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Report of the CEPS Macroeconomic Policy Group  
EUROPE : The case for unsustainable growth

R. Layard, G. Basevi, O. Blanchard,  
W. Buiter and R. Dornbusch

Internal Paper






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EUROPE: THE CASE FOR UNSUSTAINABLE GROWTH

R. Layard, G. Basevi, O. Blanchard, W. Buiter and R. Dornbusch

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## INTRODUCTION AND SUMMARY\*

The European economy remains in the doldrums. Though output is rising, the general opinion, reflected in the Commission's projections, is that unemployment will remain at around 10 per cent for some years. Thus when Europeans talk of recovery these days, they mean that output will soon be growing at its trend rate of growth. This will not increase employment. For output per worker will grow as fast as output, so that employment will not recover. With labour force constant, there will thus remain the same margin of unemployed labour as at present.

This depressing prospect is illustrated in Figure 1. By 1983 output was over 8 per cent below its former trend and the Commission's central projection implies no narrowing of the gap at all by 1987.\*\* In fact unemployment is expected to be higher this year than last.

There is only one way to reduce this gap. The economy must for some years grow faster than its sustainable long-run growth rate. Only thus can we reduce the margin of unused resources. This is a simple point of logic. But is it feasible? Many analysts believe it would be dangerous to try and do better than the Commission's forecast. The argument is that the old ways did no good, and that we should therefore give the new restrictive policies a chance. The worrying aspect of this approach is that it tends to accept the new situation as the best that can be achieved. As the situation becomes worse, the level of aspiration is further reduced.

### Contrast with the U.S.A.

By contrast in the U.S.A. analysts have expected a recovery of employment, and it has come about. The most obvious reason for the difference between

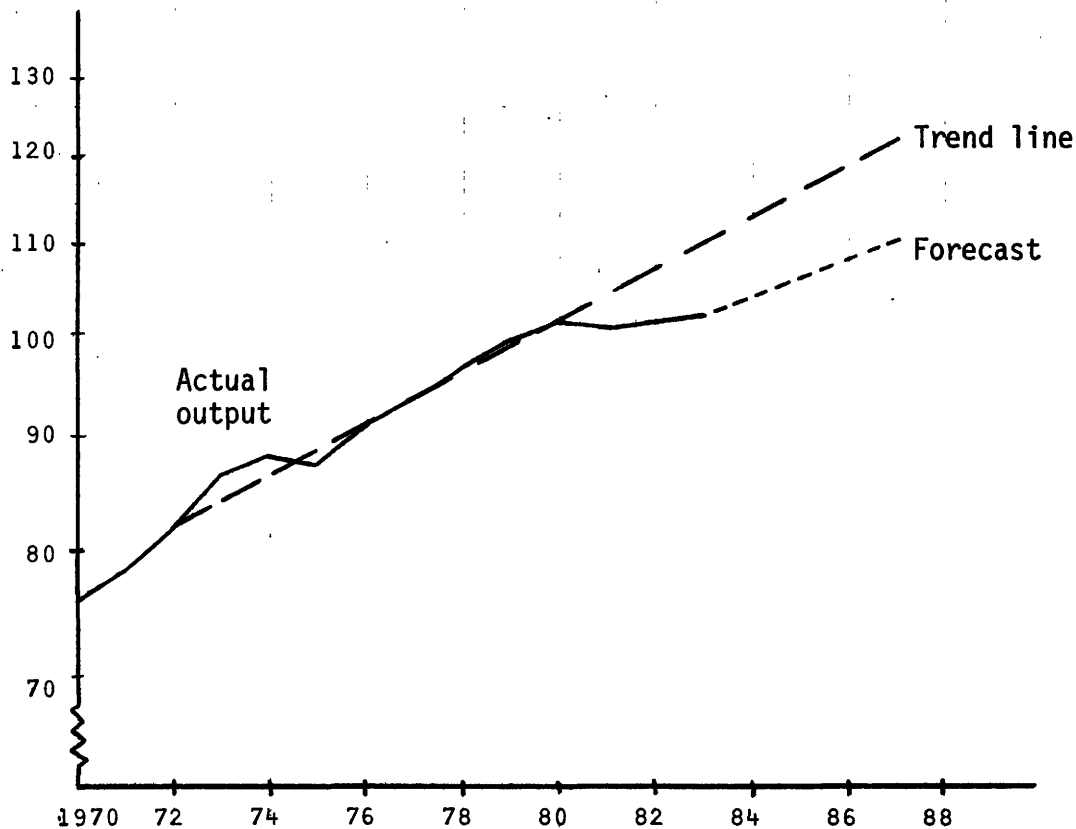
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\* We are most grateful to B. Connolly, D. Grubb and I. McMaster for help with data and computation. The calculations provided do not necessarily reflect the views of the E.C. Commission.

\*\* For the Commission's projection see European Economy, No.18, November 1983, Table 2.6. The trend line is ours. For most of the graphs in this report there is a corresponding annex table showing statistics for each country.

FIGURE 1  
G.D.P. at 1975 market prices (E.C.)

log scale  
(1979 = 100)



Source: Actual and forecast: E.C., see European Economy No.18, November 1983 p.64 & 67.

Note: The log-linear trend line is the authors' and goes through the average for 1970-74 (plotted at 1972) and the average for 1975-79 (plotted at 1977). The implied growth rate is 2.3% p.a., compared with the forecast of 2.0% between 1983 and 1987. We attach no special importance to this trend line - any other that excluded the last 3 years would make much the same point.

continents is that fiscal policy in the U.S. became increasingly expansionary from 1982 onwards, while in the EC the full-employment deficit was progressively reduced from that year onwards.\* From now on European fiscal policy is expected to become even more contractionary and U.S. fiscal policy more expansionary. (By contrast, European monetary policy has been roughly as contractionary as in the U.S. - with European real interest rates having followed U.S. rates upward.)

We believe that instead of maintaining their deflationary stance, European governments (especially Germany and the U.K.) should undertake a temporary fiscal expansion, with monetary policy accommodating to prevent a rise in interest rates and exchange rates. If the policy were temporary, there need be no fear that, when employment had been restored, the public deficit would crowd out private investment. Thus an excellent form of stimulus would be increased public infrastructure investment, with temporary investment subsidies in the private sector and a temporary marginal employment subsidy.\*\*

#### The three constraints

Many people will say this cannot be done: that Europe has special problems which make recovery possible in America but not in Europe.\*\*\* There are three possible constraints which might impede reflation: real resource constraints, financial constraints, and constraints arising from lack of coordination between countries. We spend the first three Parts of our report reviewing these constraints as they apply in the European context.

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\* For E.C. see Table 4 below. For U.S.A. see Table A.8.

\*\* If a country thought it was probably going to experience a boom anyway, it would still be wise for it to promise now to pay a subsidy for investment undertaken in 1984 - the payment being made retrospective only if a boom had not occurred. Firms investing would thus be guaranteed a return whichever outcome occurred.

\*\*\* European Economy, November 1983, p.11.

1. The real resource constraint

The real resource constraint manifests itself in the fact that if unemployment is reduced below a certain level, inflation tends to increase. This "non-accelerating inflationary level of unemployment" (NAIRU) thus imposes a limit on the sustainable level of economic activity. However we estimate that the weighted average value of the NAIRU in the E.C. is no more than  $7\frac{1}{2}$  per cent, compared with the actual rate at present of over 10 per cent. Vacancies are now at an unprecedentedly low level, and the utilisation of physical capacity is also very low. In addition there is no good evidence that the European economy is suffering from abnormally high mismatch between the pattern of labour demanded and that supplied.

Thus there is certainly room for a Keynesian expansion and no reason to suppose that a modest reflation would run into major obstacles on the inflation front. However if governments really fear inflation, they would do better to implement some form of incomes policy than to resign themselves to 10 per cent unemployment for years to come. We outline a scheme for tax-based incomes policy which could be practicable in a number of countries.

2. The financing constraint

The second objection to reflation is that it will lead to higher budget deficits. These, it is said, must lead either to higher inflation (if financed by money creation) or to higher real interest rates (if financed by borrowing). But this does not follow. Suppose that, as we favour, the deficit increases temporarily and money is allowed to expand at a rate which holds real interest rates constant.\* Then output will grow and the monetary expansion will not of itself go into prices rather than output.

If expansion were pursued too far, inflationary pressure would of course develop in the labour market, but that is a general point that would apply

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\* In that sense we are not recommending what some people see as the current U.S. error - of fiscal expansion linked to a degree of monetary restraint likely to inhibit the long-run growth potential of the economy.



whether expansion occurred through a higher budget deficit or a surge in exports. Few people, surprisingly, oppose a recovery based on exports, but many resist the notion that the public deficit can be the propellant. Their fears are only justified in a long-run context. In the long-run (at the NAIRU) a higher public sector deficit will lead to higher real interest rates, reducing private investment and thus the economy's potential for growth.\* That is why the fiscal reflation we propose is temporary in form. Given this, there should be no fears about a modest reflation since, as we show, there is nothing unsustainable about the current stance of fiscal policy in most European countries.

### 3. The coordination constraint

The constraints we have discussed so far affect the U.S. as much as Europe: the NAIRUs may differ, but the logic of the problem is the same. However there is one outstanding difference between Europe and the United States: Europe is not a country. This poses a problem of coordination. For if a small open economy reflatates on its own it has two main practical alternatives. Either it allows its exchange rate to depreciate, in which case it can achieve a satisfactory expansion but at the cost of increasing inflation. If it is unwilling to accept this inflation, it has to maintain its exchange rate by increased interest rates. The high interest rates distort the pattern of expansion away from investment. But, more seriously, much of the extra employment created by the increased deficit is overseas. A country wondering whether to expand will not take this extra demand into account when performing its own cost-benefit calculus. It may be unwilling to incur the extra deficit (and future tax liabilities implied) for largely foreign jobs. But if all countries expanded at the same time, each country would obtain more extra jobs for a given increase in its budget deficit than if it expanded on its own. The country would therefore be more willing to expand.

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\* This assumes that the extra public spending is not primarily for productive investment.

### 1984 is not 1978

But, some will say, these policies were tried after the Bonn Summit of July 1978, and failed.\* It is crucial therefore to note the differences between 1984 and 1978. The fundamental difference is in the margin of slack (see Figure 1). This is far greater now than in 1978. Thus it would be perfectly logical to believe that the 1978 reflation was misconceived (even if the Shah had not fallen) and to believe that concerted reflation now is essential.

What problems could arise? First, take oil and commodity prices. Oil prices are unlikely to surge.\*\* Commodity prices have risen somewhat, but this may have been essentially a restoration of their long-run relative price. Next, consider wages: a wage-led increase in inflation is unlikely.\*\*\* Thus in all respects 1984 is different from 1978.

### The danger of not reflating

Of course one would be less keen on reflation if one thought that a future reduction of inflation should be a top priority. Whether it should be is largely a matter of value judgment. It has been argued that a permanently high rate of inflation imposes a permanent annual cost whose present value is very high and may even be infinite. By contrast the cost of unemployment is reckoned as small, since it lasts only as long as the unemployment lasts.\*\*\*\* However this last point is by no means obvious. In a period of prolonged unemployment net investment in machines and in workers is lower than normal, and this leads to a capital stock that is permanently lower than it would otherwise

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\* See for example M. Emerson 'Western Europe's capacity for sustained growth', paper presented to the Centre for European Policy Studies Annual Conference on Western European Priorities, Brussels, November 1983. For a discussion of the case for coordination in the light of historical evidence see C.R. Bean.

'The case for coordination: theory and history', C.E.P.S. mimeo. We are grateful to C.R. Bean and R.A. Jackman for helpful discussions on these issues.

\*\* If the Straits of Hormuz were closed there would be a temporary rise, but spare capacity outside the Gulf is sufficient to prevent a major permanent rise.

\*\*\* For some econometric estimates of the likely effects of a concerted reflation see F. Bergsten and L. Klein, 'The need for a global strategy', The Economist, 23 April 1983.

\*\*\*\* M.S. Feldstein, 'The welfare cost of permanent inflation and short-run economic policy', Journal of Political Economy, August 1979.

have been. Investment has been low in recent years and is unlikely to recover substantially unless there is a boost to aggregate demand. Moreover there is no evidence of the hoped-for productivity breakthrough occurring as the weaker firms (or parts of firms) go to the wall. On top of this unemployment undermines work habits and leads to the rusting of skills in a way that may permanently reduce the sustainable rate of employment. (This, however, is speculation rather than established fact.) For all these reasons our own judgment is that in most countries attempts to reduce inflation still further should be abandoned and a concerted (though controlled) reflation put in hand.

#### Why work-sharing is wrong

The form of reflation that we favour is explicitly temporary - to get the economies moving again. However there is also the longer term question of measures to reduce the sustainable level of unemployment, which we discuss in Part 4. Some people advocate a reduction of working time. This is based on a fundamental misunderstanding of the nature of the unemployment problem. Worksharing could be justified if there were some limit to the demand for man-hours because human wants had been satiated or because of insufficient capital to employ the workforce. But this is not why we have unemployment, either now or in the long-term. We have unemployment because otherwise we should have more inflationary pressure. If unemployment is reduced, inflationary pressure will be higher, whether unemployment is reduced by reducing hours per worker (with output constant) or by expanding output (with hours per worker constant). If we are willing to increase inflationary pressure, it would clearly be better to get more output in return. So we consider the present vogue in favour of work-sharing to be one of the more dangerous and depressing features of the current European loss of confidence. It is basically a counsel of despair and distracts attention from the positive steps which could be taken.

### The restructuring of employment taxes

In fact there are a number of constructive things that can be done to reduce the long-run level of unemployment. The long-run problem is that, whether wages are set by firms, unions, or by bargaining between the two, wage-setters have an incentive to set real wages above the level that is sufficient to employ all those who want work. The natural solution to the problem is to offer employers a credit for each worker employed, financed by a proportional tax on the wage bill. The credit will stimulate employment while the wage-bill tax will tend to reduce wages. The overall effect will be a fall in the real cost of labour. This change can be introduced with no net increase in employers' taxes on labour. And no new administration will be needed. Existing employment taxes will simply be restructured by raising the percentage element in the taxation of earnings, but also introducing a per worker 'credit'. The rates of tax and credit should be chosen so that at the whole economy level the net tax take was unchanged. Apart from the general advantages we have already described, the scheme will also reduce the net tax on unskilled workers, whose unemployment rates are typically four times the average rate. Thus this element of discrimination in favour of the employment prospects of less skilled groups is an additional plus for the scheme.

### Tax-based incomes policy

The same objectives can also be pursued by a tax-based incomes policy. In this case the tax will be on the growth rate of wages rather than the level. Employers will pay a tax on that part of their wage bill corresponding to the excess of their growth in average hourly earnings above some norm. Linked to this there will be a small per worker subsidy. The advantage of this incomes policy approach is that it is explicitly linked to inflation. Against it is the political difficulty of securing consensus over the norm. But unless countries are willing to contemplate new social institutions, we are going to be saddled with high unemployment for the indefinite future.

## Conclusion

However, the immediate problem is that unemployment is unnecessarily far above the NAIRU. There are no constraints limiting a return to the NAIRU. The financial problems could be overcome by an explicitly temporary fiscal stimulus with monetary accommodation - were it not for the problem of exchange rate effects. Thus there is a crucial need for concerted action. Individual countries cannot be expected to go it alone. But if they concerted their actions, all would be better off. 1984 is not 1978.

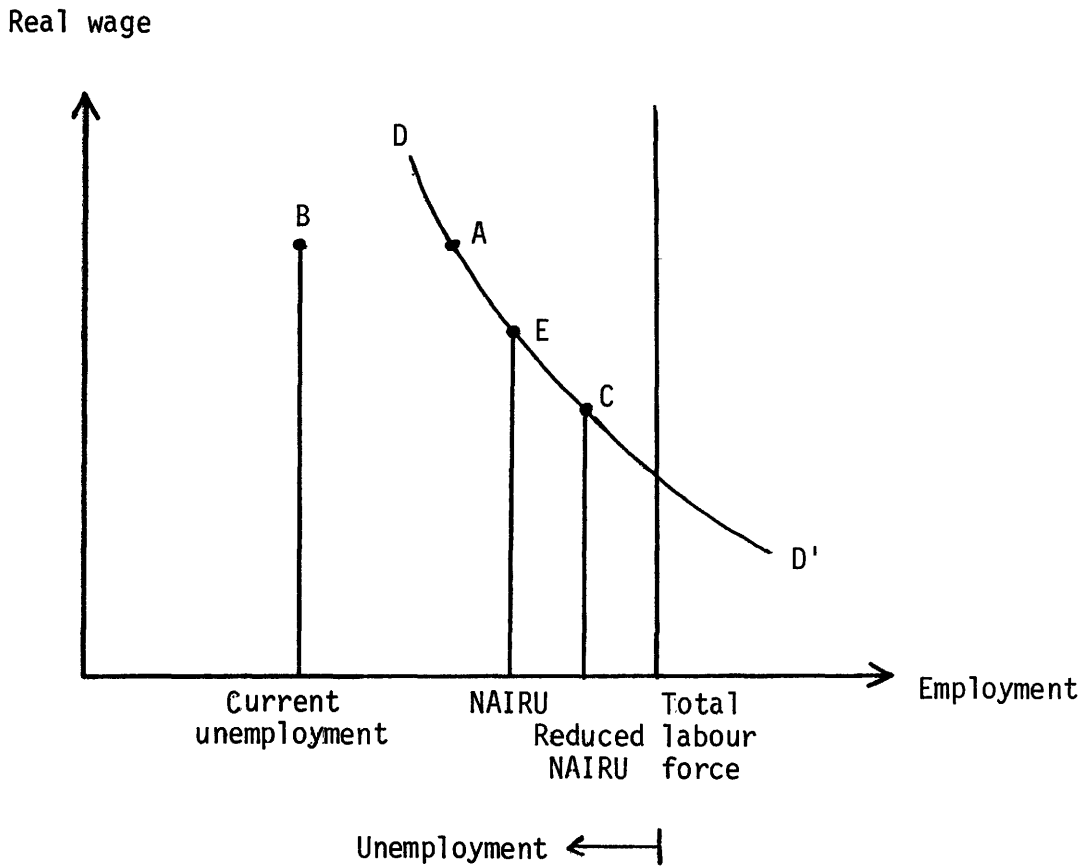
## 1. THE REAL RESOURCE CONSTRAINT

Let us begin with some basic concepts about the level of unemployment. For this purpose, Figure 2 is helpful. DD' is the long-run demand curve for labour, which depends on the real wage. With existing labour market institutions, the lowest unemployment we can have without increasing inflation is that shown as the NAIRU. To achieve employment at that level the real wage would have to be that shown at point E. If the real wage were higher than that, for example at point A, unemployment would have to be at least as high as at A. However it might be even higher than that, with employment inside the long-run demand curve, as at point B.

The crucial issue is whether our current unemployment is above the NAIRU - and by how much. If actual unemployment is well above the NAIRU (as at point B) there will be strong downwards pressure on the rate of growth of real wages, and the level of real wages will be falling relative to trend productivity. In this situation a judicious reflation will not run into bottlenecks, especially if there is an element of 'Keynesian unemployment' (as at point B).

