

How Fast Can Europe Grow?

European economies have grown very sluggishly over the past five years or so. Since 1980, the four major European countries have expanded on average only 1 percent, down sharply from nearly 3½ percent in the 1970s and about 5 percent in the 1960s. Even during the recent recovery period, Europe has grown on average only about 1.7 percent, in contrast to almost 5½ percent in the United States. This relatively poor growth performance has prompted some analysts to adopt a gloomy view of Europe's longer-term prospects, so much so that terms such as 'Europessimism' and 'Eurosclerosis' have become fashionable. Underlying such terms appears to be the belief that structural rigidities and the lack of an entrepreneurial spirit have cut into Europe's potential for growth. Any attempt to grow much faster than the low rates of the past few years, so the argument goes, would translate quickly into higher inflation.

One important, and perhaps obvious, question is whether the recent weakness in European growth does indeed signal a decline in its long-term potential growth rate. This article focuses on estimating the current long-term growth rates in two important European countries—Germany and the United Kingdom—which have grown very slowly in recent years. The results suggest that potential growth rates in both countries, currently about 3 percent in Germany and 2½ percent in the United

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Kingdom, are significantly lower than they were in the 1960s and the early 1970s. But there is no evidence that they are anywhere near as low as the growth rates of the past five years, which have averaged less than 1 percent. Both countries are currently operating so far below their capacity that there seems to be considerable room for them to grow faster than trend for a period of time without risking a surge in inflation.

In the next section, the notion of potential output is described more fully. Potential growth estimates for Germany and the United Kingdom are then presented. These estimates are in turn compared with figures for the United States. The last section contains conclusions and policy implications.

Potential output growth in Germany and the United Kingdom: some definitions and methodology

Potential output measures an economy's maximum production capability that is compatible with stable inflation. Over time, a country's potential output level expands primarily due to advances in labor productivity and the labor force. When there is slack in an economy, actual growth must exceed potential growth if unused and underutilized resources are to be employed. In contrast, when real output expands only in line with that of potential, there is no tendency for the gap between actual and potential production to narrow. Unemployment rates, whether high or low, would show no tendency to change in this setting. Only when real output is expanding faster than its potential is there sustained reduction of the unemployment rate.

Two techniques are used in this article to measure the potential growth of Germany and the United Kingdom.

The first involves pinning down the empirical link between GNP and the unemployment rate and then using this relationship to identify the real growth rate that has been associated historically with a stable unemployment rate. The other method relies on decomposing GNP growth into movements in labor productivity and in the labor force.¹ The sum of trend growth in these series is another measure of the underlying rate of capacity expansion. Both techniques have been used extensively in the literature since they provide simple and direct means for measuring potential growth.²

Germany

Both methods for measuring potential growth place Germany's present long-run growth rate at about 3 percent (Box 1). Over the past five years, however, real output has grown on average only 0.9 percent, far less than its current long-term trend. Since output growth failed to keep pace with its ever-expanding potential, slack in the German economy has grown sharply (Chart 1).

The equations linking quarterly movements in real GNP and the unemployment rate, which are the basis for the first method of estimating potential growth, are presented in Box 1.³ This technique shows that from 1963 to 1976, real growth of 4.7 percent would have resulted in a constant unemployment rate. Around 1977, however, the relationship shifted and real growth of only 3.0 percent was required to stabilize the unemployment rate.

The second approach for measuring potential output confirms this slowing in long-term growth and, beyond this, provides insight into the factors responsible for its decline. Potential growth is fundamentally equal to the sum of the underlying trends in labor productivity and in the labor force (Box 1). Estimates of these trends are reported in Table 1. Due to measurement error and

¹Throughout this article, labor productivity refers to output per worker, rather than output per manhour.

²See, for example, Arthur M. Okun, "Potential GNP: Its Measurement and Significance", in American Statistical Association, *Proceedings of the Business and Economic Statistics Section* (1962), pages 98-104; and Douglas M. Woodham, "Potential Output Growth and the Long-Term Inflation Outlook", this *Quarterly Review* (Summer 1984), pages 16-23. A third technique for measuring potential growth, based on estimating an economy-wide production function, was not pursued here due to data limitations and the need to make a number of somewhat arbitrary simplifying assumptions before estimation could proceed. For a recent analysis along this line see Jeffrey M. Perloff and Michael L. Wachter, "A Production Function—Nonaccelerating Inflation Approach to Potential Output: Is Measured Potential Output Too High?", in Karl Brunner and Allan H. Meltzer, eds., *Three Aspects of Policy and Policymaking: Knowledge, Data, and Institutions*, Carnegie-Rochester Conference Series on Public Policy, Volume 10 (1979), pages 113-163.

