more necessary for those of us who are not under political constraints to be blunt. There is a well-understood way to reduce OECD unemployment, but it involves creating more jobs at the expense of more extensive and more severe poverty. As Layard and others put it, "This is a harsh route, in which some people end up on the scrap-heap."

This is an unpleasant tradeoff. Is there any way to improve it?

### *Making the welfare state work better*

Any tax or transfer payment distorts incentives. The size of the distortion can, however, be made less if the tax or transfer scheme is well designed. To a first approximation, the welfare state can be thought of as a combined system of taxes and transfers whose objective is to help the less fortunate, but which has large incentive effects, one of whose consequences is unemployment. Without question, it should be possible to make incremental improvements in this system that would reduce its incentive cost.

An example, which receives considerable emphasis in the European Commission White Paper, is the funding of social insurance via employers' contributions. In most cases, these contributions are regressive—that is, they represent a higher share of the compensation of low-wage than of high-wage employees. This, however, means that the system discourages the employment of precisely those workers

who are most likely to be driven out of employment in any case.

A meliorative approach to unemployment, then, would try to find ways in which the current levels of support for the unemployed could be provided with less distortion of incentives, and hope in this way to achieve some reduction in the natural rate of unemployment. It is unclear, however, how much improvement is possible.

### *Subsidizing employment*

Until recently, smaller European countries, and especially Sweden, seemed to have managed to escape both Eurosclerosis and the American affliction of growing inequality. The key element in Sweden's success was an "active manpower policy," in which the government was prepared to make large outlays in an effort to keep unemployment low. Unemployed workers were sent to expensive retraining programs; employers were offered substantial subsidies for hiring the long-term unemployed; and the government, itself, acted as an employer of last resort. In the 1980s, expenditure on these policies was about 1 percent of GDP, which most Swedes regarded as a good bargain.

Unfortunately, this record of success ended in the 1990s. The Swedish unemployment rate, less than 2 percent in 1990, has nearly quadrupled. Some of the unraveling may be attributed to macroeconomic problems, associated with Sweden's effort to shadow the European Monetary System. More to the point, Sweden became unable to maintain its policies in full because of a fiscal crisis, which drove the public sector deficit to 14 percent of GDP in 1993. See Lindbeck and others (1994) for a discussion of the crisis. And many Swedes now attribute the country's slide in economic rankings, from the highest per capita GDP in the OECD in 1970 to rough parity with the United Kingdom today, to the long-term incentive effects of its social policies.

As a matter of economic principle, subsidized employment for those who would otherwise be unemployed should be a way to cut through the otherwise agonizing tradeoff between mass unemployment and mass poverty. As a practical matter of political economy, is it possible to carry out such a policy in a way that targets the groups that really

need it, and thus avoids a runaway growth of expenditure? Five years ago, one might have said yes, and pointed to the Swedish example; at this point, the apparent unraveling of that model makes it difficult to argue for implementation of Swedish-style labor market policies. Nonetheless, unless Eurosclerosis goes into spontaneous remission it is likely that there will eventually be a call for a return to policies that subsidize employment.

## **Prospects**

Predicting the future course of OECD unemployment involves assessing both the trends in market forces and the likely policy responses. In other words, this section is totally speculative. Nonetheless, it may be worth setting out a few scenarios.

### *Market trends*

The key question about market trends is whether the forces that have pushed toward greater inequality will continue or reverse direction.

The popular view that attributes the pressure on OECD labor markets to globalization and competition from newly industrializing countries is generally associated with a belief that things can only get worse. After all, there are still billions of workers out there, willing to work for very low wages, ready to pour their products onto world markets. As we have seen, however, the overwhelming evidence is that the pressure is in fact coming not from foreign competition but from the skill-biased nature of domestic technological change. Will this bias toward skill continue?

The short answer is that we don't know—but even that represents what may be a surprising piece of optimism. Let us consider the case for that optimism.

One point is historical. The Industrial Revolution was almost surely associated with a capital-using bias in technology, which led to a conspicuous failure of labor to share in the initial gains. From the 1920s to the 1970s, however, industrial growth was associated with an increasingly equal income distribution. The point is that techno-

logical advance need not always move the earnings distribution in the same direction; the relationship between growth and distribution has reversed sign in the past, and may well do so in the future.

Let me also offer an even more speculative observation. It is generally assumed that modern technology, and especially computing technology, inevitably favors the cleverest and best educated. Robert Reich has nicely encapsulated this view by referring to the beneficiaries of technology as those who have the talent and education to work as "symbolic analysts," rather than as manual workers. And there is no question that this is what has happened so far. Yet in the somewhat longer run it may actually be easier for computers to replace people in what are commonly regarded as **high-skill** occupations than in more ordinary work. As the artificial intelligence expert Marvin Minsky has pointed out, "A 1956 program solved hard problems in mathematical logic, and a 1961 program solved college-level problems in calculus. Yet not until the 1970s could we construct robot programs that could see and move well enough to arrange children's building blocks into simple towers ... What people vaguely call common sense is actually more intricate than most of the technical expertise we admire." The time could well come when most tax lawyers are replaced with expert systems, but human beings are still needed—and well paid—for such truly difficult occupations as gardening and house-cleaning. The **high-skill** professions that have done so well in the last twenty years may be the modern counterpart of early nineteenth century weavers, whose incomes soared after the mechanization of spinning, only to crash when the technological revolution reached their own craft.