We therefore begin by examining the existing margin of slack. This is the subject of Part 1 of our report. We then go on to consider what problems might arise in trying to take up the slack - the financing constraint (discussed in Part 2) and the problem of coordination (discussed in Part 3). Finally, in Part 4, come our proposals. First we give our suggestions for the reflation of demand, which we consider our most urgent message. However there is also the important question of what can be done, on the side of 'supply', to reduce the NAIRU. This would involve moving to a point such as C, and we end by suggesting how to do this.

FIGURE 2  
Different levels of unemployment



### The margin of slack

The first point is to establish the margin of slack. Figure 3 shows the extraordinary rise in unemployment that has occurred in Europe in the last three years. It is important to remember that only four years ago E.C. unemployment was below 6 per cent, compared with just over 10 per cent today. Yet the Commission forecast that unemployment will continue at around 10½ per cent for the next four years - with employment and labour force virtually constant, and output and labour productivity both growing at about 2 per cent a year. The forecast may well be somewhat too gloomy. But it is a striking fact that such a recent change is widely accepted as semi-permanent.

By contrast, the US is recovering and is expected to recover further. The OECD forecast of its unemployment rate in 1984 is at 8 per cent, and this may well prove too high. Even more striking perhaps is the trans-Atlantic comparison of employment growth. The U.S. generated 13 million new jobs between 1973 and 1979, while employment in the E.C. was virtually constant (see Figure 4). In 1983 U.S. employment was back to its 1979 level and expected to grow by around 3 per cent in the following year, while European employment is 4 million down on 1979 (with a static labour force) and expected to remain constant for the next few years.

What explains these differences? Clearly the time trend is mainly related to different movements of the labour force. But around this trend U.S. employment fluctuates much more. This is probably due to the U.S. system of employment at will. If the costs of firing and hiring are lower, it is rational for employers to vary their output more through fluctuations in men and less through fluctuations in hours-per-man.\* This must be a

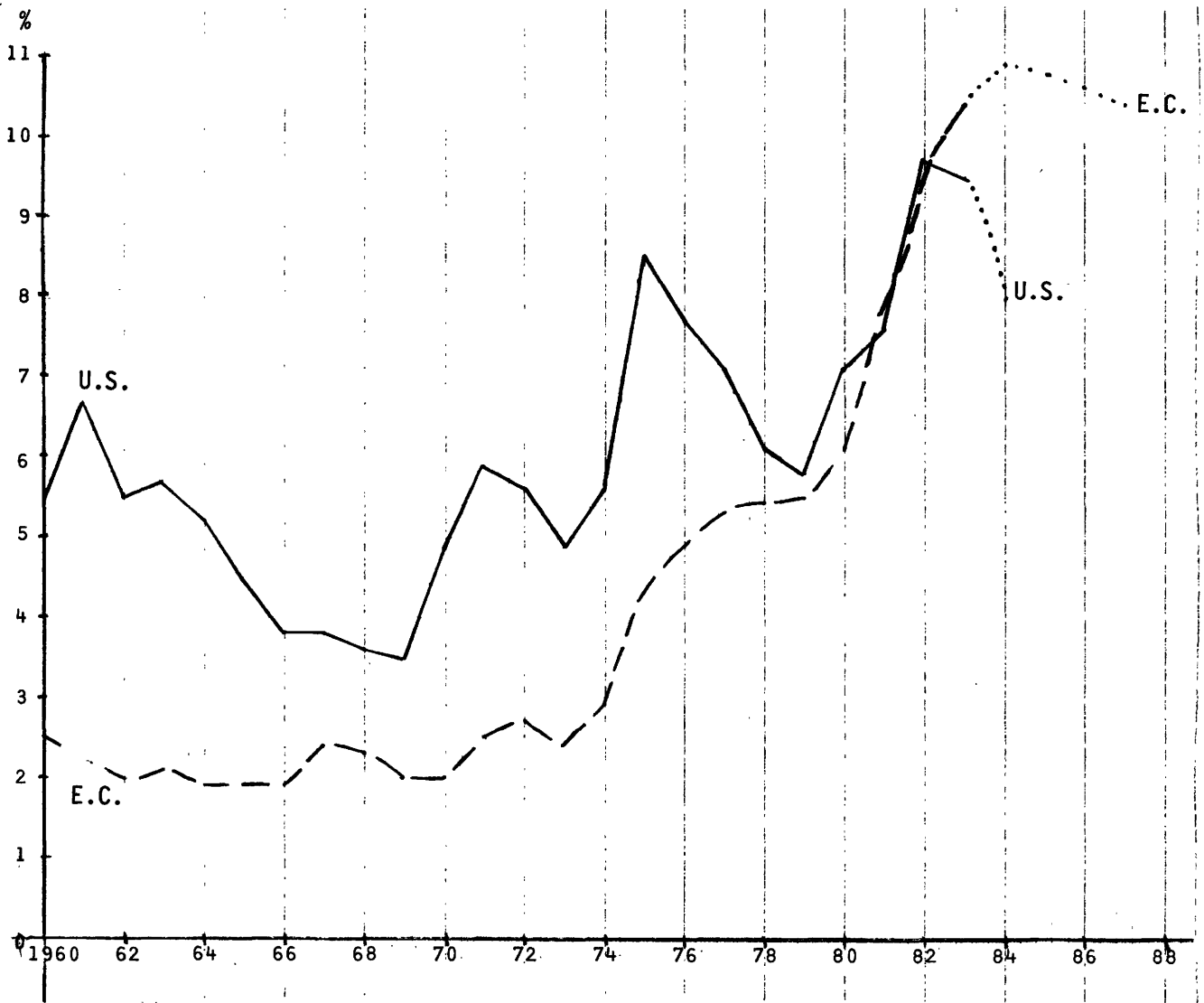
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\* See for example R.J. Gordon, 'Why U.S. wage and employment behaviour differs from that in Britain and Japan', Economic Journal, March 1982.



**FIGURE 3**

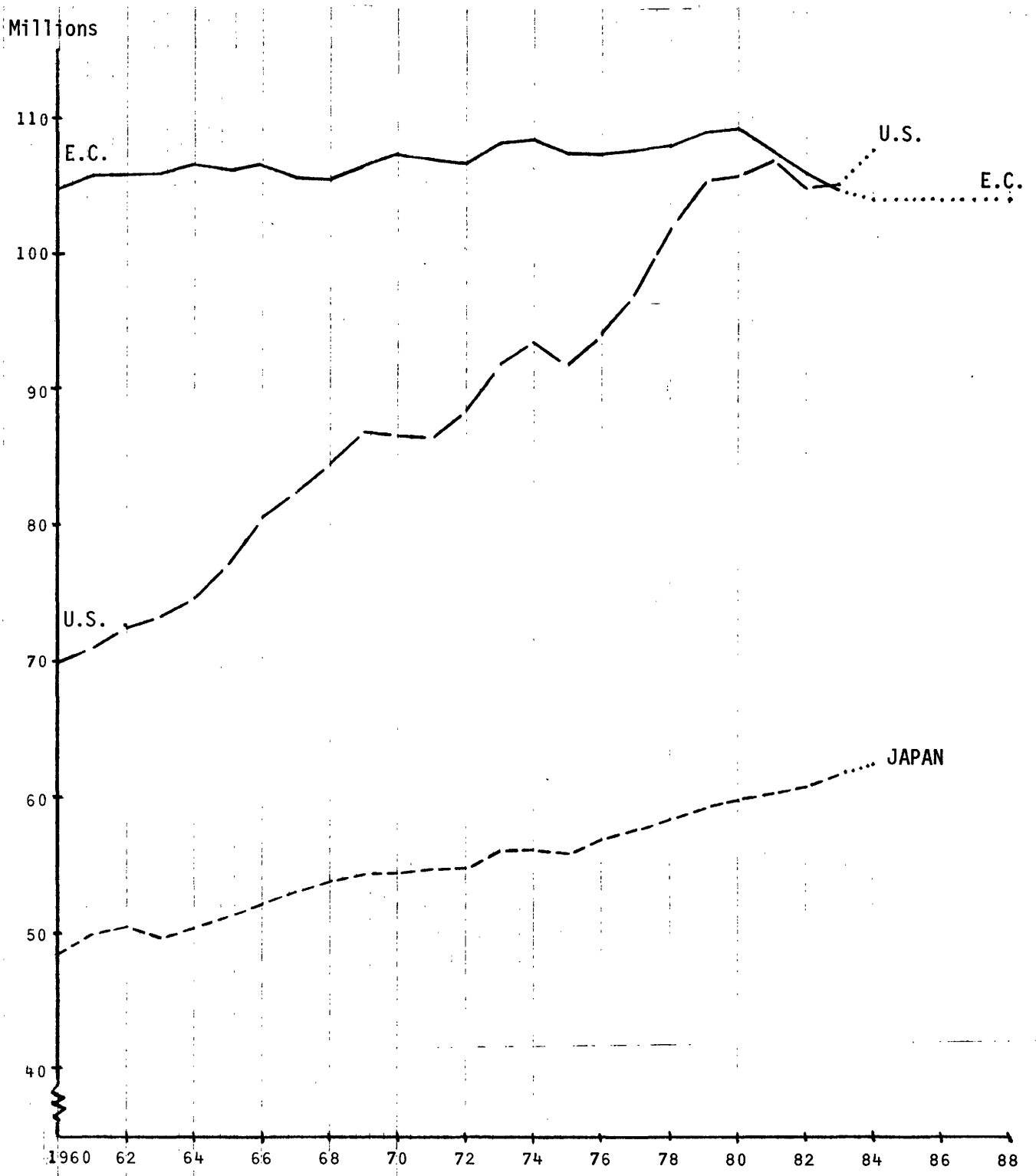
Unemployment rates as % of civilian labour force (E.C. and U.S.)



Source: E.C. European Economy No.18, Table 3 and p.64 & 67 for forecast to 1987.  
U.S. Economic Report to the President, Table B29 and OECD forecast for 1983 and 1984, Economic Outlook, p.45.

**FIGURE 4**

**Employment (E.C., U.S. and Japan)**

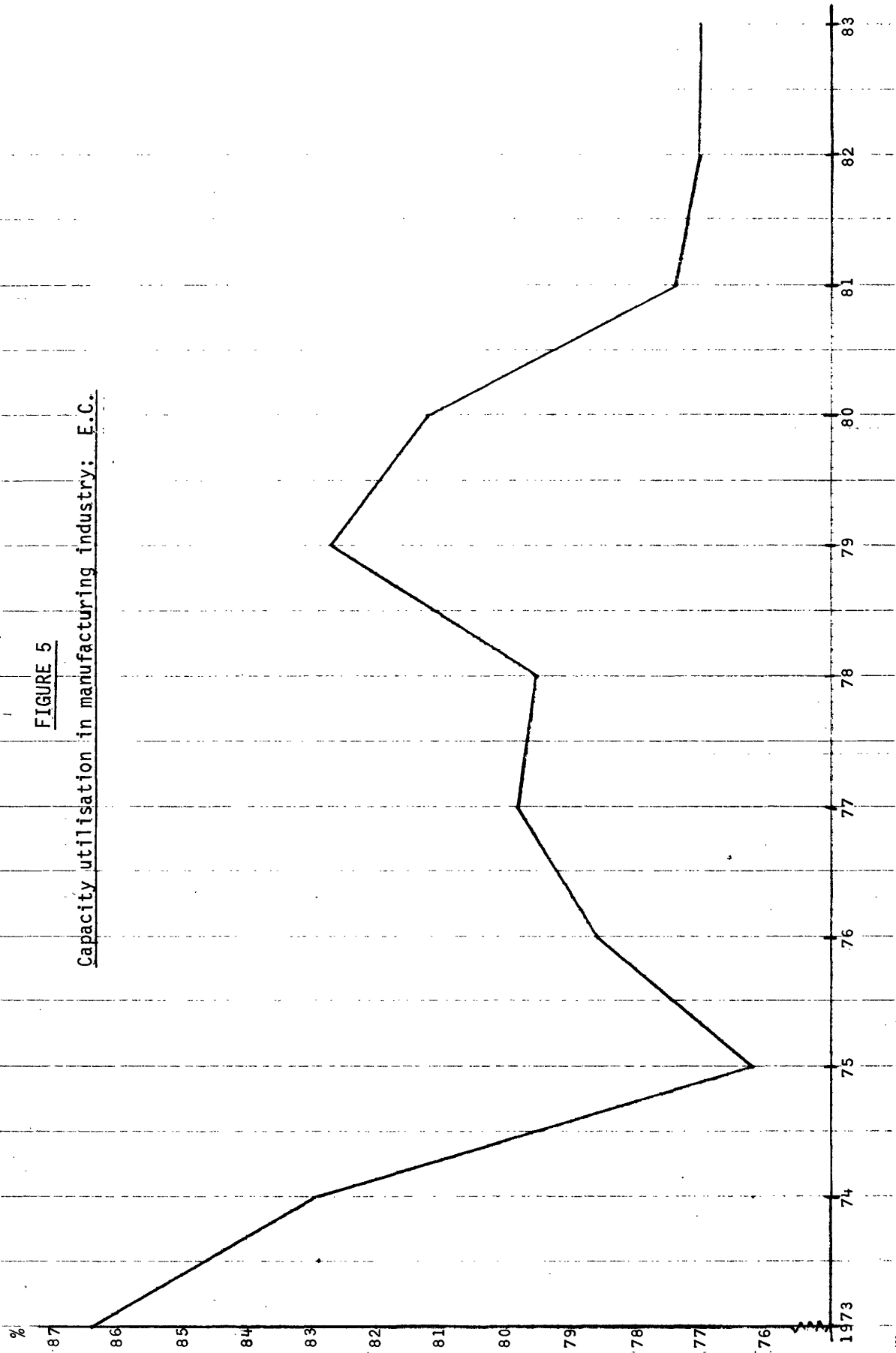


Source: E.C. (forecast as in Figure 3).

partial explanation of the current strength of the U.S. employment recovery. But more than this is needed to explain why the European economy is expected to stay down so long. The most plausible explanation is the difference in budgetary stance which we shall come to in the next section.

For the present our main aim is to document how much slack exists in the European economy over and above that needed to contain inflation. If the unemployment rate goes up, that fact does not of itself indicate that slack has increased. Four possible bottlenecks could be causing the high level of unemployment and if any of them was binding, an attempt at reflation would be pointless. First, there could have been a reduction of the capital stock, so that, even though workers are available, there is no capital for them to work with. Second, the unemployed could be workshy and not available for work. Third, there could be a structural mismatch in the labour market, so that although the unemployed are available for work a resurgence of demand will not re-employ them, because they have the wrong skills or are in the wrong place. Fourth, there could have been an increase in the degree of slack needed to contain inflation. Let us examine each of these possibilities.

The hypothesis of capital shortage can be ruled out straight away. Figure 5 shows employers' reports of capacity utilisation. This shows that in 1983 capacity utilisation was way below its normal level, and almost as low as in 1975. This is sufficient to rule out the story of technological unemployment, which alleges that capital now requires so few workers that, even when all capital is used, it cannot employ the willing hands. However let us add another nail to that particular coffin. If capital has suddenly become so much more labour-saving, we should see a striking increase in the rate of growth of output per worker. As Figure 6 shows, we see nothing of the kind.

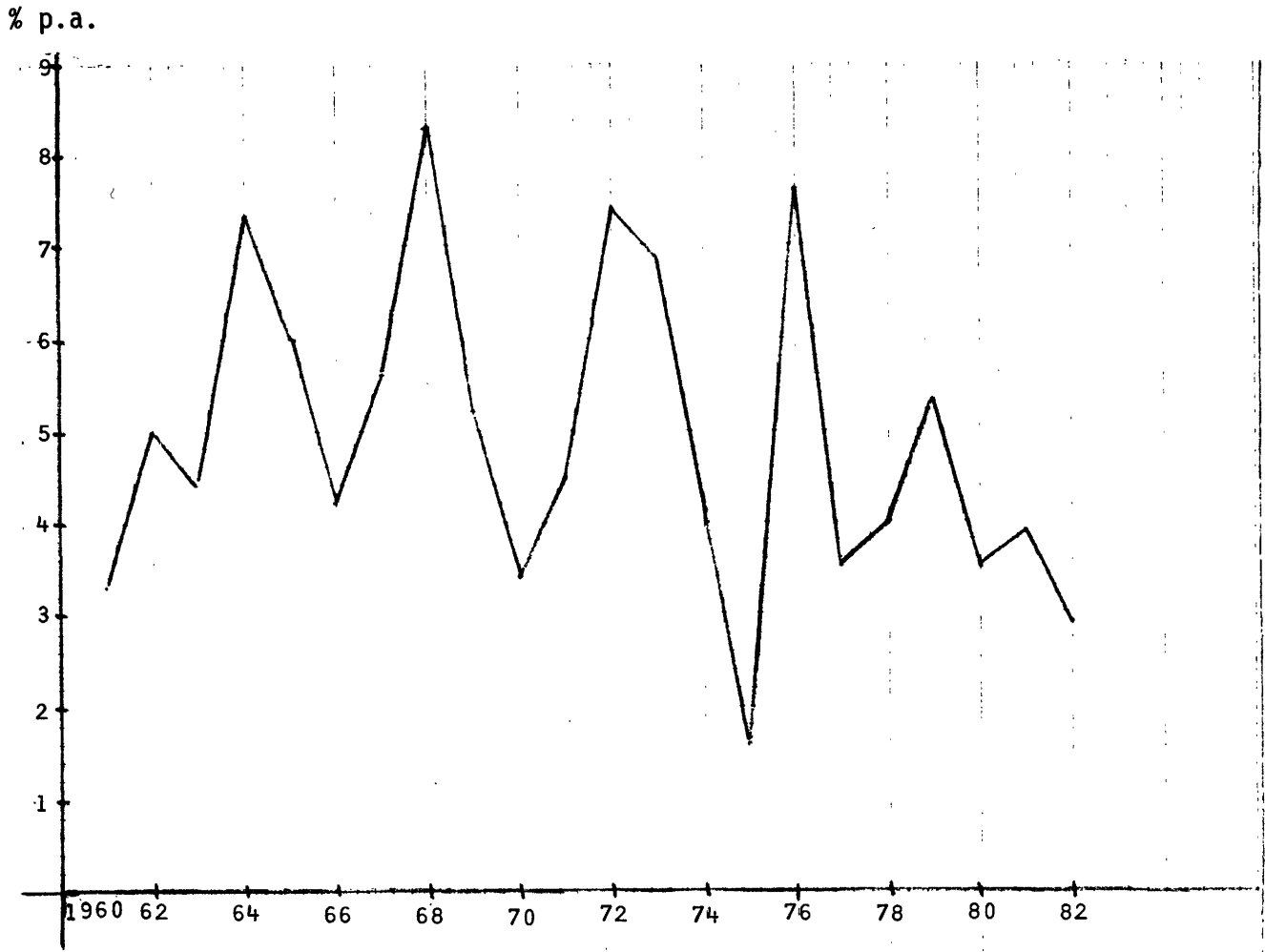


Source: European Economy, Supplement B, No.6, June 1983, p.5.

Notes: Weights by volume of industrial production. U.K. data are adjusted from data on percentage of firms working below capacity.

FIGURE 6

Rate of growth of output per manhour in manufacturing (E.C.)