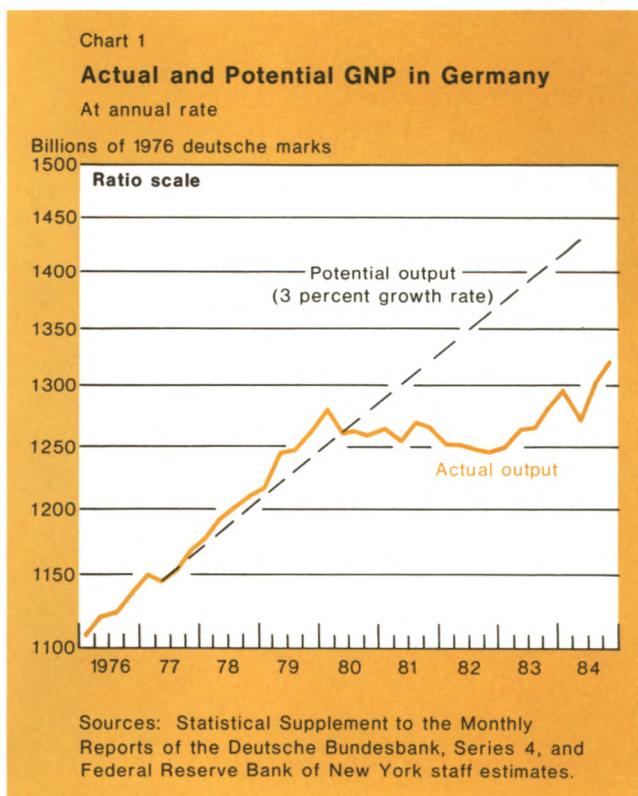
³Similar results were obtained with annual data.

compositional changes, the sum of the growth rates yields potential growth figures that differ a bit from the ones obtained by the other method. Yet both techniques are in accord with potential expanding approximately 3 percent currently; down from about 5 percent before 1977.

The drop in capacity growth was due almost entirely to a sharp productivity slowdown. From 1963 to 1976, trend growth in output per employee equaled 4.4 percent, one of the faster growth rates among the industrialized countries. Yet from 1977 to 1984, the trend was halved to 2.2 percent. Numerous factors were behind this slowdown, including the rise in energy prices, persistently high inflation, and a decline in the rate of capital accumulation, the latter in part reflecting a slowing in the rate of overall growth. A consensus, however, has yet to emerge among analysts on the relative importance of these and other factors.⁴

What do these results tell us about how fast Germany has to grow before slack in the economy, as measured

⁴The productivity slowdown has been studied by many analysts. See, for example, "The Growth in Productivity in the Federal Republic of Germany and its Determinants", *Monthly Report of the Deutsche Bundesbank* (January 1980), pages 11-16, and Assar Lindbeck, "The Recent Slowdown of Productivity Growth", *The Economic Journal*, Volume 93 (March 1983), pages 13-34.



by high unemployment rates, begins to disappear? Any decline in the civilian unemployment rate requires real growth above that of potential. As a rule of thumb, every percentage point of growth in excess of 3 percent for one year lowers the German unemployment rate by about one-half of a percentage point. The decline, however, is spread over two years, with the bulk of it occurring in the first year. Thus a significant fall in the unemployment rate will only occur if Germany grows above 3 percent for some time.

The potential growth figures discussed above are somewhat higher than estimates made by the Bundesbank.⁵ Their series, which is based on estimates of both an economy-wide production function and the capital, labor, and energy input levels consistent with "normal

⁵"Recalculation of the Production Potential of the Federal Republic of Germany", *Monthly Report of the Deutsche Bundesbank* (October 1981), pages 30-36, and Table A2.1 in Patrice Muller and Robert W. Price, "Structural Budget Deficits and Fiscal Stance", OECD Working Papers No. 15 (July 1984).

