Macroeconomic Prospects and Policies for the European Community

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Synopsis

The overriding facts of 1983 are a world-wide depression of economic activity, a policy apathy, and a hope that a US economic upswing can solve Europe's problems of recovery. In the meantime, often unwarranted fiscal conservatism stands in the way and a beggar-thy-neighbour atmosphere has taken the place of cooperative policies.

Tight monetary policy and the resulting deep recession were a matter of conscious policy choice in the US. The policy has been splendidly successful in breaking the inflation process — not counting, of course, the vast cost of unemployment. In the European Communities (EC) the tight money policy has been matched and at the same time real full-employment fiscal surpluses have been growing. Unemployment is at levels not seen for half a century and, unlike in the US, there is little prospect for growth. Signs of "spontaneous forces of recovery" are sparse.

Policy discussion centres on two areas. One is the question whether cuts in real wages are an essential step towards a high-employment economy. The other is whether with current, actual, large budget deficits there is any room at all for fiscal initiatives to help bring about a recovery. In that context, of course, the question of monetary accommodation arises. Should monetary policy be set on automatic pilot, following a quantitative rule, or should policy be switched towards more flexibility, e.g. with a nominal income target or outright management of money?

Our report discusses the role of real wages in the context of the unemployment problem. We conclude that there is no evidence that unemployment is all and without exception, or even predominantly, a real wage problem. There are good reasons to believe that a part of current unemployment rates is the outcome of monetary and fiscal policies pursued in the fight to stop acceleration of inflation. Accordingly, we also conclude that real wage cuts would not be the appropriate centrepiece of policy action. On the contrary, the centrepiece must be an expansion of aggregate demand accompanied by incomes policies that render more favourable the trade-off between recovery and disinflation.

We place great emphasis on the need for a coordinated expansion. A coordinated expansion reduces the costs in terms of budget deficits and external imbalances for the participating countries while raising the extent of expansion. But the advantages of a coordinated expansion must be considered in the light of fiscal difficulties that governments are experiencing or at least perceiving. Governments see a trade-off between financial stability (or the size and scope of government in the economy) and fiscal expansion. We consider that question and present data for full-employment real budget deficits. There is little doubt that the Federal Republic of Germany and the United Kingdom, for example, cannot plead financial obstacles to expansion. Their fiscal position is entirely removed from the possibility of such difficul-

ties. In other countries, e.g. Denmark, the budget problem is so striking that one can hardly recommend a major sustained expansion of the budget deficit.

Recognizing the fiscal difficulties and priorities, we argue for an expansion programme centred on a transitory stimulus, helping to get the recovery underway. We also point out that in a coordinated expansion weak currency countries can do their part with a minor expansion, so as to leave their external balance or their budget deficit unchanged, thus neither promoting not retarding the EC-wide expansion.

I. Introduction

The overriding macroeconomic facts of 1982-83 are a world-wide depression of economic activity, only weak signs of an economic recovery, and continuing misalignments in exchange rates. There is widespread scepticism about conventional fiscal-monetary stimuli and little consideration of coordinated policies across countries. On the contrary, tighter fiscal policy is being pursued in several countries and signs of beggar-thy-neighbour policies and protectionism are every day more evident.

It is fairly easy to pinpoint at least the proximate cause for the lasting recession and the dim prospects for recovery. Overly accommodative policies in the past, in the face of oil shocks and reduced productivity growth, had led to sharply higher inflation and, possibly, postponed the needed adjustment in economic structure. Deliberate, contemplated recession policies, in the form of monetary contraction in the US and matched in Europe, were then used. They have been strikingly successful in cutting down inflation in the US while containing the inflation problem in Europe. They have, however, left a legacy of vast economic slack, a deepening recession, and the risk that the "spontaneous forces of recovery", which should come on the scene about now, may not make their appearance in time. At the same time European inflation remains uncomfortably high and stands in the way of an unconsidered expansion.

It is now anticipated that in early 1983 recovery should get underway, primarily originating in the US and in Japan, but with continuing weakness in Europe, especially in key countries like the Federal Republic of Germany (FRG). But, as Table 1 shows, the strength of the recovery is exceptionally weak. The recovery is weak by comparison with the average growth rate of the 1970s and, more strikingly, by comparison with the recovery from the world-wide 1975 recession, as shown by the 1976-78 average growth rates.

Table 1. Growth prospects for industrialized countries

	1970-80 Average	1976-78 Recovery	1981	1982	1983
OECD	3.3	4.2	1.2	− 0.5	1.5
EC	3.2	3.5	− 0.4	0.2	0.4

Source: OECD, *Economic Outlook*, December 1982, and Commission of the EC.