Source: E.C. (Based on U.S. Bureau of Labour Statistics, Press Release, 26 May 1983).

So let us turn to the second and third possibilities: that the unemployed are not willing to work or are in the wrong skills or locations. If this was a bottleneck, one would expect that the number of job vacancies would be at least as high as normal. But, as Figure 7 shows, it is at an all-time low. So the problem looks like one of 'not enough jobs' rather than 'not enough willing and suitable workers'. In fact the striking thing is that in Europe vacancies have been well below their historic average ever since 1975. This contrasts sharply with the U.S., where the 1979 boom looks as bullish as any before it.\*

### The NAIRU

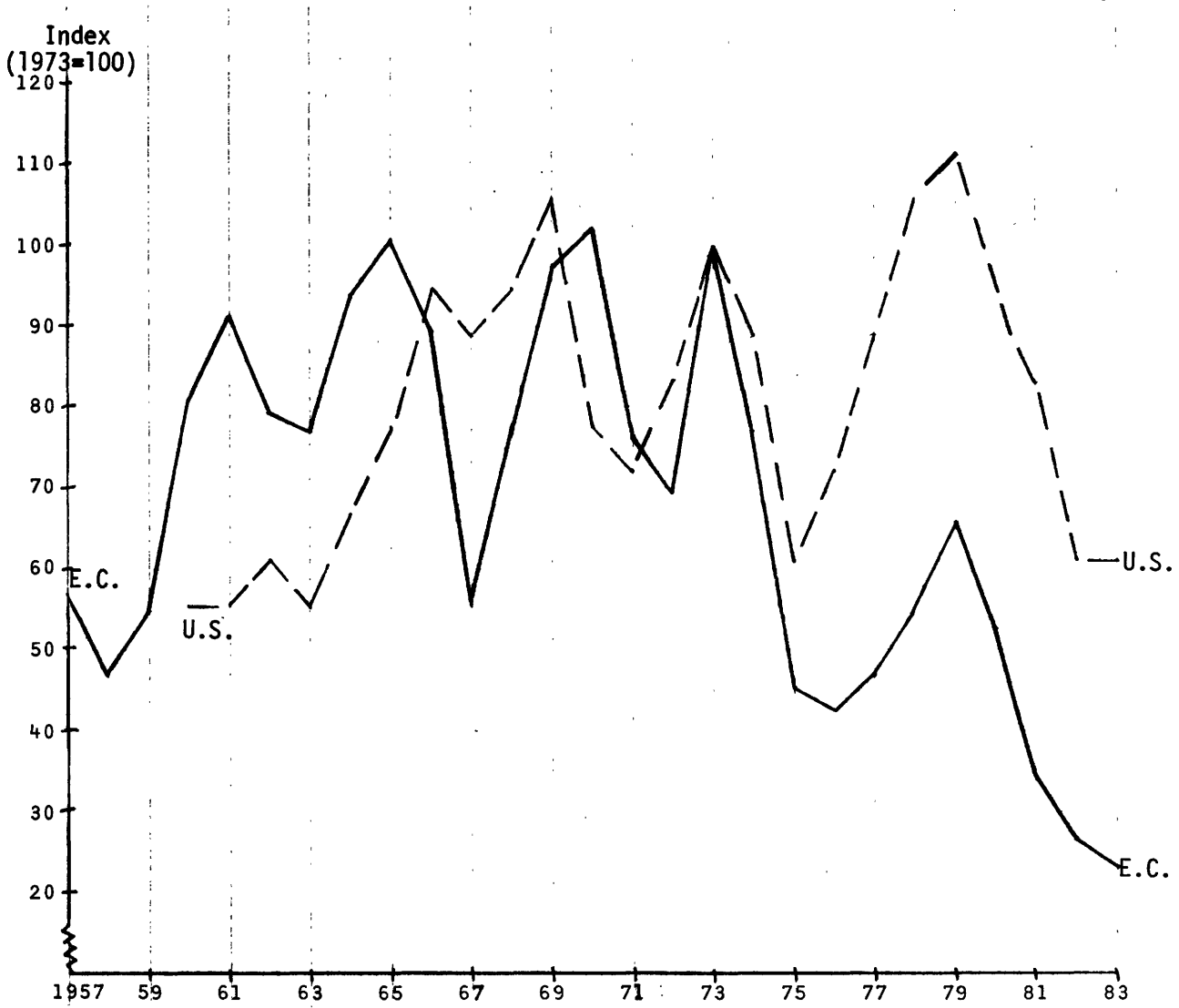
We have therefore ruled out shortages of capital or willing workers, as well as mismatch of skills or location as binding physical constraints on reflation. But what about the inflation constraints? Suppose that there have been shifts in wage-setting behaviour so that high levels of unemployment (and low levels of vacancies) are now necessary to contain inflation. To investigate this we have to look at the relation between the level of unemployment and inflation. Wage (and price) inflation have been falling sharply recently (see Figure 8), which suggests that we are well above the level of unemployment at which inflation would start to rise.

However we must do our best to estimate that critical 'non-accelerating inflation level of unemployment'. Unemployment is above the NAIRU if the rate of wage inflation is falling or if the rate of real wage growth is below its long-run trend. To find the NAIRU one therefore takes the actual rate of unemployment and adjusts it downward for the fall in the rate of wage inflation and for the excess of trend real wage growth over actual real

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\* There are of course difficulties in interpreting figures on vacancies. The European figures are based on numbers registered at public employment exchanges. For Britain we have adjusted these for changes in the coverage of the exchanges (see R. Jackman, R. Layard and C. Pissarides, 'On Vacancies', London School of Economics, Centre for Labour Economics, Discussion Paper No.165). The U.S. figures are based on the Help-Wanted Index of newspaper advertisements. There is evidence from Wisconsin and Minnesota that this tracks total vacancies well (see K. Abraham, 'What Does the Help-Wanted Index Measure?', M.I.T. mimeo).

FIGURE 7  
Vacancy rates



Source: See Figure 8.

U.S. index : Help-Wanted Index.

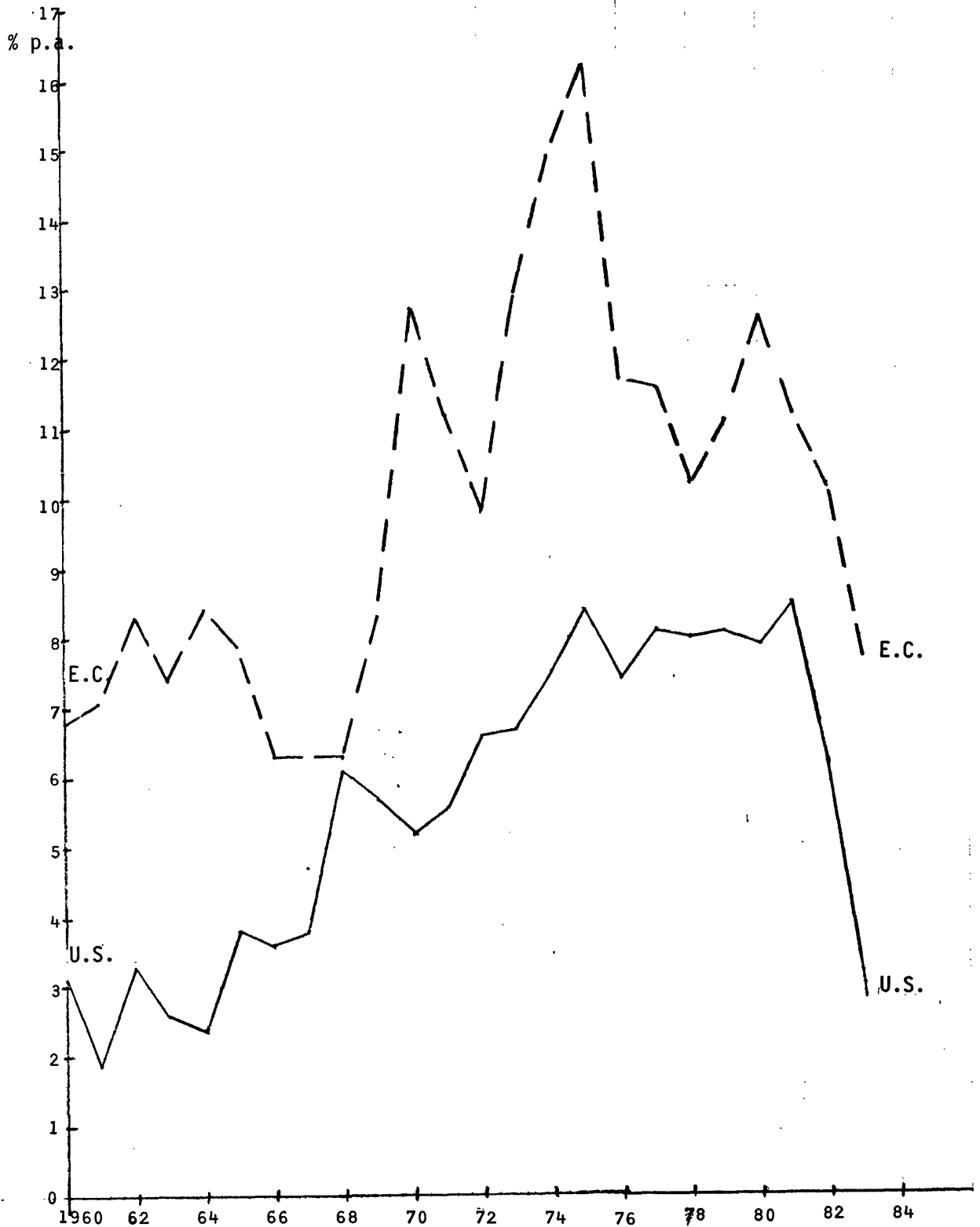
European index : Based on registered vacancies. The index is

$$100 e^{\frac{\sum a_i \log V_{i,t}}{\sum a_i \log V_{i,1973}}}$$

where  $a_i$  is the employment share of the  $i$ th country in 1975.

FIGURE 8

Rate of growth of hourly earnings in manufacturing (E.C. and U.S.)



Source: O.E.C.D. Main Economic Indicators.  
1983 figures relate 1983 (Q2) to 1982 (Q2).

Note: For E.C. figures of differences see Table 1.2.



wage growth. (Of course if wage inflation is increasing or real wage growth is too high, one adjusts unemployment upwards to get the NAIRU). The estimates we get for the NAIRU are shown below. They are very approximate since they depend on the estimated parameters of the wage equation which are subject to wide margins of error.

We show first the average unemployment rates for 1981-3 and then the corresponding NAIRU got by applying the relevant adjustments.\*

	Actual 1981-3	Estimated NAIRU 1981-3	Estimated actual 1984
France	7.3	6.9	9.0
Germany	6.7	5.3	7.8
Italy	9.4	7.7	11.9
U.K.	10.8	9.5	11.4
E.C.	8.8	7.3	10.4.

These estimates give a NAIRU for the E.C. of 7½ per cent, compared with a 1984 forecast 3 points higher than that. We should also explain that the estimates do not allow for any effect which an incomes policy, such as that now operating in France, might have on the NAIRU.

Some people may feel that estimates of the NAIRU should be based on a longer run of years than just the last three, and on a period less atypical. If so they may prefer to look back at the period 1976-80 when the estimated NAIRU averaged 5½ per cent, with the country estimates shown below.\*\*

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\* The figures are based on those given in the country data section of O.E.C.D. Main Economic Indicators and relate to unemployed as percentage of total labour force (including self-employed). The actual for 1983 is based on Q.2. The forecasts are based on E.C. estimates of the growth of unemployment.

\*\* The low estimated NAIRU in the U.K. in 1976-80 reflects the success of the 1975-77 incomes policy in holding down inflationary pressures at that time. The estimates of NAIRU thus vary with the institutions prevailing at the time.

	Actual 1976-80	Estimated NAIRU 1976-80
France	5.3	5.3
Germany	3.7	3.7
Italy	7.1	8.9
U.K.	5.5	4.6
E.C.	5.4	5.3

However realism may require that we give more weight to recent than to earlier experience. In fact our estimates suggest that the NAIRU has risen fairly steadily in the EC:

	Actual	Estimated NAIRU
1966-70	2.4	2.6
1971-75	3.2	5.3
1976-80	5.4	5.3
1981-83	8.8	7.6

No growth in structural mis-match

Although the causes of the higher NAIRU do not affect our estimates of whether slack exists, it is worth saying what we can about why the NAIRU has risen. The rise reflects two factors. First, the fall in the rate of sustainable productivity growth since the early 1970s means that more unemployment is needed to make workers willing to accept the feasible rate of real wage growth. This appears explicitly in our calculations and accounts for an increase of roughly 2 percentage points in the NAIRU.\*

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\* See for example, D. Grubb, R. Jackman and R. Layard, 'Wage Rigidity and Unemployment in O.E.C.D. Countries', European Economic Review, 21, 1983.

But there is a residual unexplained element in the rise in the NAIRU. This could reflect (a) changes in the match between the pattern of labour demanded and labour supplied, (b) changes in willingness to work, (c) changes in employment protection legislation, or (d) changes in trade union power.

Let us consider first the question of mismatch. The evidence suggests that this has not increased. We begin with Britain (Table 1). A reasonable index of structural mismatch is got by comparing the share of unemployment and the share of vacancies in each sector. If there was no structural mismatch, one might expect these shares to be the same in each sector. So an index of mismatch is provided by  $\frac{1}{2} \sum_i |u_i - v_i|$  where  $u_i$  is the percentage of the unemployed in the sector and  $v_i$  the percentage of the vacancies, and  $| |$  indicates absolute value. The index shows what proportion of the unemployed would have to move sector in order to bring about perfect balance. This index is shown in the first four columns of the table, for different classifications of jobs. Remarkably, the index tends to have a downward trend.\*

Another approach is to look at possible sources of mismatch. These are more likely to come from shifts in labour demand than from shifts in labour supply. Unfortunately there is no easy way to measure shifts in demand between sectors. But, assuming that the flexibility of the supply response is unaltered, the actual shifts in employment should be a reasonable proxy for the shifts in demand. In Table 2 therefore we compute for the main EC countries an index of the shift in the pattern of employment across industries. This starts from the annual net change in the structure of employment, which is a highly cyclical variable. To smooth the series we show its 5-year moving average. In France, Germany, Netherlands and the U.K. the index tends to rise up to the early 1970s, but to remain constant or fall thereafter. In Italy the series tends to fall fairly steadily over the whole period, and in Belgium to rise over the whole period. Thus, except in Belgium, there is absolutely no evidence of unusual disturbance in the mid to late 1970s.\*\* Evidently demand shifts caused by the

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\* It also tends to be procyclical.

\*\* If the table is recalculated excluding the agricultural sector, this conclusion is not altered.

TABLE 1

The mismatch of unemployment and vacancies in the U.K.

	By occupation (6)	By region (11)	By region and occupation (66)	By industry (27)
1962				0.25
1963				0.25
1964				0.25
1965				0.25
1966				0.25
1967		0.27		0.27
1968		0.27		0.29
1969		0.26		0.25
1970		0.23		0.24
1971		0.26		0.22
1972		0.30		0.22
1973		0.29		0.23
1974		0.28		0.23
1975	0.39	0.16		0.20
1976	0.35	0.13		0.19
1977	0.35	0.17	0.35	0.18
1978	0.37	0.21	0.37	0.17
1979	0.37	0.24	0.37	0.23
1980	0.31	0.23	0.37	0.31
1981	0.29	0.18	0.35	
1982	0.26	0.18	0.33	

Sources: Department of Employment Gazette and Monthly Digest of Statistics  
(second column only).

- Notes:
1. The mismatch index is  $\frac{1}{2} \sum_i (u_i - v_i)$  where  $u_i$  is the proportion of the unemployed in each sector and  $v_i$  is the proportion of vacancies in each sector.
  2. Numbers in brackets indicate number of sectors.
  3. 1982 is based on 3 quarters only.

TABLE 2  
Annual change in the structure of employment  
(5 year moving average)

	Eight industrial sectors						24 Industrial sectors
	Belgium	France	Germany	Italy	Netherlands	U.K.	U.K.
1953	1.8				1.5	1.1	1.9
1954	1.7				1.6	1.0	1.9
1955	1.4				1.3	1.0	1.6
1956	1.7				1.3	0.9	1.6
1957	1.8	1.5		4.3	1.3	1.0	1.6
1958	1.9	1.6		4.2	1.3	1.1	1.6
1959	2.0	1.6		3.8	1.4	1.2	1.7
1960	2.1	1.4	2.5	3.4	1.4	1.4	1.8
1961	1.9	1.5	2.7	3.1	1.4	1.5	1.9
1962	1.7	1.6	2.5	3.2	1.5	1.4	2.1
1963	1.6	1.7	2.3	2.9	1.6	1.4	1.9
1964	1.7	1.7	2.2	2.7	1.6	1.5	1.9
1965	1.9	1.7	2.2	2.4	1.9	1.6	2.0
1966	1.9	1.8	1.8	2.7	2.0	1.5	2.0
1967	1.9	1.6	2.0	2.5	2.0	1.6	2.0
1968	1.8	2.5	2.1	3.0	2.0	1.6	2.2
1969	1.8	2.2	2.9	2.6	2.0	1.8	2.4
1970	1.7	2.1	2.8	2.8	2.1	1.9	2.5
1971	1.7	2.0	2.7	2.5	1.9	2.1	2.7
1972	1.7	1.6	2.6	2.4	1.9	2.0	2.6
1973	2.1	1.7	2.8	2.1	1.9	2.4	2.6
1974	2.2	1.7	2.1	2.3	2.1	2.3	2.6
1975	2.3	1.5	2.0	2.1	2.0	1.9	2.2
1976	2.5	1.6	2.0	2.0	1.9	1.6	1.8
1977	2.7	1.6	1.8	2.0	1.9	1.6	2.0
1978	2.5	1.3	1.4	1.7	1.9	1.4	1.9
1979	2.6	1.3	1.4	2.0	2.0	1.8	2.3
1980							2.5
1981							2.8

Sources: OECD Labour Force Statistics, Department of Employment Gazette (for the last column).

Note: The index is a centred 5 year average of  $\sum |e_{i,t} - e_{i,t-1}|$  where  $e_i$  is the percentage share of the  $i^{\text{th}}$  sector in total employment. The sectors are the usual ISIC sectors, except that sectors 8 and 9 have been aggregated. Each index covers the whole labour force.

energy shock were not particularly strong, compared to earlier demand shifts. So there is no reason to suppose that Europe is suffering from an "increased pace of change" or from "increased structural imbalance".

We turn now to the effects of any change in the willingness to work and employment protection. If the unemployed have become more choosy about jobs, one would expect to see an increase in the numbers unemployed at any given level of job availability (as measured by vacancies).<sup>\*</sup> Similarly, if it were made more difficult for employers to fire workers, they would become more choosy about workers, and the number of unemployed would again rise relative to the number of vacancies. It turns out that unemployment has risen sharply relative to vacancies in both Belgium and Britain, but the reverse has happened in Germany; in the Netherlands there is little shift either way.<sup>\*\*</sup>

If the unemployed have become more choosy about jobs, there could be many reasons: a rise in the ratio of unemployment benefits to net income in work, a slacker administration of unemployment benefit or a more general decline in the work ethic. In Britain there has been no rise in the ratio of benefits to income in work since 1966, though there was a substantial rise in the 10 years before. However there is evidence of slacker administration of benefits, and of changes in attitudes to living off the state.<sup>\*\*\*</sup> Thus in some countries there is evidence of a decline in the intensity of job search by the unemployed and perhaps of problems arising from employment protection legislation. But it is not clear that this applied to all countries.