Box 1: German Potential Growth Estimates

Data from 1962-IV to 1984-I were used to analyze the statistical link between real output and the unemployment rate. A number of statistical tests suggested that the link between these variables changed within the sample period, most likely at the end of 1976.*

Alternative models were estimated over two sample periods—1962-IV to 1976-IV and 1977-I to 1984-I. The best fitting equations were:

1962-IV to 1976-IV

$$(A.1) \text{DU}(t) = .2615 - .0656 \text{CGNP}(t) \\ (5.5) \quad (-5.0) \\ - .0664 \text{CGNP}(t-1) \\ (-4.7) \\ - .0666 \text{CGNP}(t-2) - .0293 \text{CGNP}(t-3) \\ (-4.7) \quad (-2.2) \\ + .1995 \text{DUM} \\ (2.1)$$

$\bar{R}^2 = .71 \quad SE = .14 \quad DW = 1.75 \quad \rho_{\text{ho}_1} = .4260 \quad (3.5)$

1977-I to 1984-I

$$(A.2) \text{DU}(t) = .4050 - .1054 \text{CGNP}(t) \\ (13.4) \quad (-4.8) \\ - .1702 \text{CGNP}(t-1) \\ (-7.5) \\ - .1849 \text{CGNP}(t-2) - .0908 \text{CGNP}(t-3) \\ (-7.8) \quad (-4.1)$$

$\bar{R}^2 = .839 \quad SE = .12 \quad DW = 2.38 \quad \rho_{\text{ho}_1} = .7026 \quad \rho_{\text{ho}_2} = -.7333 \quad (4.8) \quad (-4.7)$

*It is possible that the change occurred about two years before this date. As the primary goal of this work is to obtain a good estimate of current potential growth, the data were split in 1977-I, after any shift could have occurred. Note that "proving" that one switch point is better than another, or showing that models with two or more switch points are superior, is not possible with these data since there are too many parameters to be estimated with a relatively small sample.

where the dependent variable, DU, is the change in the unemployment rate from the previous quarter, CGNP is the quarterly growth rate of real GNP, and rho₁ and rho₂ are first and second order autoregressive coefficients. DUM is a dummy variable equal to one in 1974, zero otherwise, to account for aberrant behavior in the intercept term. Both equations were estimated by Cochrane-Orcutt (t-statistics in parentheses).

From 1963 to 1976, potential output is estimated to have grown 4.7 percent a year. This figure is obtained by setting the left hand side of equation (A.1) and the dummy variable to zero and finding the constant rate of growth in GNP that solves the expression. The solution is 1.15 percent, or 4.7 percent at a compound annual rate. From 1977-I to 1984-I, the potential growth estimate is 3.0 percent.

The second method for measuring potential growth is based on the identity:

$$(A.3) \text{GNP} = \frac{\text{GNP}}{\text{EMPLOY}} * \frac{\text{EMPLOY}}{\text{LF}} * \text{LF}$$

where EMPLOY equals total employment and LF is the labor force. The first term to the right of the equal sign is labor productivity, the next is one minus the unemployment rate. This equation shows that GNP equals labor productivity, times the proportion of workers employed, times the labor force. If real GNP were expanding at the same rate as labor productivity and the labor force, equation (A.3) implies there would be no pressure for the unemployment rate to change. Thus an alternative method for measuring potential growth is to estimate the underlying trends in productivity and the labor force.

Measuring a trend in a series, however, can prove difficult since there is no clear-cut way to disentangle cyclical movements in a series from its trend or changes in trend. A further complication arises since equation (A.3) is an identity and, as such, the product of the input variables has to equal GNP. Yet the productivity and labor force series that are available are not measured on the same basis. For these reasons, the sum of the trend growth estimates is not likely to equal exactly the potential growth figures from the other method.

"utilization", has potential expanding on average 4.0 percent from 1963 to 1976 and 2.4 percent from 1977 to 1983. Since the Bundesbank study used a different sample period and methodology, it is not surprising that our estimates differ somewhat. However, even their lower estimates would imply a sharp increase in the amount of slack since 1980.