This is pure speculation. For the time being the fact is that technological change has tended to magnify inequality, and thereby impose unemployment on those countries that lack sufficient flexibility of relative wages. What are the likely policy responses?

### *Policy responses*

More often than not, the best policy forecast is for no substantive change. Surely the most reasonable forecast for the OECD economies is of no major change in their labor market policies: perhaps some reforms intended to improve incentives, perhaps some modest ges-

tures toward active labor market policies, but no radical departure.

Would such policy drift be sustainable? At the moment, a sense of crisis has been created by two factors: the sharp rise in European unemployment rates since 1992, and the emergence of large budget deficits in countries with extensive welfare states. The very recent surge in unemployment is, however, primarily cyclical rather than structural. For what they are worth, estimates of trends in natural rates for major European countries seem to show a flattening or even slight reversal of the upward trend by the end of the 1980s. See Elmeskov (1993), pp. 61-2. It is thus possible that an ordinary cyclical recovery could reduce the European unemployment rate to, say, its 1991 level. This would take off some of the immediate social pressure. A cyclical recovery would also improve the budget situation of the industrial nations.

It is worth recalling that policy concern with European unemployment tends to come in waves. Eurosclerosis was a major issue in the mid-1980s, but was nearly forgotten in the wave of "Europhoria" during the rapid growth of 1987-90. Now the consensus is that this growth was no more than a business cycle recovery, with little bearing on the structural problems—Europe's equivalent of "morning in America." Nonetheless, a solid recovery could once again cause the current focus on unemployment to recede.

What are the alternatives to drift? Leaving aside hopeful experiments with education and training, there are two main alternatives: Europe can become more like America,<sup>8</sup> or it can try to become more like Sweden used to be. That is, the welfare state can be scaled back, increasing the incentives for firms to offer and for workers to accept low-wage employment; or governments can try to subsidize employment at acceptable wage levels.

The political problems with either alternative are obvious. Attempts to scale back the protections that have discouraged employment in Europe will, indeed, already have, led to massive protests. On the other hand, if employment is to be subsidized, the money must be found somewhere, a difficult task when the budgets of many high-unemployment nations seem already to be dangerously out of control.

Unfortunately, it is hard to offer any comfortable predictions. The unemployment problem of the advanced nations has no painless solutions, and we should not expect effective action to solve that problem until or unless it becomes a true crisis.

## Endnotes

<sup>1</sup>Elmesov (1993) provides a useful survey both of evidence and of the immense literature.

<sup>2</sup>Admittedly, there is a significant "real business cycle" faction among academic macro-economists who do not believe that aggregate demand can alter unemployment even in the short run—that is, they believe in effect that the economy is always at the natural rate. I make no apologies for disregarding that view in this paper.

<sup>3</sup>Because of the changing demography of the labor force, the overall unemployment rate consistent with stable inflation has shifted around somewhat over time. In the late 1970s, with large numbers of young entrants into the labor force and a surge of women entrants with limited work experience, 4 percent unemployment among married men corresponded to about 7 percent overall unemployment; by the late 1980s, as the labor force became older and more experienced, a reasonable estimate of the natural rate had fallen to about 6 percent. Weiner (1993) provides estimates of a demographically adjusted natural rate; the track record of that rate in predicting the direction of inflation change is even better than that in Table 1.

<sup>4</sup>For a speculative model of the political economy of this tendency, based on a median-voter approach, see Krugman (1993).

<sup>5</sup>Commission of the European Communities, *Growth, Competitiveness, Employment: The Challenges and Ways Forward into the 21st Century*, Brussels, December 1993, p. 4.

There is a persistent belief among journalists and policymakers that competition from newly industrializing countries, in addition to having the distributional effects discussed below, has been responsible for the declining share of manufacturing in advanced economy employment. This belief is, however, flatly rejected by the data. See Elmesov (1993) and Krugman and Lawrence (1994).

<sup>7</sup>There has been some confusion created by several studies that attempt to measure the impacts of trade on income distribution by looking at the quantities of skilled and unskilled labor "embodied" in trade flows. Although this procedure, as implemented in such studies as Borjas, Freeman, and Katz (1991), seems plausible, it cannot be justified in any consistent trade model—nor is it possible to determine the direction of the bias. Despite the problems with their procedure, Borjas and others, and especially the update of their conclusions by Katz (1993), arrived at the same answer as other studies: that trade has played only a minor role in the trend increase in U.S. inequality. A recent study by Wood (1994) has claimed very large effects of North-South trade on income distribution. He not only relies on the "embodiment" method, however, he also uses a highly questionable procedure to get very high labor content in imports. It is hard to know what consistent economic model would justify his estimates, or how they can be reconciled with the direct evidence that there has been little change in the skill intensity of the industry mix.

<sup>8</sup>It is also possible that America will become a bit more like Europe. Clinton Administration officials have proposed both substantial increases in the minimum wage and a healthcare reform funded by employer mandates; both measures would substantially raise the cost of low-skill workers to employers, moving American labor markets closer to the European norm. At the moment, however, both proposals seem to be in abeyance.

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