In any event this is not the whole story, even in countries where it applies in part. For in addition to the rise in unemployment at given vacancies (in some countries), there has been a big decline in the non-inflationary level

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\* See R. Jackman, R. Layard and C. Pissarides, op.cit.

\*\* There are no consistent vacancy series for France or Italy.

\*\*\* R. Layard, More Jobs, Less Inflation, p.43.

of vacancies in Britain, Germany and the Netherlands (see Appendix 1). In both Britain and Germany the fall has been more than is explained by the fall in productivity growth. This must be due to unfavourable changes in wage-setting behaviour of various kinds. One cannot pin down the causes of this but clearly the unions have had a role to play.

All of these influences are implicitly allowed for in our estimate of the current NAIRU. These estimates are sufficiently below actual levels (especially in Britain and Germany) for a judicious reflation not to run into bottlenecks. There is of course one bottleneck we did not mention in our earlier list. This is the real wage constraint. The reason is two-fold. First there is the likelihood, discussed above, that Europe is now off its neo-classical labour demand curve. The second is that, even if real wages are now binding, they may be temporarily out of line, and a reflation will tend to raise prices relative to wages. So the path of reflation is clear of physical obstacles.

#### The real costs of not reflating

Before coming to the financial obstacles, we wish to stress the physical costs of not reflating. The most obvious of these is the permanent effect on the capital stock of years of low investment. Recent experience is shown in Figure 9. A part of this dismal performance is due to the fall in the ex post rate of return on capital (see Table 3), and high nominal and real interest rates (see Figure 10). But investment functions suggest that the dominant influence on investment is the future prospective level of demand, which affects the ex ante rate of return. Unless this improves, investment is not likely to pick up much, whatever happens to interest rates and to current ex post profits.

FIGURE 9

Growth rate of gross fixed investment at 1975 prices (E.C.)

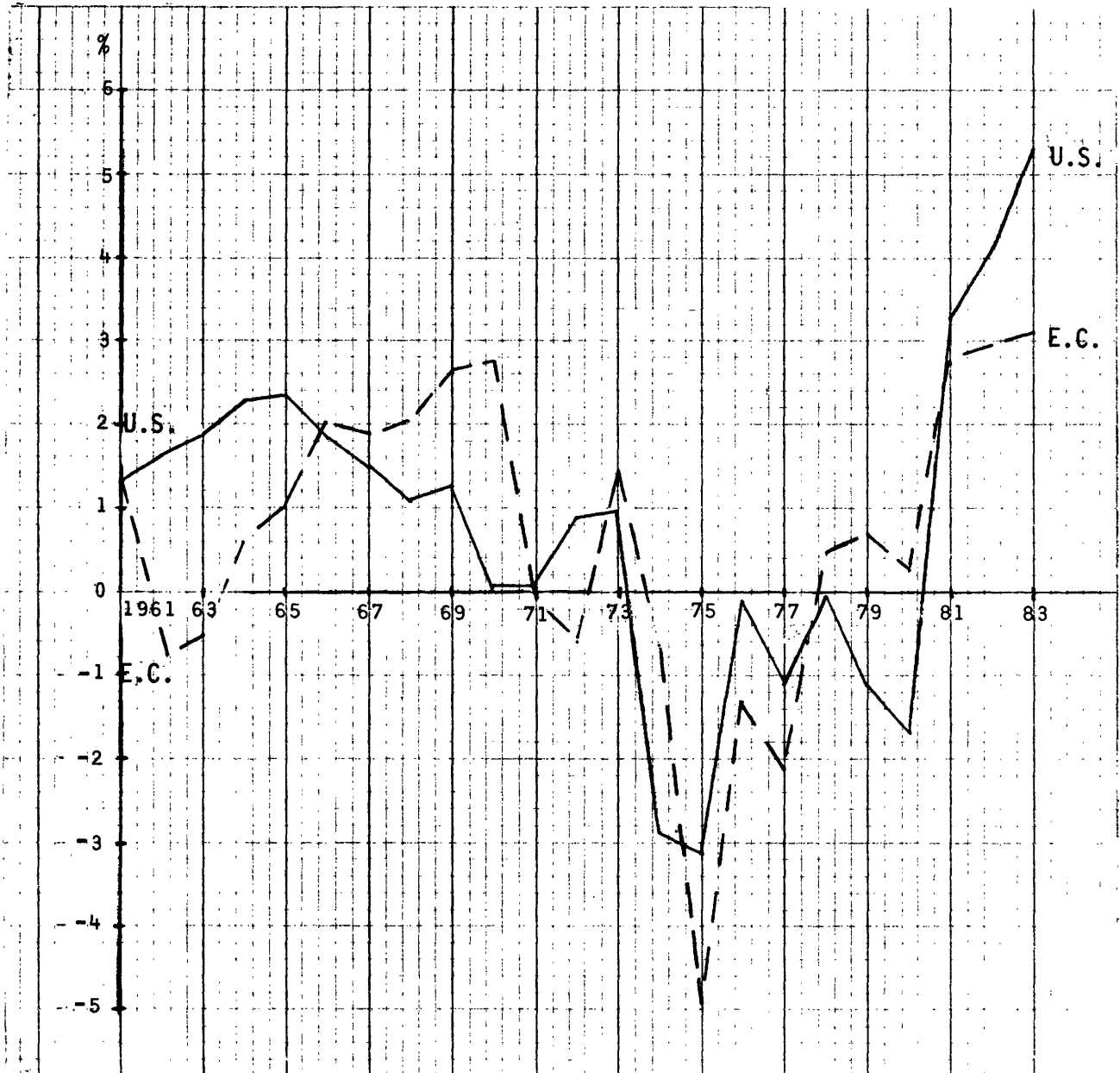


Source: European Economy No.18, November 1983, Table 15.



FIGURE 10

Short-run realised real interest rates



Source: E.C.

Note: Nominal interest rates minus growth rate of C.P.I.  
For country figures see Table A.9.

TABLE 3

Net rate of return on fixed capital (enterprises excluding construction)\*

	Belgium	Germany	France	Italy	Netherlands	U.K.	E.C. (6)	U.S.	Japan
1960-73	11.0	11.6	14.2	7.5	10.1	8.0	10.6	9.9	14.3
1974-80	6.8	8.3	7.7	1.9	8.4	2.8	5.9	7.9	3.4
1978	6.2	9.1	7.1	0.8	10.1	4.5	6.2	8.5	3.3
1979	6.0	9.6	6.8	2.9	9.0	2.5	6.1	7.8	2.7
1980	3.6	8.6	4.8	3.6	7.7	0.7	4.9	6.9	2.3
1981	2.8	7.6	5.1	0.7	6.8	0.2	4.0	6.7	2.1

Source: Estimates of the German Bundeswirtschafts Ministerium.

Note: \* Net operating surplus as % of the capital stock calculated at replacement ratio.

## 2. THE FINANCING CONSTRAINT

But many people will say that a fiscal reflation through deficit spending is either infeasible, unnecessary or perverse in its effect. In this school of thought there are thus three main lines of argument.

The first is that further fiscal expansion is simply infeasible. Current deficits are already so high that further increases would almost surely be unsustainable. They would lead later to monetisation and inflation, or to repudiation of debt. Such a path is too uncertain and too dangerous. Fiscal restraint is therefore essential.

The second is that European fiscal policy is not in fact contractionary, but neutral. It points to the continuing high level of government borrowing in both 1983 and 1984. It argues that, given the large U.S. fiscal deficits, further fiscal expansion in Europe is probably not necessary.

The last and related line of argument is that, even when feasible, fiscal policy does not work as well as its proponents suggest. Borrowing arguments from the U.S. debate, it is argued that further deficits may simply raise real interest rates, having little effect on aggregate demand, but decreasing investment and prospects for growth and a steady recovery.

We shall now review facts and arguments. Before we do so, we first focus on two issues of measurement. Two corrections are often made to the raw deficit numbers: the inflation correction and the cyclical adjustment correction. Corrected and raw numbers give different signals. Which ones should we look at?

We start with the inflation correction. The simplest inflation correction deducts from the government deficit the capital gain which the government experiences when inflation erodes the real value of its debt. Thus the

inflation adjustment counts as government revenue the size of the debt times the rate of inflation. The resulting adjusted deficit simply measures the real increase in the government debt.\* If the adjustment is not made, one gets quite the wrong impression about the increase in the burden of the debt. This adjustment should therefore be uncontroversial.

So why would anybody look at the raw deficit numbers? There are two possible reasons. The first is that monetary authorities may, as a rule, finance part of the raw deficit by monetisation. The second is that households, as holders of government bonds, suffer from money illusion and perceive nominal interest payments as real interest payments. There is substantial evidence against the first,\*\* and no evidence in favour of the second. Thus we should only look at the deficit numbers after inflation correction. Raw and corrected numbers are given in Table 4, Columns (1) and (2). While the raw numbers show consistently large deficits, corrected numbers show small but increasing deficits after 1980.

We can now look at a second approach to the inflation correction, which is concerned not with measuring the current year's change in the real government debt but with the long-run sustainability of the government's fiscal stance. To investigate this we need to measure the real interest burden of the debt by multiplying the (non-money ) debt by the long-run real rate of interest. This magnitude fluctuates less from year to year than the real interest burden implied by our previous approach.\*\*\* It is difficult to measure the real long-term interest rate, since we have no measure of long-term inflationary expectations except where (as in the U.K. since 1981) there exist indexed bonds. Clearly the long-term real rate is not constant, but for simplicity we

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\* See A. Cukierman and J. Mortensen, E.C. Economic Paper No.15, May 1983.

\*\* See G. Demopoulos, G. Katsimbris and S. Miller, E.C. Economic Paper No.19, September 1983.

\*\*\* In the previous approach the implied real interest burden was the debt times  $\left( \frac{\text{Interest payments}}{\text{Debt}} - \text{Inflation} \right)$  - a short-run concept.

TABLE 4

General government deficit as a percentage of GDP: E.C.

	Actual deficit (1)	Deficit corrected for inflation (I) (2)	Deficit corrected for inflation (I) and cycle (3)	Deficit corrected for inflation (II) (4)	Deficit corrected for inflation (II) and cycle (5)
1973	0.8	-0.3	0.1	0.3	0.7
1974	1.9	0.3	0.0	0.9	1.2
1975	5.5	4.1	2.4	4.4	2.7
1976	3.7	3.1	3.0	2.4	2.3
1977	3.3	1.8	1.8	1.8	1.8
1978	4.0	2.7	3.3	2.1	2.7
1979	3.6	1.3	2.5	1.6	2.8
1980	3.5	0.9	1.5	1.3	1.9
1981	5.4	2.8	1.9	3.0	2.1
1982	5.4	3.3	1.4	2.7	0.8
1983	5.7	3.7	0.9	2.7	-0.1
1984	5.2	3.7	0.4	1.8	-1.5
1987	2.7				

Source: Calculations kindly provided by B. Connolly. For further details see Appendix 2.

Inflation adjustment I: Minus December to December change in CPI multiplied by the mid-year estimate of net general government debt excluding the monetary base.

Inflation adjustment II: Minus nominal interest plus 2½ per cent of net interest-bearing general government debt.

Cyclical adjustment: (Actual output - trend output) x (marginal tax rate + benefit withdrawal rate). The marginal tax rate is assumed equal to the average trend tax rate (the trend being by interpolation between 1973 and 1979). Adjustment is also made for unemployment benefits. Trend output is got from a regression of actual output on time for 1960-79 with a spline for 1973 on. Years of near to trend output (and trend growth rates since 1973) are as follows:

Belgium 1979 (2.48%); Denmark 1976 (1.84%); France 1976 (2.87%);  
Germany 1977 (2.23%); Ireland 1975 (3.85%); Italy 1979 (2.41%);  
Netherlands 1973 (2.08%); U.K. 1974 (1.43%); U.S. 1977 (2.46%).

Note: Individual country figures are shown in Table A.7 and figures for the U.S. in Table A.8.

assume it is  $2\frac{1}{2}$  per cent in every year (as in the U.K. in 1981). This gives us the second inflation-corrected series in Table 4 Column (4). This is a smoother series than Column (2), and rather too smooth - the proper figure for our present concept lies somewhere between the two columns.

We turn now to the cyclical correction. This adjusts the fiscal balance upwards to what it would be on existing tax/transfer schedules if the economy were at "full employment". When this adjustment is added to the actual deficit, we have a series which shows the effect of discretionary policy changes. Columns (3) and (5) show this series plus the adjustments for inflation. Concentrating on Column (5) one can see a pronounced tightening of policy stance from 1982 onwards.

This column gives the best evidence we can provide on the sustainability of present policies, and we therefore turn now to the first of the 3 financial arguments against reflation that we raised at the beginning of this section.

#### Are the current deficits unsustainable?

This argument is that Europe cannot afford larger, even temporary, deficits without governments running the risk of bankruptcy, or large money creation. The large current deficits are already leading to increases in debt, increases in interest payments, and, thus, increases in future deficits. Stabilisation of this debt explosion requires decreases, not increases in the deficit.

To get a feel for the urgency of the problem, we can start with a simple exercise. Let's assume that the economy was at full employment and growing on trend, and that money growth and inflation were at desired levels. We can then ask what real deficit/GNP ratio would be consistent with a constant debt/GDP ratio. In other words, what kind of numbers would be acceptable in Table 4, Column 5?

Simple manipulations give\*:

$$d = gb + (g+\pi)m,$$

where  $d$  is the real deficit/GDP ratio,  $b$  the debt/GDP ratio,  $g$  the trend rate of growth of real GNP,  $\pi$  the rate of inflation, and  $m$  the ratio of high powered money to GNP. The first term captures the effect of trend real growth, which permits some deficit finance even with a constant debt/income ratio. The second term captures the effect of inflation finance. If target inflation is positive, some of the deficit can be safely financed by money creation. Using, for example, 2 per cent for  $g$ , 5 per cent for target inflation and actual E.C. values of  $b$  and  $m$ , one obtains a value of  $d$  of around 1 1/4 per cent, divided equally between the two components.

This computation suggests that corrected deficits of 1 1/4 per cent of GDP are perfectly sustainable. Let us turn now to the columns of Table A 7 corresponding to Table 4 Column (5). This suggests that most countries are now running surpluses rather than deficits, Denmark and Italy being exceptions. So present policy is easily sustainable. However the table also shows that in the late 1970s the position was different, and some countries, such as Ireland, were well outside the sustainable range. Since then there has been a major pulling in of horns in most countries. Clearly some retrenchment was necessary, but it has unfortunately been overdone.

It may be argued of course that we are over-optimistic to compute deficits as they would be if output returned to its former trend. If instead there was no recovery of employment, we should compare our numbers for  $d$  to the actual deficit, not to the full-employment deficit. Even this comparison however does not suggest serious problems of sustainability, once allowance has been made for inflation (see the 1984 entry in Column (4) of Table 4).

\* If  $D$  is the deficit,  $B$  the debt,  $M$  high-powered money and  $Y$  income (all in nominal terms) then

$$D = \dot{B} + \dot{M} \text{ and } \frac{D}{Y} = \frac{\dot{B}}{B} \frac{B}{Y} + \frac{\dot{M}}{M} \frac{M}{Y}$$

If nominal bonds, money and income grow at the same rate  $(\pi + g)$ , this implies that

$$\frac{D - \pi B}{Y} = g \frac{B}{Y} + (\pi + g) \frac{M}{Y}$$

Moreover we are in fact being over-cautious in our approach. For, even if deficits exceeded their sustainable level, it would obviously not imply bankruptcy - only that fiscal policy will have to change at some time in the future. The relevant set of issues is then about the rates at which taxes can be increased, or expenditures decreased. In this respect, a large ratio of debt to GNP, and thus a high level of debt service, considerably reduces the degree of flexibility of fiscal policy. This raises the question of the optimal debt/income ratio. In what range can a country easily afford further real debt growth and in what range do serious issues of financial instability arise? There is very little systematic evidence on this point available. It is clear that in Europe, debt/income ratios show a wide range across countries, but no systematic study has been done to show whether these debt ratios play an important role in public finance or in generating inflation. Of course, in principle we would expect that debt/income ratios are closely linked to questions of supply side economics. If taxation is used to service the debt, the presumption of an increasing marginal social cost of taxation may imply that issues of efficiency could come long before those of financial instability.

A complicating point emerges from the experience of many LDCs that borrowed extensively in the period of the oil shocks, when real interest rates were negative.\* They are finding today, with positive real interest rates, that they have suffered an extreme, adverse real income shock. The debt service burden has risen from nothing to a significant share of GDP and proves to be the source of domestic financial and real instability. The example points to the fact that debt/income ratios are only meaningful indicators of fiscal policy if real interest rates move little and if the

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\* For the history of short-run real interest rates see Figure 10 above.



determinants of tax receipts are unlikely to shift much. Unanticipated changes in real interest rates or in the tax base can imply that comfortable debt/income ratios suddenly become unsustainable.

Overall, the sustainability argument does not seem well founded. Europe as a whole can well afford larger deficits for a few years without governments running into bankruptcy or excessive money finance.

What is the current E.C. fiscal impact?

It is wrong to assess the effect of fiscal policy on aggregate demand by looking only at actual or full employment deficits. One has to look at both the level of public spending and the level of the debt, as well as the deficit, to get an accurate assessment of the effects of fiscal policy.

It is useful to distinguish between the spending and finance components of fiscal policy. Suppose for example, that the government always ran a balanced budget. Any permanent level of expenditures would then be associated with an equivalent level of taxes. Even if the effect of taxes on consumption were to offset the direct effect of permanent changes in government spending, leaving aggregate demand unchanged, short-run changes in government spending would still affect total demand. Temporary decreases for example in government expenditures, even accompanied by lower taxes are unlikely to be fully matched by a corresponding increase in private spending. Table 5a looks at the deviations of government expenditures from trend, for the E.C., the U.S., Japan and Canada. Deviations are positive for the E.C. during the whole period.\* They have however steadily decreased since 1980. Thus the effect of the spending component of E.C. fiscal policy has been contractionary since 1980.

There is however a second component to fiscal policy, the finance component. Governments run deficits and issue debt, and this has additional effects on aggregate demand. Debt is net wealth to its holders and positively

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\* We assume that up to 1981 people assumed that "permanent" exhaustive spending was as in 1977 augmented by trend. After 1981 they assumed permanent exhaustive spending to equal the full employment tax-take at 1981 average tax rates (less transfer payments at full-employment).

affects consumption demand. Likewise (given government spending) large current or anticipated deficits, which imply a deferral of taxes, increase private spending. Table 5b gives the behaviour of debt to GDP ratios over time.\* The figures show a steady increase in the debt to GDP ratios during the whole period. Table 5c and 5d give actual and full employment deficit measures. (These are net of interest payments, since, as we have already looked at debt in Table 5b, leaving interest payments in the deficit measure would be double counting). It is reasonable to assume that anticipations of future deficits lie in between actual and full-employment deficits and thus both are reported. The E.C. is experiencing positive but decreasing actual deficits; this corresponds to growing full-employment surpluses (again, not including interest payments).