United Kingdom

Greater uncertainty surrounds the potential growth figures for the United Kingdom, making it difficult to assess precisely how capacity growth has changed there over the past 25 years. When taken together, however, the empirical results suggest that potential output has been advancing about 2.5 percent since 1974, down from approximately 3.2 percent in the 1960s and early 1970s. There is some evidence that potential growth may have changed once again in the past five years, but testing for this is difficult. Even if the 2.5 percent figure differs somewhat from the current long-term trend, the point remains that over the past five years real growth in the United Kingdom has averaged 0.7 percent, far below any plausible potential growth figure.

For the period from 1961 to 1973, the link between unemployment changes and GDP growth using annual data implies that potential was advancing about 3.3 percent a year (Box 2). Quarterly movements in these series did not produce a dependable statistical relationship that could be used to estimate potential growth.⁶ Estimates of the underlying trend in labor productivity and the labor force were more reliable and placed potential growth at 3.1 percent (Table 2). In light of this, it seems reasonable to fix potential growth for this period at slightly above 3 percent, say 3.2 percent.

Interpreting the data from 1974 to 1983 is more difficult. With annual observations, it is hard to choose between alternative empirical models. Two plausible models have potential output expanding 2.4 percent and 3.0 percent. When quarterly observations were used, the estimates imply potential was expanding 2.9 percent. Taken together, these results suggest that capacity growth is closer to 3 rather than to 2.5 percent.

The second approach, in contrast, which sums estimates of trend growth in productivity and the labor force, has potential advancing 2.3 percent over this period. The difference between these numbers is significant when thought of in terms of the larger amount of goods and services that could be produced over time at the higher growth rate. Even so, with no clear-cut

⁶The unreliable results are probably due to the quarterly data being more variable and possibly because they contain more measurement error than their annual counterparts. Under such conditions, regressions based on data of different frequencies sometimes produce conflicting results.

way to choose among them, a 2.5 percent figure for this period seems to be a reasonable choice.

Despite some uncertainty about the current rate of potential growth, it is clear that capacity output has advanced slower over the last ten years than in the 1960s and early 1970s.⁷ Nevertheless, actual output has grown even less than this significantly reduced potential for the past five years or so. Indeed, based on the potential growth estimate of 2.5 percent, real GDP in the United Kingdom is currently about 8 percent below its potential level (Chart 2). Narrowing this gap would take several years of above potential growth.

A comparison of potential growth in the United States, Germany, and the United Kingdom

A comparison of current potential growth in the United States, Germany, and the United Kingdom reveals that all three countries currently have very similar long-term growth rates. Over the past ten years or so, potential has been expanding about 3 percent in both the United

⁷Potential growth estimates made by the OECD also have the United Kingdom's long-term growth rate falling to approximately 2.3 percent over the period 1974 to 1983. See Muller, *op. cit.*

Table 1

Germany: Cyclically Adjusted Trend Growth in Labor Productivity and the Labor Force

In percent

Time period	Output per employee	Labor force	Implied potential growth rate
1963-76	4.4	0.8	5.2
1977-84	2.2	1.0	3.2

These growth rates were calculated by regressing the natural log of the series on a constant, a time trend, and the current and three lagged values of the unemployment rate. Two other methods for calculating trend growth—average year-over-year growth and peak-to-peak growth—produce essentially the same results. The data, which end in the first quarter of 1984, are described in the appendix.

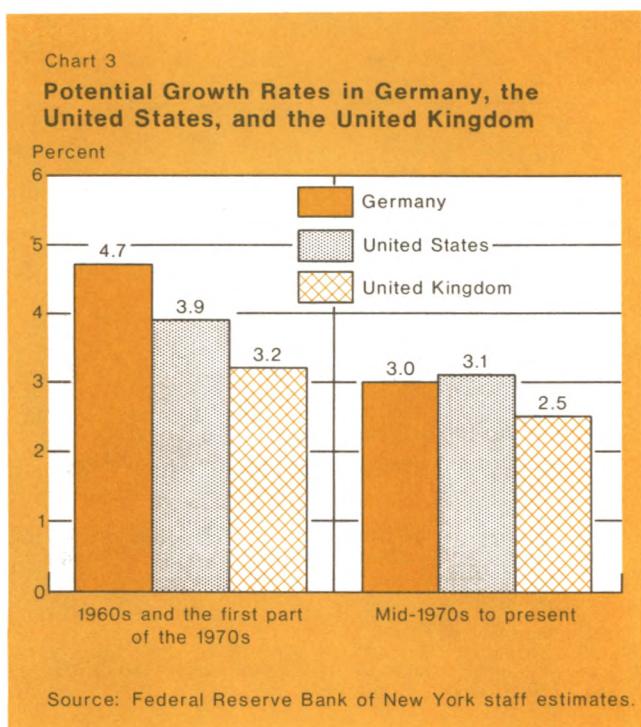
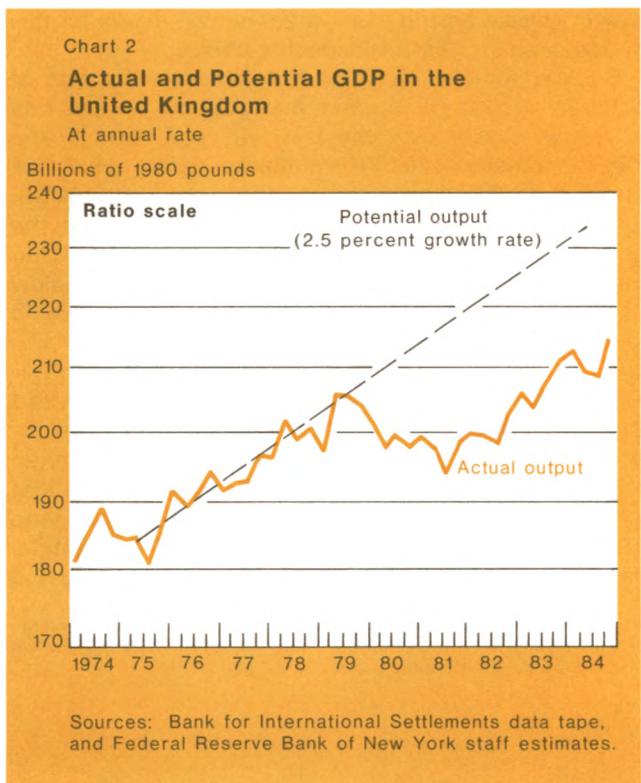
Table 2

United Kingdom: Cyclically Adjusted Trend Growth in Labor Productivity and the Labor Force

In percent

Time period	Output per employee	Labor force	Implied potential growth rate
1961-73	2.8	0.3	3.1
1974-83	1.5	0.8	2.3

These growth rates were calculated the same way as in Table 1. The data end in the second quarter of 1983.



States and Germany, slightly less in the United Kingdom (Chart 3). A recent study by the International Monetary Fund (which does not give country-specific estimates) also places potential growth in the major industrial countries (except Japan) between 2.5 and 3 percent currently.⁸

Capacity growth rates were not always so alike. In the 1960s and first part of the 1970s, potential was expanding about 4.7 percent in Germany, and 3.2 percent in the United Kingdom. Potential growth in the United States was roughly midway between the German and United Kingdom figures. The recent convergence of long-term growth rates, therefore, reflects different degrees of slowing in capacity growth. The sharpest drop came in Germany where potential growth fell approximately one and one-half percentage points, about twice the declines registered in the United States and the United Kingdom.

A marked productivity slowdown was the primary factor behind the fall in capacity growth in all three countries. In both the United States and the United Kingdom, trend growth in real output per employee fell about one and one-quarter percentage points in the mid-1970s. These declines more than offset one-half percentage point accelerations in labor force growth. The productivity slowdown in Germany was a bit sharper—it fell about two percentage points—and the advance in its labor force was more muted than in the other countries.

The current similarity in potential growth rates belies the fact that there are important differences in how quickly each country's unemployment rate responds to changes in real growth. Roughly speaking, one percentage point of growth in excess of potential for one year lowers the unemployment rate in the United States about 0.4 percentage point in the *long term*. Comparable figures for Germany and the United Kingdom are 0.5 and 0.6 percentage point, respectively. So the long-run impact of faster growth is essentially the same across the three countries. Yet the amount of time that has to elapse before the adjustments are complete varies greatly. In the United States, the effect is largely contemporaneous. But in Germany, the decline is spread out over two years; three in the United Kingdom (Chart 4).⁹ Consequently, any change in economic activity is likely to be reflected in employment the fastest in the United States, and the slowest in the United Kingdom. Put another way, stimulative macroeconomic policies,

⁸The figure for the United States is taken from Woodham, *op. cit.* The IMF study is contained in their *World Economic Outlook*, Supplementary Note 6 (April 1985).