How do all these elements combine to affect aggregate demand? This is a matter of theory, not of statistics. Extreme Ricardians would for example argue that only the spending component of fiscal policy matters, and that deficits and debt are irrelevant. In the appendix, we derive an index based on a less extreme view of the world and allow for a role of the finance component. The values of this index are given in Table 6. The index gives substantial weight to the full-employment deficit; as a result, it shows a positive but sharply decreasing contribution of fiscal policy to aggregate demand. If for example we assume a multiplier of 2,\*\* the fiscal contraction from 1982 to 1983 may be responsible for 2-3 per cent less growth. The index is based on many assumptions which can all be questioned. The message is however quite clear: current fiscal policy is a drag on the recovery.

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\* Debt figures for the E.C. are based on Commission work on sectoral balance sheet data, to be published in Studies in Banking and Finance (North-Holland, forthcoming). The figures therefore differ from those reported in Table 5.5 of the E.C. Annual Review. Extrapolations to the most recent years have been shown on the basis of general government financial deficits, which do not include changes in the market value of the debt.

\*\* This reflects the influence of short-run liquidity or disposable income constraints on private consumption and investment. The "balanced-budget multiplier" is therefore not zero but positive.

TABLE 5

Aspects of fiscal policy. (% of trend GDP)

(a) Deviations of government non-transfer expenditures from trend				
	(Expenditures as % of trend GDP in brackets)			
	E.C.	U.S.	Japan	Canada
1977	0 (20.2)	0 (19.8)	0 (16.7)	1.3 (23.6)
1978	0 (20.3)	0 (19.8)	1.0 (18.3)	1.1 (23.4)
1979	0.2 (20.6)	-0.2 (19.6)	1.5 (19.4)	0 (22.3)
1980	1.7 (22.2)	0.7 (20.5)	1.6 (20.1)	1.0 (22.0)
1981	1.5 (22.1)	0.5 (20.3)	1.8 (20.9)	1.2 (22.2)
1982	1.0 (21.6)	0.2 (20.0)	1.3 (21.0)	1.2 (22.2)
1983	0.8 (21.3)	0.2 (20.0)	0.3 (20.6)	0.7 (21.7)
1984	0.6 (21.1)	0.3 (20.1)	-0.3 (20.0)	0.6 (21.6)
(b) General government debt				
	E.C.	U.S.	Japan	Canada
1977	17.5	29.0	4.9	17.0
1978	19.9	27.6	5.0	20.7
1979	20.3	24.6	10.6	26.7
1980	20.7	20.0	12.5	30.1
1981	21.9	18.3	16.8	34.3
1982	24.5	18.5	21.5	36.1
1983	27.4	20.2	25.2	47.4
1984	30.6	21.8	28.5	59.2
(c) Actual deficit, excluding interest payments				
	E.C.	U.S.	Japan	Canada
1977	1.4	-0.3	3.2	0.4
1978	1.9	-1.3	5.2	0.7
1979	1.3	-1.8	3.4	-0.7
1980	1.0	-0.1	3.2	-0.3
1981	2.3	-0.8	2.7	-2.0
1982	2.0	1.8	2.6	1.2
1983	1.8	1.6	1.4	1.9
1984	1.0	1.1	-0.1	0.5
(d) Full-employment deficit, excluding interest payments				
	E.C.	U.S.	Japan	Canada
1977	1.4	-0.3	3.0	0.0
1978	2.4	-0.5	5.7	0.5
1979	2.4	-1.0	4.5	-0.8
1980	1.6	-0.4	4.1	-1.6
1981	1.5	-1.1	3.5	-3.4
1982	0.2	-0.4	3.0	-4.2
1983	-0.9	-0.1	1.4	-3.2
1984	-2.1	0.4	-0.3	-4.0

Note: Calculations kindly provided by B. Connolly. See Appendix 2 for data sources and methods.

TABLE 6

Index of fiscal stance. (% of trend GDP)

	E.C.	U.S.	Japan	Canada
1977	2.8	2.2	3.5	2.5
1978	3.9	1.5	6.8	3.1
1979	4.0	0.6	6.3	1.4
1980	4.0	1.8	6.2	1.8
1981	4.6	0.8	6.1	0.5
1982	3.3	1.6	5.6	0.8
1983	2.4	1.7	3.6	2.3
1984	1.5	2.2	1.9	2.1

Note: See Appendix 2 for details of construction.

Can fiscal expansion impede recovery?

Can fiscal expansion be perverse - that is, can it slow down the recovery? The answer is that it can, but only under very special circumstances. These might have been there in the U.S. in 1982, but they are easy to avoid in Europe in 1984. The perverse effect might arise as follows. Ignore for the moment the fact that Europe is a very open economy, and consider a move of fiscal policy towards larger deficits. If these deficits are expected to be there even after the economy has returned to full employment, then real interest rates will be expected to be high in the future. These high expected real interest rates lead to current high long real rates. There is little that monetary policy can do to lower these long real rates; fiscal expansion at full employment must be associated with higher real rates, irrespective of monetary policy. These high long rates may in turn depress economic activity more than current deficit spending directly stimulates it. Fiscal expansion would then be perverse. In an open economy such as Europe, the effect on long rates will clearly be much smaller, but a similar perverse effect might arise through exchange rate appreciation.\*

This analysis makes it clear that perverse effects are avoided if the fiscal expansion is explicitly temporary, and planned to be phased out when the economy returns to full employment. Thus we recommend a temporary fiscal expansion, with an emphasis on investment. Investment responds more strongly to temporary fiscal stimulus than consumption, and is currently affected adversely by high world real rates and the deep recession.

Such a fiscal expansion, to the extent that it is successful will, through increased activity, increase interest rates and tend to make the E.C.U. appreciate. Monetary policy could then be used to maintain the real effective value of the E.C.U.

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\* See O. Blanchard and R. Dornbusch, 'US deficits, the Dollar and Europe' E.C. Economic Paper No.24, December 1983.

### 3. THE COORDINATION CONSTRAINT AND THE ROLE OF THE E.C.

The previous parts have established the need and feasibility, in principle, of an expansion. But there remains a highly controversial issue regarding the means. One camp claims that coordination is the sine qua non of expansion, while another camp asserts it is unnecessary.

The Kieler Schule maintains that the pursuit of national self-interest will ensure an optimal national policy without the need for coordination. Useful international interaction is limited to the exchange of information. This point has been most uncompromisingly stated by Roland Vaubel:\*

"International differences in stabilisation policies lead to temporary real exchange-rate changes only if stabilisation policies are volatile and unanticipated. Thus, all countries have an incentive to avoid unanticipated stabilisation policies: monetary expansion, public expenditure, and public debt "management" should all be preannounced. By preannouncing their policies, or the rules by which they are formed, governments would ensure an optimal supply of the only (international and national) public good that is at stake in regard to stabilisation policy as such: the public good of knowledge about government behaviour. But there is no welfare-theoretic argument to the effect that such knowledge should be supplied on the basis of joint international decision-making."

The view that preannouncement of policies is the cure-all in macroeconomics is both naive and extreme. As an objection to coordinated international policies, it is inappropriate in two respects. First, by assuming that there is no macroeconomic problem (other than alleged policy instability) it dismisses the case for stabilisation policy before the issue of coordination even arises. Second, among the range of preannounced policies or policy rules is certainly the possibility of vigorous anti-cyclical policy. An activist rule might go as follows: whenever E.C. unemployment exceeds  $x$  per cent, and is identified in good part as Keynesian, every member country will create investment incentives and marginal employment credits on a scale  $y$ .

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\* R. Vaubel, 'International Coordination or Competition of National Stabilisation Policies? A Welfare-Economic Approach', Institute of World Economics, Kiel, March 1983, p.20.

Policies of this kind are indeed necessary, over and above the existing automatic stabilisers. Having failed to follow these policies in time, the recession now makes it imperative to catch up with the task.

Another adverse reaction to coordination is based on the poor experience of 1978. At that time coordinated expansion was given little chance to prove itself due to the second oil shock. Hence even some of those who, in principle, accept the desirability of coordinated expansion have a lingering fear that everybody expanding together might just lead to another bad experience.

This is a peculiar line of argument in the current deep recession. Few, if any, of its proponents would feel that export-led growth is hazardous. Indeed, they would all express a preference for (miraculous) export growth over home-made expansion. But that is an important part of what a coordinated expansion provides.

So let us examine the general argument for coordination. If a country reflate, it can either maintain its exchange rate by keeping a high enough interest rate, or it can allow its exchange rate to depreciate.\* Consider these cases in turn. At a fixed exchange rate, a reflationary country captures only part of the employment benefits of the extra money spent or the money not collected in tax. Thus debt is issued, in part, to finance an employment programme in the rest of the world.\*\* To service the extra debt (much of it owed to foreigners) future taxes have to be raised. Since much of this pays for employment creation abroad (the counterpart of the deterioration in the current balance), this limits the country's enthusiasm to spend its way to prosperity.

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\* We omit the possibility of appreciation, since this is harmful to the internationally-exposed sector and would raise interest rates more than most countries would wish.

\*\* If reflation can be achieved by a balanced budget expansion, then there is no "cost" of reflation stemming from a higher public debt but there is still (i) the problem of the current account deficit increasing, and (ii) the problem that the financing of this worsening of current account, at the existing exchange rate, may require a rise in real interest rates.

The alternative is to let the currency depreciate in order to stimulate employment while maintaining external balance. But most countries will not wish to do this since depreciation is inflationary. A country is therefore caught in a position where it will choose the path of maintaining the exchange rate through increasingly tight money and high interest rates. If the expansion eventually raises inflation relative to inflation rates abroad, devaluation will ultimately become inevitable unless the expanding country quickly pulls in its horns.

There are significant differences between countries in the cost-benefit ratio for home-made, isolated expansion. For soft-currency countries expansion implies an exchange rate problem relatively soon.\* At that point a country faces one of three options: raise interest rates to defend the exchange rate, implying the need to accept the unfavourable effects of a lopsided expansion; alternatively the country can accept an exchange depreciation that closes the current account, but does so at the expense of sharply increased inflation; or else it can forego the expansion altogether. If expansion is in fact pursued, that policy will be effective in creating employment, the more so if there is an exchange depreciation, giving additional help through improved net exports, but also increasing inflation.

In a hard-currency country the exchange rate is not a problem and therefore fiscal policy is less effective. More of the extra deficit spills

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\* The key difference between a hard - and soft - currency country is that in the former a temporary monetary or fiscal expansion is not so likely to be interpreted as a permanent expansion.



into increased jobs abroad, and therefore the cost-benefit ratio is adverse to expansion. Even though it is not costly in terms of inflation, it buys relatively less in terms of jobs.

The coordinated expansion solves everyone's cost-benefit problem. The hard-currency country does not "lose" so much of its fiscal expansion abroad and the soft-currency country, in exchange, enjoys a better inflation performance. In a coordinated expansion both types of country face more favourable cost-benefit ratios and will therefore be willing to pursue more nearly optimal policies. In principle there should be a "market" for these policies, but the transactions costs require the operation of an intermediary. It is a major rationale for the institutions of the E.C. to perform this function.

We developed the argument in our last report,<sup>\*</sup> but let us repeat a few basic points. If one country expands on its own at a constant exchange rate, it boosts demand in other countries. In making its own selfish plans it does not place much weight on this. But if it could persuade others to do the same, it would benefit from the others' expansionary policies. Coordination is thus in the selfish interest of each country. But it is difficult to achieve. This is a classic case of externality, which can only be overcome by the development of institutions which reduce the transactions costs and truly promote the common good.

In the process each country will experience a given expansion of output at lower net budgetary cost and a lower balance of payments cost than if it had acted on its own. The potential gains are thus large. We cannot however

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\* R. Dornbusch, G. Basevi, O. Blanchard, W. Buiter and R. Layard, 'Macroeconomic Prospects and Policies for the European Community', Centre for European Policy Studies, Paper No. 1, April 1983. See also O. Blanchard and R. Dornbusch, op.cit.

expect all countries to contribute the same. We therefore repeat our previous suggestion for a package which would leave the weak currency countries with an unchanged budget deficit or an unchanged current account.

When we suggested this, unemployment in the Community was 9.6 per cent. It is now 10.4 per cent and not expected to fall below this before 1988. Our proposals therefore seem even more pressing than when we last made them. And, we repeat, 1984 is not 1978. If there was ever a time when the case for reflation was compelling, this is it.

There is one further direction in which coordination should be pursued. There is world-wide agreement, it seems, that the prospective U.S. long-run deficits are harmful to the world economy. It is also the case, less generally agreed, that European recovery is too slow and too precarious. The natural conclusion is some intertemporal trade: more rapid European recovery through fiscal stimulus, traded off for reduced long-run U.S. deficits.

#### 4. POLICY ACTION

We come now to our proposals. First, and most urgent, are those relating to the reflation of demand. These are implicit in what we have already said but let us spell them out again more fully (as Proposals 1-3). Second, we turn to the problem of reducing the NAIRU. In the long-run this is the most important problem facing the E.C. and we make three proposals (4-6) which we consider crucial in this context.

##### 1. Fiscal reflation

There should be an aggregate fiscal expansion, linked to an accommodating monetary policy designed to maintain the effective exchange rate of the E.C.U.

##### 2. Coordination with an emphasis on Germany and Britain

The fiscal expansion should be coordinated by the E.C. and greater in countries with currently tight fiscal policies (especially Germany and Britain). Countries with weak fiscal positions or weak external current accounts should not be expected to expand beyond the point where these deficits become worse. If possible the European fiscal expansion should be coordinated with a reduction of the U.S. fiscal deficit.

##### 3. Temporary investment boost and marginal employment subsidies

The fiscal expansion should be temporary. There should be a temporary boost to public investment plus an extra investment subsidy paid only on investment undertaken by a certain date. In addition there should be a temporary employment credit linked to employment growth. For example each firm could be given a credit of  $s(0.1N)$  (E.C.U.s) where  $N$  is employment. If, instead, this same amount of money had been used to subsidise all workers, the credit per worker would have been only  $0.1s$  - that is only 10% of the amount under the marginal employment credit. Thus, in so far as it is the marginal cost of labour which determines employment, the marginal credit would be ten times as effective as the average credit. It should therefore impart a substantial boost to employment.

But it should be temporary, for two reasons. First we envisage it as being financed by an increase in the budget deficit. We have always argued that such increases should be temporary. But in addition a marginal subsidy will be much more effective if it is explicitly temporary, so that firms can only collect the subsidy if they expand within the stated period rather than later.\* We believe that a major marginal subsidy of this kind is an ideal component of an expansionary package.\*\*

#### 4. Incomes policy using tax incentives

We turn now to measures to reduce the NAIRU. Some possible steps follow from our earlier analysis of the determinants of the NAIRU. Better training arrangements and better housing policies can reduce the mismatch between workers and jobs in terms of skill and location. Stricter administration of unemployment benefits can reduce abuse, though we would strongly oppose reduced levels of benefit. Modifications of employment protection legislation can encourage firms to hire more workers. Restrictions of union monopoly powers can also help. But more than this will be needed. We concentrate on two major proposals.

To prevent the resurgence of inflation, countries will have to be willing to experiment with various forms of incomes policy. The distortions involved will almost certainly be less than the costs of high unemployment.

One approach is direct central control of the rate of growth of wage rates, or better still average hourly earnings. This could be either by statute or by voluntary agreement between the social partners. There are

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\* A permanent credit for increases in employment over the previous year will only induce increases in employment this year rather than next in so far as the firm values a credit more this year than next. Thus if the scheme were expected to last for ever, the effective rate of subsidy is  $\delta s$  where  $\delta$  is the discount rate and  $s$  the subsidy.

\*\* On marginal employment subsidies see OECD, Marginal Employment Subsidies, 1982, and R. Layard and S. Nickell, 'The case for subsidising extra jobs', Economic Journal, March 1980. The British Small Firms Employment Subsidy of 1977-79 is a prototype of what we are advocating.

however two main difficulties with this type of approach. First, it impedes the adjustment of relativities which is necessary for economic efficiency. Second, it eliminates any meaningful collective bargaining (except possibly at the highest level where the incomes policy itself is bargained). This often generates massive political unrest which leads to the breakdown of the policy.

There is therefore a strong case for promoting wage moderation by fiscal incentives rather than by regulation from above. Tax-based incomes policy has been discussed but never implemented in a form that had any hope of success.\* For success requires simplicity. We therefore suggest for consideration a tax where there is a norm for the growth of average hourly earnings at the level of the firm. If the firm exceeds the norm it pays a tax on that part of the wage bill corresponding to the excess wage growth. Smaller firms could be exempt from the tax (and if necessary given less favourable tax treatment in some other way to offset this advantage).\*\* To ensure that at the aggregate level the tax is not passed on in prices, the tax proceeds should be used to finance a per capita employment subsidy. Thus since the tax will lower wages it will also lower average labour costs.

The workings of the tax are analysed briefly in Appendix 3. It may or may not be the ideal scheme. But it would be a tragedy if countries did not search out for themselves new methods of controlling inflation, rather than relying indefinitely on high unemployment to do the job for them.

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\* The French prelevement conjoncturel which lasted for 8 months in 1975 was an employer tax on the excess growth of value added per unit of factor input above a norm. There are obvious difficulties in the calculation of factor input, and obvious planning problems for the firm since real value added per unit of input is so sensitive to unpredictable demand factors.

\*\* For a fuller discussion, including administrative issues see R. Layard, 'Is incomes policy the answer to unemployment?', Economica, 49, August 1982, or more briefly D. Grubb, R. Layard and J. Symons, 'Wages, unemployment and incomes policy' in M. Emerson (ed.) Europe's Stagflation, O.U.P. forthcoming, or R. Jackman and R. Layard, 'An inflation tax', Fiscal Studies, Vol.3, No.1, pp.47-59. For an earlier discussion see the special issue of the Brookings Papers on Economic Activity 1978, 2, devoted to this proposal.

## 5. The reform of employment taxes

We also have to find some permanent method of pricing more people into jobs. In other words we have to find a way of reducing the long-run real labour cost (relative to productivity). The obvious way is to subsidise employment. This normally raises heckles because it is assumed that the costs of raising the necessary money would be at least as great as the benefits from the subsidy. However if we have a per worker subsidy financed by a wage-bill tax this will do the trick in a whole variety of possible types of labour market. The matter is discussed more fully in Appendix 3. If the economy is one where wages are basically set by unions, the switch of tax structure will make the effective demand curve faced by unions much more elastic. Thus if they demand an extra ECU in wages they will suffer a greater loss of employment. They will thus settle for lower real wages, and employment will rise. If the economy is one where wages are basically set by firms, the wage tax will lead to a fall in wages equal to the tax (thus leaving labour cost unaffected), while the subsidy will reduce labour cost and thus boost employment.

The argument we have developed so far is in terms of homogeneous labour. It is even more powerful once one takes into account the differences between markets. The unemployment rates of unskilled workers are, in many countries, as much as four times the national average. This almost certainly means that there is more slack to be taken up in these markets than in others. Thus a shift in demand into those markets would enable us to raise the aggregate employment rate and aggregate welfare. This could be achieved by reducing net taxes in the unskilled market, financing this by some increase in net taxes in the skilled market. This is exactly what the restructuring we have been discussing would bring about since a given per worker credit is a higher

fraction of a low wage than a high wage. If it is financed by a tax proportional to wages, the net tax burden on low wage workers will fall, and the net tax burden on high wage workers will rise.