⁹About 60 percent of the decline occurs in the first year in Germany; 40 percent in the second. In the United Kingdom about 35 percent of the decline is in place in the first year, 50 percent in the second, and 15 percent in the third.

even if they are put in place now, are not likely to affect the European employment situation quickly.

Why are the adjustment speeds so much slower in Europe? European labor markets are frequently characterized as being less flexible than U.S. labor markets; for example, it is generally more difficult to fire a worker

in Europe than in the United States.¹⁰ U.S. firms, consequently, are better able to adjust employment to overall demand changes than are European firms. When

¹⁰For a comparison of European and American labor markets, see Janet L. Norwood, "Labor Market Contrasts: United States and Europe", *Monthly Labor Review* (August 1983), pages 3-7.

Box 2: United Kingdom Potential Growth Estimates

The statistical link between GDP and the unemployment rate was studied using data from 1961-I to 1983-IV. An analysis of these data suggested that the relationship changed in 1974, and possibly in 1980. Distinguishing between the 1974 and 1980 changes proved difficult, *i.e.*, letting the relationship change in both 1974 and 1980 produced essentially the same results as having it change only once in 1974. In light of this, the data were divided into two groups—1961-I to 1973-IV and 1974-I to 1983-IV—and each subperiod was analyzed separately.

1961 to 1973 period

The best fitting annual regression equation linking changes in the unemployment rate to growth in real GDP is reported in the top row of the Table. This equation implies that potential was expanding 3.3 percent over this period.* Efforts to correlate quarterly movements in these series failed to produce a reliable statistical relationship. The quarterly regressions typically had insignificant intercept terms (implying zero growth in GDP was consistent with an unchanged unemployment rate) and implausibly small coefficients on the GDP growth variables (of which only the current rate of growth was significant).

*This figure is obtained by finding the constant rate of growth in GDP consistent with an unchanged unemployment rate.

As was true for Germany, the productivity and labor force data that are available do not decompose GDP growth exactly. Even so, estimates of trend labor force and productivity growth imply potential was expanding 3.1 percent over this period. Thus the two techniques yield very similar potential growth figures.

1974 to 1983

Interpreting the data from 1974 to 1983 requires more care. First, there are only ten annual observations, so it is hard to differentiate statistically between alternative GDP/unemployment relationships. Two candidate annual models are displayed in the second and third rows of the Table. On a statistical basis, each equation has its own strengths and weaknesses, yet neither one is clearly superior to the other. The first equation has potential expanding 3.0 percent, the second 2.4 percent.

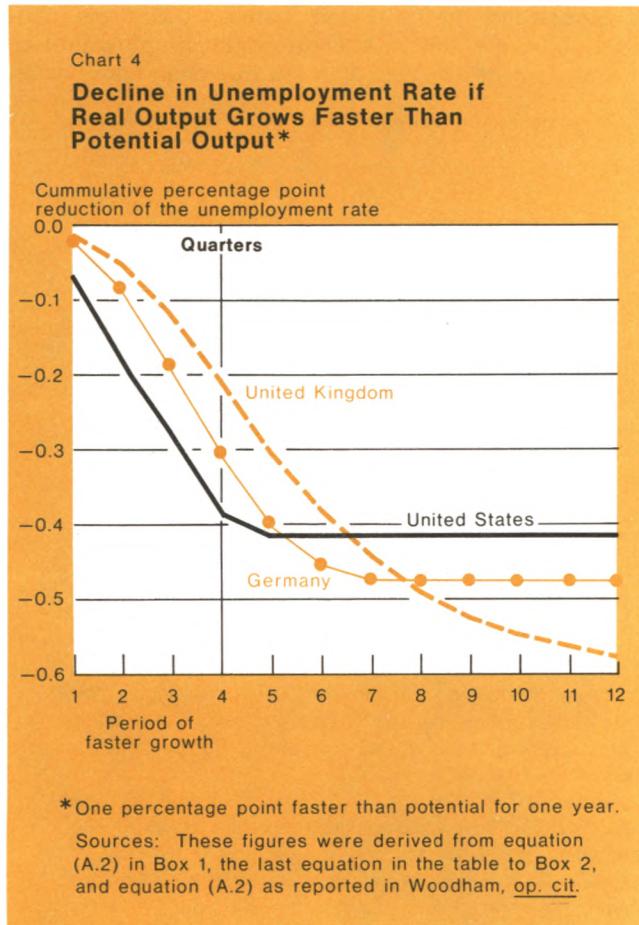
Unlike the earlier period, a reliable quarterly link was obtained. The best fitting equation, which is shown in the bottom of the Table, has potential expanding 2.9 percent since 1974. This regression, taken in combination with the annual regressions, suggests that capacity growth is closer to 3 percent than to 2.5 percent. But estimates of trend growth in productivity and the labor force have potential advancing 2.3 percent. The 2.5 percent estimate used in the text seemed a reasonable, and possibly conservative, compromise.

Regressions Linking Unemployment Rate Changes to GDP Growth in the United Kingdom

Data frequency	Time period	Constant	CGDP _t	CGDP _{t-1}	CGDP _{t-2}	DU _{t-1}	Implied potential growth rate	R̄ ²	SE	DW	Durbin's-H
Annual	1961-73	1.308 (4.4)	-0.2219 (-4.6)	-0.1758 (-2.6)	*	*	3.3	0.64	0.31	2.2	*
Annual	1974-83	1.704 (5.9)	-0.2638 (-2.2)	-0.3009 (-3.8)	*	*	3.0	0.62	0.70	2.2	*
Annual	1974-83	2.120 (6.9)	-0.3823 (-3.4)	-0.3354 (-5.0)	-0.1580 (-2.1)	*	2.4	0.75	0.57	2.6	*
Quarterly	1974-I to 1983-IV	0.117 (3.5)	-0.0582 (-3.5)	-0.0450 (-2.7)	-0.0612 (-3.6)	0.7320 (9.7)	2.9	0.78	0.16	*	0.40

The dependent variable DU_t equals the change in the unemployment rate from the previous quarter or year and CGDP equals the percent change in real GDP from the previous quarter or year. T-statistics are reported in parentheses. All equations were estimated by ordinary least squares. The implied potential growth rate equals the rate of real GDP growth consistent with an unchanged unemployment rate.

*Not included.



faced with a boost in demand, European businesses often try to adjust the average work week or increase labor productivity before additional workers are hired. All of this suggests that labor market rigidities are an important factor behind the relatively sluggish response of German and United Kingdom unemployment rates to changes in output growth.

Some policy implications

One perhaps obvious conclusion from this analysis is that recent growth performance of Germany and the United Kingdom has been, on average, well below potential. While potential growth in both countries did drop around the mid-1970s to the 2.5-3 percent range, actual growth rates over the past several years have not even matched these lower potential growth figures. As a result, economic slack has increased greatly, as evidenced by rising rates of unemployment. Any significant reduction of the amount of slack—and unemployment—requires sustained growth in excess of potential for a period of time.

Over the near-term, the prospects for reducing the amount of slack in Germany appear to be quite dim. Both the German government and the five leading German Research Institutes are currently projecting 2.5 percent year-over-year growth in German real GNP for 1985. These forecasts imply¹¹ that real output will only

¹¹In other words, if real GNP grows from its fourth quarter 1984 level at a 1.2 percent annual rate, then year-over-year GNP growth will equal 2.5 percent. The Research Institute's forecast is discussed in *The London Financial Times* (April 30, 1985), page 1. The German Economics Ministry reconfirmed its 2.5 percent year-over-year forecast on May 9, 1985.

Table 3

Estimates of the Natural Rate of Unemployment

In percent

Time period	Germany					United Kingdom		
	Layard, et. al.*	Franz†	Gordon‡	OECD§	Actual Unemployment Rate	Layard, et. al.*	OECD§	Actual Unemployment Rate
1967-70		0.7	1.6	0.8	1.3		4.9	2.4
1971-75		2.1	1.8	2.5	2.1		5.7	3.2
1976-80	3.7	4.2	3.7	2.8	4.2	4.6	7.5	5.6
1981-83	5.3	4.2	5.0	5.8	7.5	9.5	7.7	11.3

*Richard Layard, Giorgio Bassani, Olivier Blanchard, Willem Buiter and Rudiger Dornbusch, *Europe: The Case for Unsustainable Growth*, Center for European Policy Studies No. 8/9 (1984).