We therefore suggest for urgent consideration a restructuring of employment taxes to include a lump-sum credit linked to a higher rate of proportional taxation on the wage bill. There should be no net increase in tax burden.

#### 6. No to work-sharing

We have listed many things that should be done, but we wish to end by saying what not to do. Many Europeans have become very pessimistic and have begun to think there is no way to create more work. They therefore advocate spreading the available work over more people by reducing the hours worked by each person. But the question is whether the amount of work to be done would stay constant if there were a reduction in hours per worker. The obvious danger is that if hours per worker were reduced, there would be a rise in real hourly wages, which would then reduce the total demand for man-hours. One might of course argue that an employment subsidy could be used to offset this but in that case why not use the employment subsidy to promote an expansion of man-hours rather than to avert a contraction.

In order to think about the effect of a reduction of hours one must specify how wages are set (see again Appendix 3). Suppose they are set by unions, with decentralised unions setting wages in each sector. The level of unemployment in the long-term will be such that each union is willing to settle for what they expect each other union to get. For if not, there would be accelerating inflation as ~~one group tried to outdo the other.~~ So this is the function of unemployment: to make unions settle for the prevailing wage. It is easy to see that a change in hours is not going to change the level of unemployment at which the necessary discipline on

wages is exerted. It follows that if hours per worker are reduced, unemployment will not fall but man-hours will and so will output. If by contrast we think of wages as set by firms, the same conclusion follows. Again it takes a certain amount of unemployment to stop firms trying to outbid each other for labour and thus set in motion an inflationary spiral.

We can thus summarise the dangers of artificial reductions in hours of work. As unemployment falls, inflationary pressure develops. The government is not willing to accept this inflationary pressure and the economy becomes deflated. So total output is not constant (as the advocates of work-sharing assume) but falls. The community thus becomes poorer and there is a smaller tax base from which to finance the social services.

Exactly the same analysis applies to early retirement. It appears to provide work for younger people. But by tightening up the labour market, it adds to inflationary pressure and thus encourages governments to cut back on the total level of demand.

Having given our views in this forthright manner, we should add some points of qualification. First we are of course in favour of the long-run trend to shorter hours of work and shorter working lives. As people become richer, they naturally choose to take more leisure. But this should be a matter of choice. An artificial limitation on hours, even if 'voluntarily' negotiated by a trade union, is not necessarily what the individual would choose. It is this which should count.

Similarly we favour more flexibility in work arrangements. It may make sense to provide part-time unemployment benefit for people unemployed for part of the week, if this helps to reduce the number of people wholly unemployed.



Finally there may be certain circumstances in which it makes sense to treat the total level of output as given in the short-run. If this is the case and there is excess labour around, it is more humane to share the work than to concentrate it on fewer workers. Thus as an emergency measure, temporary work-sharing schemes can make sense. But this assumes that real hourly wage costs are held constant. This may be easier to achieve in schemes where a new job is split between two new recruits, than in schemes where existing workers are expected to take cuts in their real weekly earnings.

Given these qualifications the advocates of work-sharing are probably hoping for more than it can deliver, even in the short-run. And as we have said, we do believe there are other ways of reducing unemployment - both in the short-term and the longer-term. In the short-term a Westward look could do no harm.

APPENDIX 1

Estimates of the NAIURU<sup>†</sup>

To calculate the non-inflationary level of unemployment we first estimate a wage equation of the form<sup>\*</sup>

$$\dot{w} = \alpha \dot{p}_{-1} + (1-\alpha) \dot{w}_{-1} - \beta U + \delta_1 t + \delta_2 t^2 + \xi + \varepsilon$$

where  $\dot{w} = \log W - \log W_{-1}$  (W being the money hourly wage in manufacturing),  $\dot{p} = \log P - \log P_{-1}$  (P being the consumption deflator), U is the unemployment rate, t time (1950 = .01, 1952 = .02 etc.),  $\xi$  a constant, and  $\varepsilon$  the period-specific error. This is best thought of (and estimated) in the following form

$$\dot{w} - \dot{w}_{-1} = \alpha (\dot{p} - \dot{w})_{-1} - \beta U + \delta_1 t + \delta_2 t^2 + \xi + \varepsilon. \quad (1.1)$$

The results, estimated on annual data for 1957-1983, are shown in Table 1.1, together with results for a similar equation including  $\log V$ .<sup>\*\*</sup> In Table 1.2 we show how the equation explains the path of E.C. wage inflation year by year up to 1983. The equation explains quite well in recent years. The perhaps surprisingly low rate of fall in wage inflation in recent years is, in part, 'explained' by the very low rate of lagged real wage growth.

To use the equation to estimate the non-inflationary rate of unemployment, we set  $\dot{w} - \dot{w}_{-1} = 0$  and  $(\dot{w} - \dot{p})_{-1}$  equal to the warranted rate of real wage growth ( $\dot{z}$ ). This gives us the following estimate of non-inflationary unemployment (U\*):

$$U^* = \frac{1}{\beta} (-\alpha z + \delta_1 t + \delta_2 t^2 + \xi + \varepsilon) \quad (1.2)$$

+ This note was prepared with the kind assistance of D. Grubb.

\* We also used  $\log U$  rather than U. The t-statistics were on average very similar.

\*\* In principle U and V should be instrumented but we have found that this makes no substantial difference to the results.

TABLE 1.1  
Wage equations 1957-83

	$(\dot{p}-\dot{w})_{-1}$	U	100 log V	t	t <sup>2</sup>	$\xi$	s.e.(100)	R <sup>2</sup>	D.W.
Belgium	0.78 (4.5)	-3.21 (6.0)	-	-2.16 (3.6)	7.19 (4.2)	0.26 (4.4)	1.72	.68	1.60
	0.29 (1.7)	-	3.99 (4.9)	0.53 (1.4)	-1.05 (1.2)	0.20 (3.3)	1.94	.59	2.07
Denmark	0.76 (3.1)	-1.05 (1.5)	-	-0.39 (0.4)	1.04 (0.4)	0.09 (0.9)	2.38	.41	2.10
France	0.24 (0.6)	-3.36 (1.6)	-	-0.39 (0.6)	2.97 (1.1)	0.05 (0.8)	2.29	.16	2.21
Germany	0.84 (3.6)	-1.75 (2.7)	-	-1.11 (1.7)	2.85 (1.6)	0.16 (2.5)	2.53	.42	1.94
	0.90 (4.3)	-	6.34 (4.0)	-1.38 (2.5)	3.30 (2.4)	0.43 (3.9)	2.23	.55	2.06
Italy	1.10 (3.8)	-1.01 (1.1)	-	0.82 (0.7)	-1.72 (0.6)	0.03 (0.2)	4.28	.43	1.78
Netherlands	0.71 (2.6)	-0.41 (0.7)	-	0.57 (0.6)	-1.58 (0.6)	0.00 (0.0)	3.68	.28	1.98
	0.79 (3.0)	-	3.23 (1.5)	0.33 (0.5)	-0.87 (0.4)	0.14 (1.1)	3.53	.34	1.84
U.K.	0.79 (2.6)	-2.01 (2.4)	-	-0.74 (0.8)	3.11 (1.2)	0.09 (1.2)	3.66	.39	1.63
	0.80 (2.7)	-	7.33 (2.4)	0.22 (0.4)	-0.17 (0.1)	0.24 (1.8)	3.65	.40	1.82
E.C. (weighted)	0.75 (2.8)	-1.98 (2.0)	-	-0.42 (0.7)	1.93 (0.9)	0.09 (1.3)	3.14	.36	1.89

- Notes: (i) The equation estimated is (1.1). Note that the dependent variable is therefore the change in inflation.  $r^2$  relates to the proportion of this explained. The proportion of inflation explained is much higher.
- (ii) t statistics in brackets. In many cases the growth rate of the NAIRU is significant even when individual coefficients on t, t<sup>2</sup>, or U are not.

TABLE 1.2  
Decomposition of  $\dot{w}-\dot{w}_{-1}$

	$\dot{w}-\dot{w}_{-1}$	$-\alpha(\dot{w}-\dot{p})_{-1}$	$-\beta U$	E.C. (weighted average)	
				$\xi+\delta_1 t+\delta_2 t^2$	$\epsilon$
1957	-1.1	-2.8	-4.9	6.9	-0.2
1958	-0.5	-2.6	-5.2	6.8	0.5
1959	-1.7	-1.8	-4.8	6.7	-1.8
1960	2.7	-2.2	-3.7	6.7	1.9
1961	0.4	-4.2	-3.0	6.7	0.8
1962	1.2	-3.3	-3.1	6.8	0.9
1963	-0.9	-3.7	-3.3	6.9	-0.8
1964	1.0	-3.1	-2.8	7.0	-0.1
1965	-0.6	-4.2	-3.1	7.2	-0.5
1966	-1.7	-3.6	-3.3	7.4	-2.3
1967	-1.6	-2.1	-4.4	7.7	-2.8
1968	1.8	-1.6	-4.6	7.9	0.0
1969	2.0	-2.1	-4.4	8.3	0.2
1970	5.0	-3.4	-4.4	8.6	4.1
1971	-1.7	-7.5	-5.0	9.0	1.7
1972	-1.5	-4.4	-5.5	9.5	-1.0
1973	3.6	-3.0	-5.0	10.0	1.7
1974	2.4	-4.3	-5.5	10.5	1.7
1975	1.7	-2.0	-8.2	11.0	0.8
1976	-5.5	-3.6	-9.6	11.6	-3.9
1977	0.0	-1.1	-10.2	12.3	-1.0
1978	-1.7	-1.9	-10.5	13.0	-2.2
1979	1.0	-2.5	-10.7	13.7	0.5
1980	1.7	-2.0	-11.7	14.4	1.0
1981	-1.2	-1.6	-14.7	15.2	-0.1
1982	-2.1	-1.3	-17.2	16.0	0.3
1983	-2.0	-0.4	-19.0	16.9	0.5
<b>Averages</b>					
1966-70	1.1	-2.5	-4.2	8.0	-1.3
1971-75	0.9	-4.3	-5.8	10.0	1.0
1976-80	-0.9	-2.2	-10.5	13.0	-1.1
1981-83	-1.8	-1.1	-17.0	16.1	0.2

To understand what this amounts to, we can resubstitute (1.1) into (1.2) to get\*

$$U^* = U + \frac{\dot{w}-\dot{w}_{-1}}{\beta} + \frac{\alpha}{\beta} \left( (\dot{w}-\dot{p})_{-1} - \dot{z} \right)$$

Thus the non-inflationary level of unemployment is the actual rate adjusted upwards for the increase in inflation and for the excess rate of real wage growth.\*\*

In Table 1.3 these numbers are shown in the top block.\*\*\* The second block shows the corresponding figures with  $\dot{z}$  set equal to the average growth rate of  $\dot{w}-\dot{p}$  over the period in question. The last two blocks use equation (1.2) but setting  $\epsilon$  to zero; they thus mechanically reflect the time trend in the equation.

In the main text we concentrate on the first block of the table, as we think it represents the most reasonable approach. The NAIRU has risen over time. The rise is particularly steep between 1968 and 1973 when there was a big increase in the average-error in the wage equation, reflecting the greater militancy of the period after 1968.

\* In this sense at a given level of  $U$  high  $\dot{w}$  and high  $\dot{w}-\dot{p}$  are alternatives which depend on the price equation and the path of  $U$ .

\*\* When unemployment is lower, inflation increases and real wage growth increases (if unemployment is steady). This can be checked by combining equation (1.1) with a price equation such as

$$\dot{p} = -\phi + a\dot{w} + (1-a)\dot{w}_{-1} - b\dot{U} \quad (a < 1.)$$

where  $\phi$  is the long run growth rate of  $\dot{w}-\dot{p}$

\*\*\* Trend productivity is treated as a function of time consisting of linear segments (one per business cycle). It is found by estimating on annual data 1951-80 the function

$$\ell = \beta\ell_{-1} + (1-\beta)y - f(t)$$

where  $\ell$  is log employment,  $y$  is log GDP and  $f(t)$  is the log productivity term. The cycles differed between countries, but were measured from peak to peak. Since 1973-74 two segments were included: 73/74 to 76, and 76 to 80. For 1981-83 we assume the same trend as in 1976-80.

TABLE 1.3  
Calculations of NAIRU

		Per cent				
		France	Germany	Italy	U.K.	Weighted E.C.
Setting $\epsilon = \bar{\epsilon}$						
Setting $\dot{z} = \dot{x}$	1966-70	2.2	1.2	4.6	2.2	2.6
	1971-75	3.4	1.5	12.1	4.8	5.3
	1976-80	5.3	3.7	8.9	4.6	5.3
	1981-83	6.9	5.3	7.7	9.5	7.3
Setting $\dot{z} = \overline{(\dot{w}-\dot{p})}$	1966-70	2.2	1.3	7.8	2.4	3.2
	1971-75	3.3	1.2	6.6	4.0	3.6
	1976-80	5.2	3.5	6.5	4.7	4.8
	1981-83	6.9	6.2	7.5	9.2	7.7
Setting $\epsilon = 0$						
Setting $\dot{z} = \dot{x}$	1966-70	2.1	1.2	7.0	2.0	2.9
	1971-75	3.4	1.5	10.1	3.9	4.5
	1976-80	5.2	3.8	9.4	6.3	6.1
	1981-83	7.0	5.3	8.3	8.7	7.1
Setting $\dot{z} = \overline{(\dot{w}-\dot{p})}$	1966-70	2.1	1.3	9.2	2.2	3.5
	1971-75	3.3	1.2	4.6	3.1	2.8
	1976-80	5.2	3.6	7.0	6.4	5.5
	1981-83	7.1	6.2	8.2	8.4	7.6
Actual unemployment	1966-70	2.0	1.0	5.5	1.9	2.4
	1971-75	3.0	1.8	5.8	2.8	3.2
	1976-80	5.3	3.7	7.1	5.5	5.4
	1981-83	7.3	6.7	9.4	10.8	8.8

Note: Source for actual unemployment is O.E.C.D. Main Economic Indicators.  
1983 data are for Q.2.

We turn now to consider what light the movement of vacancies throws on recent history. In Table 1.1 we estimate wage equations using vacancies for those countries of which we have reasonably reliable series.\* These generally perform roughly as well as unemployment. (If both are included, neither is significant on its own). In Table 1.4 we show the non-inflationary level of vacancies, as follows:\*\*

	Non-inflationary vacancies 1983 %	Actual 1983 %
Belgium	.20	.14
Germany	.59	.28
Netherlands	.80	.17
U.K.	2.46	2.07

These calculations confirm the current margins of slack. This is true even though the non-inflationary level of vacancies in Germany and U.K. is now much less than it used to be.

Finally it is interesting to examine the shift in U for given vacancies (V). We therefore estimate

$$\log U = a_0 + a_1 \log U_{-1} + a_1 \log V + a_3 t + a_4 t^2 + \varepsilon$$

We then compute for 1968, 1973, 1978 and 1983 the term  $\frac{1}{1-a_1 L} (a_3 t + a_4 t^2 + \bar{\varepsilon})$  when  $\bar{\varepsilon}$  is the five year centred average and L is the lag operator. These numbers, expressed as deviations from their own average over the whole sample, are shown in Table 1.5. They show a strong upward drift in Belgium and Britain, a considerable drift in the Netherlands, and an up-and-down pattern in Germany.

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\* For the U.K. the data are 'corrected' - see footnote to p.18. Although there is a series for France, the OECD Main Economic Indicators manual explains that there was a big increase in the use of public employment exchanges in the early 1970s.

\*\* The U.K. figures are adjusted upwards to provide an estimate of the total vacancy rate.

TABLE 1.4

Calculations of non-inflationary vacancies (setting  $\dot{z} = \dot{x}$ )

	Belgium	Germany	Netherlands	U.K.	
Setting $\epsilon = \bar{\epsilon}$	1966-70	0.21	1.90	1.58	3.77
	1971-75	0.13	1.74	0.77	1.96
	1976-80	0.16	0.99	2.03	3.03
	1981-83	0.20	0.59	0.80	2.46
Setting $\epsilon = 0$	1966-70	0.18	1.90	1.47	3.39
	1971-75	0.17	1.83	1.40	2.74
	1976-80	0.15	0.97	0.93	2.44
	1981-83	0.17	0.57	1.29	2.26
Actual vacancies	1966-70	0.23	2.04	2.06	4.12
	1971-75	0.25	1.61	1.41	3.47
	1976-80	0.11	1.00	1.16	2.34
	1981-83	0.11	0.44	0.25	1.74



TABLE 1.5

Level of log U, given log V (1968-83 = 0)

	Belgium	Germany	Netherlands	U.K.
1968	-0.43	-0.09	-0.43	-0.34
1973	-0.14	0.29	0.07	-0.10
1978	0.24	0.06	0.35	0.20
1983	0.85	-0.51	0.20	0.61

Note: See text of Appendix 1.

## APPENDIX 2

### A simple index of fiscal policy

The appendix proceeds in two steps, presenting first a theoretical index and then deriving an empirical counterpart.

#### An index of fiscal policy: theory

Let:

G be government spending, not including interest payments on the debt

T be taxes on individual income

D be the deficit, not including interest payments, i.e.,  $D = G - T$

B be government debt

As the focus is on aggregate demand rather than on distortions, assume that spending does not affect the marginal utility of private consumption, nor the marginal product of capital. Assume also that taxes are lump sum. For notational convenience, assume the real interest rate  $r$  to be constant. All these assumptions could be relaxed to yield a more complex index.

Define a "fiscal policy" at time  $t$  as a sequence of current and anticipated  $(G_s, T_s, D_s)_{s=t, \dots, \infty}$ , as of time  $t$ , which satisfies the initial condition  $B_t = \bar{B}_t$  and the intertemporal government budget constraint:

$$\bar{B}_t + \int_t^{\infty} G_{t,s} e^{-r(s-t)} ds = \int_t^{\infty} T_{t,s} e^{-r(s-t)} ds$$

where, for any variable  $x$ ,  $x_{t,s}$  denotes the anticipation as of time  $t$  of  $x$  at time  $s$ .

The "index of fiscal policy" simply measures the direct effect of a fiscal policy on current aggregate demand. Fiscal policy affects demand in three ways: Government spending affects demand directly. Debt affects

consumption through financial wealth. The sequence of anticipated taxes affects consumption through human wealth.

Thus, central to the construction of the index is the specification of the consumption function. Blanchard has in "Deficits, Debt and Finite Horizons" [1983],\* derived a consumption function for an economy where agents have finite horizons. It is given by:

$$C_t = (p+\theta)(F_t+H_t) \text{ where}$$

$$H_t = \int_t^{\infty} (Y_{t,s} - T_{t,s}) e^{-(r+p)(s-t)} ds$$

$F_t$  is financial wealth and includes government debt.

$H_t$  is human wealth, equal to the present value of anticipated after tax labour income, with discount rate  $r+p$ .

$\theta$  is the subjective discount rate.

$p$  is such that  $p^{-1}$  is the expected life or the "horizon index" of an individual in the economy.

An implicit assumption is that agents are not liquidity constrained. If  $p = 0$ , the expected life is infinite and we obtain the standard infinite horizon (with logarithmic utility) consumption function.

Collecting the components of aggregate demand which depend on fiscal policy, and denoting the index of fiscal policy by  $X$ :

$$X_t = G_t + (p+\theta) \left( B_t - \int_t^{\infty} T_{t,s} e^{-(r+p)(s-t)} ds \right)$$

or equivalently,

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\* Mimeo, Massachusetts Institute of Technology, 1983.

$$\begin{aligned} \chi_t = & G_t - (p+\theta) \int_t^\infty G_{t,s} e^{-(r+p)(s-t)} ds \\ & + (p+\theta) \left[ B_t - \int_t^\infty (T_{t,s} - G_{t,s}) e^{-(r+p)(s-t)} ds \right] \end{aligned} \quad (1)$$

The first line of (1) gives the effects of government spending. The effect of a constant anticipated level of spending is equal to  $((r-\theta)/(r+p))G$  and may be close to zero. What matters most is the deviation of current spending from "average" measured as the normalised present value of future spending, that is, temporary movements in spending.

The second line of (1) reflects the effects of financing. If budgets are always balanced, it is equal to zero. If agents have infinite horizons, if  $p = 0$ , the government budget constraint given above implies that this second line is identically equal to zero: this is the usual Ricardian equivalence proposition. If  $p$  is positive, and part of spending is or has been deficit financed, the second line will in general be positive.

#### An empirical index

How do we go from equation (1) to an easy-to-construct index of fiscal policy? We need to determine plausible values of  $\theta$ ,  $r$  and  $p$ , and to reduce the two sequences of unobservable anticipated future spending and deficit to observable expressions. We assume that data on actual and full employment taxes and spending, as well as on debt, are available. (We shall also consider the case where no full employment figures exist).

Consider first anticipations of spending. Let's now think of all variables  $(X, G, T, B)$  as being divided by trend output. If we are at full employment, spending is not usually anticipated to change much. If we are away from full employment, spending is expected to return to its full employment value as output returns to normal. Thus we formalise the movement of  $G$  as:

$$d(G_{t,s})/ds = \psi(G_t^* - G_{t,s})$$

where  $G_t^*$  is full employment spending at time  $t$ , and  $\psi$  is the rate at which the economy is expected to return to full employment.

Consider then anticipations of deficits. Suppose that we are at full employment, and there are both positive deficits and debt outstanding. Then the intertemporal government budget constraint implies that at some later time, and probably in steady state, the government will have to run a surplus, that is a positive  $(T-G)$ . The rate at which agents expect the current deficit to become a surplus is however likely to be very slow. If we are not at full employment, then in addition, agents expect the current deficit to return to the full employment deficit; the rate at which agents expect this to happen is the rate at which they expect the economy to return to full employment.

We assume that the rate at which the full employment deficit returns to a sustainable long-run value is very small compared to the rate at which the current deficit returns to its full employment value; we formalise the movement of  $D$  as:

$$d(D_{t,s})/ds = \psi(D_t^* - D_{t,s})$$

Given these assumptions, equation (1) becomes:

$$\begin{aligned} X_t = G_t - (p+\theta) & \left( \frac{1}{r+p} G_t^* + \frac{1}{r+p+\psi} (G_t - G_t^*) \right) \\ & + (p+\theta) \left( B_t + \frac{1}{r+p} D_t^* + \frac{1}{r+p+\psi} (D_t - D_t^*) \right) \end{aligned} \quad (2)$$

To get some feel for equation (2), consider the case where  $\psi = 0$ , so that the current levels of spending and deficits are always equal to their normal levels; then:

$$X_t = \frac{r-\theta}{r+p} G_t + (p+\theta)B_t + \frac{p+\theta}{r+p} D_t$$

Spending is anticipated to be constant and has an effect only if  $r \neq 0$ . Deficits have a large effect.

Consider instead the case where  $\psi = \infty$ , so that agents always anticipate a quick return to normal.

$$X_t = \frac{r-\theta}{r+p} G_t + \frac{p+\theta}{r+p} (G_t - G_t^*) + (p+\theta)B_t + \frac{p+\theta}{r+p} D_t^*$$

Deviations of spending from normal play a large role in this case.

### Parameter values

We have to choose values of  $\theta$ ,  $r$ ,  $p$  and  $\psi$ .

The most important one is  $p$ , which determines the importance of the finance component of fiscal policy. In the theoretical model from which the consumption function is taken,  $p^{-1}$  is the expected life of an individual. This suggests values for  $p$  between .02 and .04. A more general interpretation, although theoretically impure (but close to the spirit of Friedman's statement of the permanent income hypothesis) is that  $p^{-1}$  is the horizon of agents, which may be shorter than their expected life; in this case the value of  $p$  must be determined empirically.

Hayashi [1982]<sup>\*</sup> has estimated exactly the consumption function above (although he does not interpret his coefficients in the same way). His estimated coefficients  $\alpha$ ,  $\mu$ ,  $\rho$  are related to our  $p$ ,  $\theta$ ,  $r$  by:

$$p = \mu - \rho ; \theta = \alpha - \mu + \rho ; r = \rho$$

\* F. Hayashi, "The Permanent Income Hypothesis : Estimation and Testing by Instrumental Variable", Journal of Political Economy, October 1982, pp.895-916.

From his Tables 1, 2, 3, under the assumption that there are no liquidity constraints ( $\lambda=0$ ), this gives:

$$\begin{array}{lll} p = .10 & r = .03 & \theta = -.03 \\ p = .04 & r = .03 & \theta = .0 \\ p = .15 & r = .03 & \theta = -.07 \end{array}$$

$p$  is always significantly positive and these values give a range of 4 to 15 per cent. We choose  $p = 5$  per cent. Although Hayashi's results suggest a subjective discount rate smaller than the interest rate, we maintain the convenient assumption that  $r = \theta$ , and that both are equal to 3 per cent. Finally, we choose  $\psi$  equal to 30 per cent. This gives:

$$X_t = .79(G_t - G_t^*) + .08 B_t + (.91 D_t + .79 D_t^*)$$

If  $p$  is instead equal to 10 per cent:

$$X_t = .69(G_t - G_t^*) + .13 B_t + (.31 D_t + .69 D_t^*)$$

We can clearly experiment with other values of  $\theta$ ,  $r$ ,  $p$ ,  $\psi$ . The broad constraints are that  $(p+\theta)$  is the marginal propensity to consume out of wealth and is most likely less than 10 per cent. Also in a closed economy, the interest rate  $r$  is between  $\theta$  and  $\theta + p$  (see Blanchard op.cit.). Direct evidence on  $r$  suggests a range of 1 - 5 per cent.

To summarise, the following index might be constructed:

$$X_t = .79(G_t - G_t^*) + .08 B_t + (.21 D_t + .79 D_t^*)$$

where

$G_t$ ,  $G_t^*$  are actual and full employment levels of spending, divided by trend output.

$B_t$  is (beginning of period) debt, divided by trend output.

$D_t$ ,  $D_t^*$  are actual and full employment levels of deficit, divided by trend output.

$G_t - G_t^*$ ,  $B_t$ ,  $D_t$ ,  $D_t^*$  are given in Table 5. The index  $x$  is given in Table 6.

### Sources and methods underlying Tables 5 and 6

The deficit relates to general government.

#### 1. Trend GDP and cyclical adjustment

Trend GDP has been calculated by a spline regression for the years 1960-79 with a break point in 1973. Years of 'average' or 'trend' capacity utilisation and current trend growth rates are as follows:

E.C.	:	'trend year' 1977;	trend growth rate 2.23%
U.S.	:	'trend year' 1977;	trend growth rate 2.46%
Japan	:	'trend year' 1972;	trend growth rate 3.69%
Canada	:	'trend year' 1979;	trend growth rate 3.46%

#### 2. Net interest

(N.B. OECD Economic Outlook Occasional Studies, June 1983, takes account only of interest paid, rather than net interest, except for U.S.).

E.C. : SOEC, 'European Economy', No.18, Table 5.4.

U.S. : Economic Report of the President, OECD (DES/NI/F83)7

Japan : OECD National Accounts

Canada: Application of a plausible effective interest rate to net stock figures, Table F-1, 'The Federal Deficit in Perspective', April 1983, Department of Finance, Canada.



### 3. Debt stocks

Where possible, refer to total net debt of general government at market values (including financial assets of public social security funds).

Beginning of year values.

U.S. : Eisner and Pieper, 'A New View of the Federal Debt and Budget Deficits', American Economic Review, March 1984 (forthcoming).

E.C. : DG II inflation-accounting task force for Germany, France, U.K., Italy, Belgium. National sources for other countries. Public corporations are included only in the U.K.

Japan : Adjustment, on basis of OCED National Accounts figures for net interest paid by general government, of central government gross debt figures in 'Public Sector Deficits: Problems and Policy Implications', OECD Economic Outlook Occasional Studies, June 1983.

Canada: Table F-1 of 'The Federal Deficit in Perspective', Department of Finance, Canada.

### 4. Trend G\* (as a per cent of GDP)

E.C. : Interpretation of budgetary strategy.

U.S. : 1977 level was assumed throughout.

Japan : Continuation of trend increase between 1972 and 1977, two years of approximately 'trend' capacity utilisation.

Canada: Consideration of 'The Fiscal Plan', April 1983, Department of Finance, Canada.

APPENDIX 3

Policies to reduce the NAIRU\*

To analyse the policies discussed in the text we shall confine ourselves to two simple models, in one of which unions set wages and in the other of which firms set wages. (Similar conclusions follow from more complex models).

Union wage-setting

Suppose each representative  $i^{\text{th}}$  'sector' of the economy has a union with  $M_i$  members. The union chooses the wage ( $W_i$ ) to maximise the income of the members. This income is

$$Y = N_i W_i + (M_i - N_i) W (1 - U) \quad (1)$$

where  $W_i$  is the sector's wage,  $W$  the economy-wide wage,  $N_i$  the sector's employment and  $U$  the economy-wide unemployment rate. The union knows that unemployment is negatively related to labour cost, which is  $W_i(1+t) - s$  where  $t$  is the proportional tax rate and  $s$  is the subsidy per worker. Thus

$$N_i = N(W_i(1+t) - s) \quad (2)$$

The union maximises (1) subject to (2), so that

$$(W_i - W(1-U))N'(1+t) + N = 0.$$

But in general equilibrium  $W_i = W$ . Hence

$$U = - \frac{N}{N'(1+t)W} = \frac{1}{\eta(1+t)} \quad (3)$$

where  $\eta$  is the sector-specific elasticity of demand. (This follows since if the tax and subsidy balance out economy-wide, ex post  $W = W(1+t) - s$ .) Thus the tax-subsidy scheme reduces unemployment.

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\* A fuller treatment using a wider variety of models (and reaching the same conclusions) appears in R. Jackman, R. Layard and C. Pissarides, 'Policies for reducing the natural rate of unemployment', London School of Economics, Centre for Labour Economics, Working Paper No. 587, December 1983; and G.E. Johnson and R. Layard, 'Long-run unemployment and labor market policy', in O. Ashenfelter and R. Layard, Handbook of Labor Economics, North-Holland, forthcoming.

Instead of a tax on the wage level, we could have a tax on wage growth in excess of the rate of price inflation. The labour cost to the firm in year  $j$  would then be  $W_{ij} + t(W_{ij} - W_{i,j-1}) - s$ , where  $W$  is the real wage and  $s$  is a small real subsidy per worker to balance the ex post proceeds of the tax. If the union maximises the present value of members' income and the union's discount rate is  $\delta$ , the equilibrium unemployment rate is now

$$U = \frac{1}{n(1+\delta t)}$$

So  $\delta t$  is the 'effective' tax rate.

Suppose that instead of these sensible policies, we had a legal limit on hours. Allowing for variable hours, the union's maximand has to be written now as

$$Y = N_i H W_i + (M_i - N_i) H W (1 - U)$$

and the demand function can be written as

$$N_i H = f(W_i)$$

Thus the union's maximand is

$$Y = f(W_i)(W_i - W(1 - U))H + \text{constant} \quad (4)$$

Since  $H$  does not affect the maximisation exercise, it does not affect the equilibrium  $U$ . Maximising (4) with respect to  $W_i$  and then setting  $W_i = W$  we find that

$$U = \frac{1}{n}$$

The reason why unemployment is independent of hours is that it always takes the same amount of unemployment to make each union settle for the same wage as every other union. If hours are cut, unemployment is unaffected, output falls and the real wage per hour rises.

Firms' wage-setting

If we now assume firms set wages, we reach the same conclusions. For simplicity we shall assume that firms set wages with only two things in mind: they compare the cost of higher wages with the benefits of reduced quitting. The quit rate depends on the wage relative to expected income outside

$$Q_i = Q\left(\frac{W_i}{W(1-U)}\right) \quad (Q' < 0)$$

The firm's profit per worker is

$$\frac{\Pi_i}{N_i} = \gamma - W_i(1+t) + s - \gamma\theta Q\left(\frac{W_i}{W(1-U)}\right) \quad (5)$$

where  $\gamma\theta$  is the real cost of a quit.

Maximising (5) with respect to  $W_i$  gives

$$-(1+t) - \gamma\theta \frac{Q'}{W(1-U)} = 0. \quad (6)$$

with second order condition that  $Q'' > 0$ . But in competitive equilibrium  $\Pi_i/N_i$  is zero. Setting (5) equal to zero and combining with (6) gives (with  $W_i = W$ )

$$Q' \frac{1}{1-U} - Q = - \frac{s+\gamma}{\theta\gamma}$$

Hence

$$\frac{\partial U}{\partial s} = - \frac{(1-U)^3}{Q''\theta\gamma} < 0.$$

This is negative by the second-order condition that  $Q'' > 0$ . Thus the per worker subsidy reduces unemployment (while the proportional tax as such has

no effect). If instead we operated a tax-based incomes policy, the same conclusion would apply.\*

To investigate work-sharing in this model, we note that the firm wants to maximise the profit per man which is

$$\frac{\Pi_i}{N_i} = \gamma H - W_i H - \gamma \theta Q \left( \frac{W_i}{W(1-U)} \right)$$

where  $\gamma$  is output per manhour and  $W_i$  and  $W$  relate to real wages per hour. General equilibrium is given by

$$Q' \frac{1}{1-U} - Q = - \frac{H}{\theta}.$$

Hence

$$\frac{\partial U}{\partial H} = - \frac{(1-U)^3}{Q''\theta} < 0$$

A fall in hours increases unemployment by raising the cost per manhour arising from quitting. This effect (that falls in hours increase unemployment) may be somewhat extreme, but there is no reason to think that they would in the long-run reduce unemployment. They would, without doubt, in the long-run, reduce output.

\* After applying budget balance we find that

$$\frac{\partial U}{\partial t} = \frac{-\delta(1-\theta Q)(1-U)^2}{\theta \left( \frac{Q''}{1-U} - \delta t Q' \right)} < 0.$$

STATISTICAL ANNEX

TABLE A.1

Growth rate of domestic product at 1975 market prices

	Percentage												
	Belgium	Denmark	France	Germany	Greece	Ireland	Italy	Luxembourg	Netherlands	U.K.	E.C.	U.S.	Japan
1958	-0.7	2.6	3.0	3.4	3.4	-2.1	4.9		-1.0	0.4	2.2		
1959	2.3	6.4	2.6	6.6	3.7	4.5	6.1	3.8	3.9	3.8	4.7		
1960	5.8	6.6	7.2	10.5	3.8	5.8	6.7	5.6	9.9	5.0	7.6		
1961	5.0	6.4	5.5	5.2	11.1	5.0	8.2	4.4	2.9	3.3	5.2	2.5	4.6
1962	5.2	5.7	6.7	4.5	1.5	3.2	6.2	1.4	4.3	1.0	4.3	5.5	7.1
1963	4.3	0.6	5.3	3.2	10.1	4.8	5.6	2.6	3.3	3.9	4.3	4.1	0.5
1964	6.9	9.3	6.5	6.7	8.3	3.8	2.8	7.5	8.6	5.2	5.8	5.3	3.2
1965	3.6	4.6	4.8	5.5	9.4	1.9	3.3	1.7	5.3	2.3	4.1	6.1	5.1
1966	3.2	6.4	5.2	2.7	6.1	0.9	6.0	1.7	2.7	2.0	3.7	5.8	0.6
1967	3.9	3.7	4.7	0.0	5.5	5.8	7.2	1.6	5.3	2.6	3.4	2.8	0.8
1968	4.2	3.8	4.3	5.7	6.7	8.2	6.5	4.2	6.4	4.1	5.2	4.0	2.8
1969	5.9	6.5	7.0	7.4	9.9	5.9	6.1	8.9	6.4	1.5	5.6	2.9	2.3
1970	6.2	2.3	5.7	5.2	8.0	2.7	5.3	2.2	6.7	2.2	4.8	-0.3	9.8
1971	3.9	2.4	5.4	3.3	7.1	3.5	1.6	4.3	4.3	2.7	3.4	3.1	4.6
1972	5.3	5.4	5.9	4.2	8.9	6.5	3.2	6.2	3.4	2.2	4.1	5.3	8.8
1973	6.2	3.8	5.4	4.5	7.3	4.7	7.0	10.8	5.7	7.5	5.9	5.5	8.8
1974	4.4	-0.7	3.2	0.7	-3.6	4.3	4.1	3.6	3.5	-1.0	1.7	-0.7	9.0
1975	-1.9	-1.0	0.2	-1.6	6.0	2.0	-3.6	-6.1	-1.0	-0.7	-1.2	-0.8	2.3
1976	5.7	6.9	4.9	5.4	6.4	1.9	5.9	1.9	5.3	3.6	5.0	4.9	5.3
1977	0.7	2.0	3.1	3.1	3.4	6.8	1.9	0.6	2.4	1.3	2.4	5.2	5.3
1978	3.0	1.8	3.3	3.1	6.7	5.9	2.7	4.5	2.7	3.7	3.2	4.6	5.0
1979	2.4	3.7	3.2	4.1	3.7	2.5	4.9	4.0	2.1	1.6	3.3	2.4	5.1
1980	3.0	-1.1	1.3	1.9	1.6	2.8	3.9	1.7	0.9	-2.0	1.3	-0.3	4.4
1981	-1.8	0.1	0.2	0.2	-0.7	1.1	-0.2	-1.8	-1.2	-2.0	-0.4	2.3	3.1
1982	1.0	3.4	1.8	-1.0	-0.0	1.2	-0.3	-1.1	-1.6	1.5	0.4	-1.7	2.9
(1983)	-	2.0	0.3	1.0	0.3	0.5	-1.4	-2.4	1.0	3.2	0.8	3.4	3.3

Source: See Figure 1. Year on year growth.