†"The Past Decade's Natural Rate and the Dynamics of German Unemployment", *European Economic Review*, Volume 21 (1983), pages 51-76. Wolfgang Franz estimated that the natural rate equaled 0.7 percent from 1965 to 1973 and 4.2 percent from 1974 to 1981.

‡Robert J. Gordon, "Comments on the Franz Paper", *European Economic Review*, Volume 21 (1983), pages 83-87. Gordon only reported natural rate estimates for 1965, 1970, 1973, 1976, 1979, and 1981. The numbers in the table, therefore, do not apply to the complete sample period.

§David T. Coe and Francesco Gagliardi, "Nominal Wage Determination in Ten OECD Countries", OECD Economics and Statistics Working Paper No. 19 (March 1985). A simple average of the two natural rate estimates is reported in the table.

||Not available.

rise 1.2 percent from the fourth quarter of 1984 to the fourth quarter of 1985. If real growth does turn out to be this low, a further rise in the unemployment rate is likely this year.

The unemployment outlook in the United Kingdom is somewhat more optimistic. In the most recent budget, the U.K. government projected 1985 real GDP growth of 3.5 percent.¹² If this turns out to be the case, then the unemployment rate may decline slightly over the next year or so.

Another important implication emerging from the potential growth estimates concerns the likely path of inflation that would result from faster growth. When the unemployment rate exceeds its natural rate—the rate consistent with stable inflation—past experience has shown that slack in the economy exerts downward pressure on inflation. Recent estimates of the natural rate place it at about 5½ percent in Germany and 9½ percent in the United Kingdom (Table 3). This suggests

¹²This figure equals projected growth from the latter half of 1984 to the second half of 1985. *The London Financial Times* (March 20, 1985), page 14.

that the gap between the actual and natural unemployment rates in these countries is currently 3½ to 4 percentage points, so a great deal of disinflationary pressure is now in place, and has been for some time. Not surprisingly, German consumer price inflation is now less than half of what it was two years ago. Inflation in the United Kingdom also fell over that period, albeit at a somewhat slower pace than in Germany.¹³

With so much slack in place, it seems feasible for actual growth to exceed the estimated 2.5-3 percent potential growth rates for a while without engendering a resurgence of inflation. Obviously the room for faster growth is not unlimited, and a precipitous expansion would run the risk of reviving inflationary expectations. Yet in view of the large amounts of unused capacity, further declines in inflation would seem to be consistent with faster than potential growth in these economies over the next one or two years.

¹³The slowing of inflation occurred alongside a significant rise in the dollar against both the mark and the pound. In the absence of dollar appreciation, price inflation in Germany and the United Kingdom would most likely have been considerably lower.

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Data Sources

Germany

The data were taken from the *Statistical Supplement to the Monthly Reports of the Deutsche Bundesbank, Series 4*. All the series are seasonally adjusted.

Real GNP: Gross national product in 1976 marks.

Unemployment Rate: Number of unemployed as a percent of the civilian labor force. The quarterly unemployment rate used in this article is a simple average of the monthly numbers.

Productivity: Gross national product per employed person at 1976 prices.

Labor Force: This series was derived by taking the sum of total employment (a quarterly series) and a quarterly average of the number of unemployed workers.

United Kingdom

The data were taken from a variety of sources. All of the series are seasonally adjusted.

Real GDP: Expenditure on real gross domestic product at factor cost in 1980 prices. Obtained from the Bank for International Settlements data tape.

Unemployment Rate: Number of unemployed as a percent of the civilian labor force. The quarterly series is a simple average of the monthly numbers. Obtained from the OECD data tape.

Productivity: Real output per employee in the economy as a whole. The series was taken from *Economic Trends: 1984 Annual Supplement*, published by the U.K. Statistics Office.

Labor Force: This series equals the sum of the employed labor force (which includes self-employed persons) and the unemployed (which includes school leavers). It is referred to as the working population. Source is the same as for the productivity series.