TABLE A.2  
Unemployment as % of civilian labour force

	Belgium	Denmark	France	Germany	Ireland	Italy	Luxembourg	Netherlands	U.K.	E.C.	U.S.	Japan
1958	3.1	3.2	0.5	2.9	5.7	8.1	0.1	1.8	1.9	3.3	6.8	2.1
1959	3.5	2.2	0.7	2.1	5.4	7.7	0.1	1.2	1.8	3.0	5.5	2.2
1960	3.1	1.5	0.7	1.0	4.7	7.2	0.1	0.7	1.6	2.5	5.5	1.7
1961	2.5	1.2	0.6	0.7	4.2	6.6	0.1	0.5	1.4	2.2	6.7	1.4
1962	2.0	1.1	0.7	0.6	4.2	5.5	0.1	0.5	1.9	2.0	5.5	1.3
1963	1.5	1.5	0.7	0.7	4.5	5.2	0.2	0.6	2.3	2.1	5.7	1.3
1964	1.5	0.9	0.6	0.6	4.3	5.2	0.0	0.5	1.6	1.9	5.2	1.1
1965	1.8	0.7	0.7	0.6	4.5	5.7	0.0	0.6	1.4	1.9	4.5	1.2
1966	2.0	0.8	0.7	0.6	4.3	5.5	0.0	0.8	1.4	1.9	3.8	1.3
1967	2.6	1.0	1.0	1.8	4.5	5.0	0.1	1.7	2.2	2.4	3.8	1.3
1968	3.1	1.7	1.3	1.3	4.8	4.7	0.1	1.5	2.3	2.3	3.6	1.2
1969	2.3	1.4	1.1	0.7	4.6	4.4	0.0	1.1	2.3	2.0	3.5	1.1
1970	2.2	1.0	1.3	0.6	5.3	4.4	0.0	1.0	2.5	2.0	4.9	1.1
1971	2.2	1.2	1.6	0.7	5.2	5.1	0.0	1.3	3.0	2.5	5.9	1.2
1972	2.8	1.2	1.8	0.9	6.0	5.2	0.0	2.3	3.4	2.7	5.6	1.4
1973	2.9	0.7	1.8	1.0	5.6	4.9	0.0	2.3	2.4	2.4	4.9	1.3
1974	3.2	2.0	2.3	2.2	6.0	4.8	0.0	2.8	2.4	2.9	5.6	1.4
1975	5.3	4.6	3.9	4.1	8.5	5.3	0.2	4.0	3.7	4.3	8.5	1.9
1976	6.8	4.7	4.3	4.1	9.5	5.6	0.3	4.3	5.1	4.9	7.7	2.0
1977	7.8	5.8	4.8	4.0	9.2	6.4	0.5	4.1	5.4	5.3	7.1	2.0
1978	8.4	6.5	5.2	3.8	8.4	7.1	0.7	4.1	5.3	5.4	6.1	2.2
1979	8.7	5.3	6.0	3.3	7.4	7.5	0.7	4.1	4.9	5.5	5.8	2.1
1980	9.4	6.1	6.4	3.3	8.3	8.0	0.7	4.7	6.3	6.1	7.1	2.0
1981	11.6	8.3	7.8	4.7	10.2	8.8	1.0	7.2	9.6	7.9	7.6	2.2
1982	13.2	8.9	8.7	6.8	11.7	9.1	1.3	12.7	11.0	9.5	9.7	2.4
1983	14.4	10.5	8.9	8.4	14.6	10.7	1.6	15.4	11.7	10.6	9.5	2.6

Source: See Figure 3.

TABLE A.3  
Employment

	Belgium	Denmark	France	Germany	Greece	Ireland	Italy	Netherlands	U.K.	E.C.	U.S.	Japan
1960	3.48	2.05	19.6	26.1	3.39	1.05	20.5	4.20	24.3	104.8	71.0	48.3
1961	3.51	2.08	19.6	26.4	3.42	1.05	20.5	4.26	24.6	105.6	71.1	49.9
1962	3.57	2.12	19.6	26.5	3.39	1.06	20.3	4.35	24.8	105.8	72.5	50.5
1963	3.59	2.14	19.8	26.6	3.37	1.07	20.0	4.41	24.8	105.9	73.3	49.8
1964	3.64	2.19	20.0	26.6	3.34	1.07	20.0	4.48	25.1	106.5	74.8	50.4
1965	3.65	2.23	20.1	26.8	3.31	1.07	20.0	4.52	25.3	106.7	77.1	51.2
1966	3.66	2.24	20.3	26.7	3.28	1.07	19.2	4.56	25.5	106.6	80.6	52.2
1967	3.65	2.22	20.3	25.8	3.25	1.06	19.5	4.54	25.1	105.6	82.5	53.1
1968	3.65	2.25	20.3	25.8	3.22	1.06	19.4	4.59	24.9	105.4	84.5	53.9
1969	3.71	2.27	20.3	26.2	3.20	1.07	19.5	4.66	25.0	106.4	86.9	54.3
1970	3.69	2.28	20.6	26.6	3.17	1.05	19.7	4.72	24.8	107.1	86.7	54.4
1971	3.73	2.30	20.8	26.6	3.14	1.05	19.7	4.74	24.5	106.9	86.5	54.7
1972	3.72	2.35	20.9	26.7	3.16	1.05	19.5	4.70	24.5	106.8	88.5	54.8
1973	3.77	2.38	21.0	26.8	3.17	1.06	19.7	4.71	25.0	108.1	91.9	56.2
1974	3.83	2.37	21.3	26.5	3.17	1.07	19.9	4.71	25.1	108.3	93.5	56.1
1975	3.78	2.34	21.5	25.7	3.19	1.07	20.0	4.68	25.0	107.2	91.8	55.9
1976	3.75	2.38	21.2	25.5	3.23	1.06	20.1	4.67	24.8	107.1	94.1	57.0
1977	3.75	2.40	21.4	25.5	3.20	1.08	20.3	4.68	24.9	107.5	97.3	57.7
1978	3.75	2.42	21.6	25.6	3.25	1.11	20.4	4.71	24.9	108.0	101.9	58.5
1979	3.79	2.45	21.6	26.0	3.30	1.14	20.6	4.77	25.1	109.0	105.2	59.2
1980	3.79	2.44	21.6	26.2	3.36	1.16	20.8	4.80	24.7	109.1	105.8	59.8
1981	3.71	2.39	21.5	26.0	3.36	1.14	20.9	4.74	23.4	107.3	106.9	60.3
1982	3.65	2.40	21.3	25.5	3.32	1.13	20.8	4.62	23.0	106.0	104.8	60.9
1983	3.58	2.39	21.1	25.0	3.28	1.10	20.9	4.52	22.9	105.0	105.1	61.8

Source: See Figure 4.



TABLE A.4

Capacity utilisation in manufacturing industry (%)

	Belgium	France	Germany	Ireland	Italy	Netherlands	U.K.	
1974	83.4	85.8	82.5		78.2	84.3	82.5	82.9
1975	71.8	78.4	76.0		70.7	77.1	77.7	76.2
1976	75.1	83.0	80.2		71.9	77.7	76.1	78.6
1977	72.6	83.4	80.8		73.8	79.3	79.2	79.8
1978	71.9	83.7	80.8		72.0	79.7	79.2	79.5
1979	76.1	84.7	84.2		75.6	81.2	84.4	82.7
1980	77.6	85.0	84.1	65.0	75.7	81.3	76.4	81.2
1981	74.0	82.1	78.9	60.9	72.8	78.4	72.5	77.4
1982	75.7	81.9	77.3	59.1	71.9	76.8	74.3	77.0
1983	75.7	81.5	76.8	57.8	69.9	79.4	76.4	77.0

Source: European Community business surveys, quoted in European Economy, Supplement B, No.6, June 1983 and No.12, December 1983.

- Notes: 1. The series for the United Kingdom are estimated using the national (Confederation of British Industry) data on the percentage of firms reporting below-capacity working.
2. E.C. total is country data weighted by the volume of industrial production in 1975.

TABLE A.5  
Productivity growth in manufacturing  
(output per person-hour)

	Belgium	Denmark	France	Germany	Italy	Netherlands	U.K.	E.C.
1961	1.5	6.1	4.5	5.1	7.6	5.3	0.9	3.3
1962	6.8	4.9	4.7	6.2	10.1	3.2	2.5	5.0
1963	3.1	3.2	5.2	4.6	3.0	3.4	4.9	4.4
1964	5.9	8.0	5.3	7.4	5.6	8.6	7.0	7.3
1965	3.9	4.7	5.7	6.3	10.5	6.0	3.2	6.0
1966	6.8	5.0	6.8	3.5	6.4	6.3	3.5	4.2
1967	6.1	8.5	5.3	6.4	5.7	6.4	4.7	5.6
1968	8.3	8.5	10.8	6.7	7.8	11.8	6.9	8.3
1969	8.4	4.1	3.5	5.7	7.3	8.7	2.3	5.2
1970	9.4	8.2	5.0	1.6	4.5	8.9	0.8	3.4
1971	6.1	5.9	5.3	4.0	2.8	6.5	3.8	4.5
1972	10.7	7.9	5.8	6.1	7.9	7.6	7.6	7.4
1973	10.2	9.9	4.8	5.8	11.4	9.7	6.0	6.9
1974	5.7	3.3	3.2	5.4	4.7	8.2	1.0	4.1
1975	4.2	9.9	3.1	5.2	-4.5	-2.0	-2.0	1.6
1976	9.9	3.7	7.9	6.8	8.2	12.1	3.9	7.6
1977	6.3	2.0	5.0	4.8	1.1	4.0	1.6	3.5
1978	4.9	2.4	5.5	3.3	3.0	6.4	3.3	4.0
1979	6.4	5.6	4.7	4.7	6.9	5.9	3.3	5.3
1980	3.0	1.4	1.7	1.5	5.5	1.9	1.1	3.5
1981	5.4	5.5	1.6	2.6	3.5	2.7	5.7	3.9
1982		3.0	6.6	1.8	1.3		3.3	2.9

Source: See Figure 6. The base-year is 1970, which helps to explain differences between the U.K. data and those in the Department of Employment Gazette.

The 1982 E.C. figure is based on forecasts for Belgium and Netherlands.

TABLE A.6  
Vacancy rates

	Per cent of labour force					
	Belgium	Germany	Netherlands	U.K.	U.S. (index)	Japan
1957	0.38	0.91	2.15	3.95		0.69
1958	0.17	0.90	1.08	2.95		0.69
1959	0.16	1.14	1.51	3.38		0.80
1960	0.23	1.79	2.20	4.46	0.10	0.90
1961	0.36	2.10	2.80	4.41	0.10	0.97
1962	0.44	2.17	2.82	3.06	0.11	0.69
1963	0.48	2.09	2.78	2.95	0.10	0.78
1964	0.36	2.29	2.93	4.46	0.12	0.84
1965	0.23	2.42	2.86	5.30	0.14	0.65
1966	0.20	2.01	2.53	5.61	0.17	0.75
1967	0.12	1.16	1.50	3.52	0.16	0.89
1968	0.13	1.88	1.68	3.85	0.17	0.89
1969	0.31	2.83	2.28	4.31	0.19	0.98
1970	0.63	2.98	2.70	3.62	0.14	1.02
1971	0.35	2.42	2.26	2.65	0.13	0.88
1972	0.22	2.05	1.34	2.83	0.15	1.20
1973	0.37	2.14	1.43	5.00	0.18	1.31
1974	0.35	1.20	1.47	5.00	0.16	0.91
1975	0.11	0.93	1.01	2.67	0.11	0.65
1976	0.11	0.94	1.01	1.90	0.13	0.66
1977	0.09	0.92	1.18	2.20	0.16	0.59
1978	0.11	0.97	1.34	2.79	0.19	0.61
1979	0.15	1.19	1.43	3.10	0.20	0.70
1980	0.15	1.19	1.14	1.93	0.16	0.70
1981	0.12	0.81	0.45	1.49	0.15	0.67
1982	0.11	0.42	0.25	1.71	0.11	0.62
1983	0.16	0.31	0.20	2.07	0.11	0.61

Source: OECD Main Economic Indicators. European and Japanese data relate to vacancies registered at employment exchanges, except that in Britain these have been adjusted upwards to allow for the share of employment exchanges in the total labour market flows. Data for U.S. relate to Help-Wanted Index.

TABLE A.7

General government deficit corrected for inflation (II) and cycle : E.C.

	Belgium			Denmark			France			Germany			Ireland		
	Actual	Corr. for infl.	Corr. for infl. and cycle	Actual	Corr. for infl.	Corr. for infl. and cycle	Actual	Corr. for infl.	Corr. for infl. and cycle	Actual	Corr. for infl.	Corr. for infl. and cycle	Actual	Corr. for infl.	Corr. for infl. and cycle
1973	2.7	1.4	1.9	-5.9			-0.9	-1.0	-0.7	-1.2	-1.7	-1.1	4.1		
1974	1.8	0.1	1.6	-1.8			-0.6	-1.0	-0.6	1.4	0.8	0.5	7.5	6.4	7.3
1975	4.1	2.5	1.7	2.0			2.2	1.5	0.4	5.8	5.0	2.9	11.6	10.1	10.1
1976	6.1	4.3	5.1	0.8	0.5	0.5	0.5	0.0	0.0	3.5	2.5	1.7	7.5	5.5	4.6
1977	6.4	4.1	4.0	1.7	1.0	1.2	0.8	0.2	0.2	2.4	1.3	1.0	6.9	4.9	5.3
1978	6.8	4.1	4.2	2.2	1.2	1.7	1.9	0.2	.5	2.5	1.4	1.7	8.8	6.5	7.8
1979	7.6	4.4	4.5	3.1	1.7	3.6	0.7	-0.2	0.3	2.8	1.6	2.9	10.8	8.2	8.8
1980	9.9	5.4	5.4	6.1	4.5	4.5	-0.3	-1.3	-1.7	3.1	1.7	2.8	11.8	9.2	9.3
1981	12.6	7.1	4.6	7.1	5.5	4.3	1.8	0.4	-1.4	3.9	2.4	2.4	15.8	9.7	8.4
1982	11.6	4.8	1.5	9.2	7.1	6.9	2.6	1.3	-1.1	3.5	1.6	-0.3	16.2	8.9	6.3
1983	11.6	4.4	-0.3	8.2	3.9	3.9	3.4	1.7	-2.1	3.0	0.7	-1.8	13.4	5.6	1.1
1984	10.9	2.8	-2.5	6.9	2.3	2.6	3.5	1.3	-3.6	1.8	-0.6	-2.7	12.3	4.5	-0.9

Contd./.....

TABLE A.7 contd.

	Italy			Netherlands			U.K.			E.C.		
	Actual	Corr. for infl.	Corr. for infl. and cycle	Actual	Corr. for infl.	Corr. for infl. and cycle	Actual	Corr. for infl.	Corr. for infl. and cycle	Actual	Corr. for infl.	Corr. for infl. and cycle
1973	5.8	4.6	4.6	-1.1	-1.7	-2.0	3.4	2.5	3.7	0.8	0.1	0.7
1974	5.4	3.6	4.3	0.1	-0.4	0.2	4.1	2.8	2.7	1.9	0.9	1.2
1975	13.3	10.5	8.5	2.7	2.1	0.7	5.0	4.0	2.7	5.5	4.4	2.7
1976	9.0	5.8	5.2	2.4	1.8	2.4	4.9	3.4	3.3	3.7	2.4	2.3
1977	8.0	4.5	3.7	1.8	1.0	1.9	3.4	1.8	1.7	3.3	1.8	1.8
1978	9.7	5.4	4.7	2.7	1.9	3.2	4.3	2.6	3.5	4.0	2.1	2.7
1979	9.5	5.4	5.8	3.7	2.8	4.2	3.2	1.1	2.3	3.6	1.6	2.8
1980	8.4	3.9	5.1	4.0	2.7	3.2	3.4	0.8	0.1	3.5	1.3	1.9
1981	11.7	6.2	6.1	5.2	3.8	2.2	2.7	0.0	-2.7	5.4	3.0	2.1
1982	11.9	5.2	3.6	7.2	5.8	3.4	2.0	-0.5	-3.1	5.4	2.7	0.8
1983	11.9	4.6	1.0	6.6	4.5	-0.3	3.5	1.1	-0.5	5.7	2.7	-0.1
1984	12.1	4.6	0.8	6.8	4.4	-0.7	2.5	0.2	-0.8	5.2	1.8	-1.5

Source and notes: See Table 4.

TABLE A.8

General government deficit corrected for inflation (II) and cycle : U.S.

Percentage of trend GDP

	Actual (1)	Corrected for inflation (II) (2)	Corrected for inflation (II) and cycle (3)
1977	0.9	0.4	0.4
1978	0.0	-0.6	0.2
1979	-0.6	-1.2	-0.4
1980	1.2	0.4	0.1
1981	0.9	-0.3	-0.6
1982	3.8	2.2	0.0
1983	3.9	2.0	0.3
1984	3.7	1.5	0.8

Source: See Table 4 and Appendix 2.

TABLE A.9  
Short-run realised real interest rates

	Belgium	Denmark	France	Germany	Holland	Ireland	Italy	U.K.	E.C.	U.S.
1961	3.6	2.0	1.1	1.0	-.2		1.4	1.7	1.3	1.2
1962	1.9	-.8	-1.4	-.4	-.5		-2.2	.0	-.7	1.5
1963	1.0	-.2	-1.9	.9	-1.1		-3.6	1.6	-.5	1.9
1964	.6	3.1	1.4	1.7	-2.2		-2.3	1.5	.6	2.2
1965	.9	.2	1.4	1.8	-.6		-1.0	1.9	1.0	2.3
1966	1.3	-.8	2.1	2.9	-.8		1.2	2.9	2.0	1.8
1967	2.5	-1.2	1.9	2.5	1.1		-.2	3.7	1.9	1.4
1968	1.6	-1.3	1.6	2.1	.8		2.2	3.0	2.0	1.1
1969	4.2	4.4	2.5	3.8	-1.5		1.0	3.5	2.6	1.2
1970	3.3	2.4	2.9	5.7	1.6		.2	1.6	2.7	.3
1971	.4	1.6	.6	1.7	-2.8	-2.1	.7	-3.0	-.0	.0
1972	-1.4	-.3	-.7	.1	-4.9	-1.4	-.4	-.2	-.6	.8
1973	.4	-1.0	1.7	4.8	-.5	.7	-3.4	2.3	1.4	.9
1974	-1.7	-1.6	-.5	2.6	.5	-2.0	-3.4	-2.1	-.6	-2.8
1975	-5.1	-2.9	-3.6	-.9	-4.1	-8.2	-5.7	-10.8	-4.9	-3.0
1976	.8	1.1	-.8	-.0	-1.4	-5.2	-.5	-4.3	-1.2	-.7
1977	.2	3.0	-.3	.6	-1.8	-4.7	-3.8	-6.7	-2.1	-1.0
1978	2.6	4.8	-1.3	.9	2.5	1.9	-.5	1.0	.4	-.2
1979	6.2	2.7	-.8	2.6	4.8	2.5	-2.4	.5	.7	-1.0
1980	7.1	4.0	-1.3	3.8	3.3	-1.7	-3.5	-1.0	.2	-1.6
1981	7.3	2.7	1.7	6.0	4.6	-2.9	-.1	2.0	2.7	3.2
1982	4.9	5.6	2.2	3.3	2.1	.1	2.9	3.2	2.9	4.1
1983	2.3	4.6	2.7	2.5	2.7	3.5	2.6	5.5	3.1	5.2

Source: E.C.

Note: Nominal interest rates minus growth rate of CPI from December to December.

Economic Papers

The following papers have been issued. Copies may be obtained by applying to the address mentioned on the inside front cover.

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