Not only are the growth prospects offered in Table 1 very pessimistic, they may still turn out to overstate the outcome for a number of reasons. While US recovery is under way, it has not yet started in the European Communities (EC). More important, debt and payments problems of third world countries imply important losses of export markets. Finally, spreading bankruptcy and uncertainty about interest rates and demand prospects leave many

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firms unwilling to expand capacity or inventories, and thus face the risk of having to carry them at high costs or liquidate at loss should the general recovery not take place. For these reasons, and because recovery is not yet in sight, many believe that a zero growth prospect — or even less — for the EC in 1983 is very plausible.

Major misalignments of exchange rates, aside from growth, represent an important policy issue. The yen is widely believed to be undervalued and the pound and dollar to be overvalued, even taking into account recent adjustments. The excessive competitiveness of Japan is leading to nasty protectionist moves in Europe and the US; the overvaluation of sterling coincides with catastrophic levels of unemployment in the UK. Figure 1 shows relative costs in manufacturing in several countries in December 1982 compared to the average for 1975-80. It makes clear that Japan on one side and the UK and US on the other have a competitive position entirely out of line with long-term averages.

Figure 1. Changes in competitiveness: December 1982 compared to the average for 1975-80

Loss in competitiveness (%)
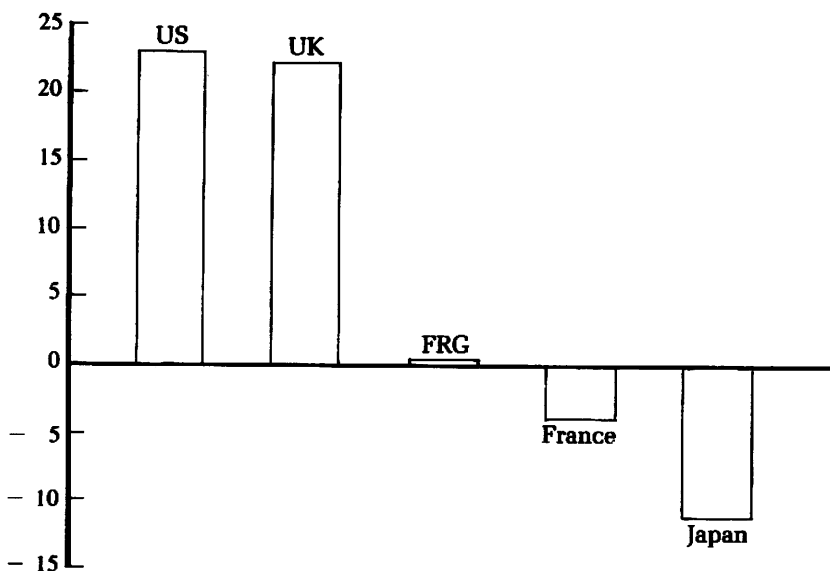
Source: Morgan Guaranty Trust Company, *World Financial Markets*.

Exchange rate misalignments with their implications for competitiveness are an important part of today's policy malaise. Although the depression is world-wide, some countries may see their situation as coming from overvaluation and be tempted by competitive depreciations. From the world point of view, rounds of competitive depreciations are, however, not the solution; they divert attention from the priority of reviving world demand. This is an important consideration because should the slack deepen,

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peripheral countries (Sweden, Australia, Greece) and increasingly the central countries will turn to exchange rate policies to look after their own interest.

Against this background, the Commission of the European Communities has, in its *Annual Economic Report 1982-83,* addressed the policy options for Europe in the present year. Although it emphasizes the difficulties associated with policy and the need for caution, the Commission gives a qualified endorsement to two controversial propositions:

- The need to contain or even reverse real wage growth, which is judged to have been excessive in the past ten years. This is part of a strong emphasis on the macroeconomic supply side and part of a package which includes supply-side fiscal policies.

- The use, on the demand side, of nominal income targeting as a financial policy setting.

In this report we shall address the same issues. We discuss whether real wage growth has indeed been too high and whether nominal income targeting is, at this stage, a suitable financial framework. We then argue that the recovery package must include a direct fiscal expansion targeted at investment and employment and coordinated among the major European countries. Of course such recommendations must be judged in the context of existing fiscal deficits and the serious risk of reigniting inflationary pressures as inflation is starting to decelerate from its current high level.

II. Real wages and unemployment

The thesis that European unemployment is, in good part, not due to cyclical factors but to excessively high real wages is receiving wide support. This possibility has been studied by the Commission[1] and has been recently advanced in a particularly forceful manner by Herbert Giersch:[2]

> What should then be the therapy? A wage pause would be good; but half a year is not enough, especially if there might be catch up effects. Thus, the longer the better until unemployment declines to a more acceptable level...
>
> After these undistorted wage-price relations free forces on the supply side, it is quite clear where demand will come from: from the purchasing power that the central bank can create through monetary expansion when potential output (supply) is readily available. Without restrictions on the wage front, aggregate demand expansion through monetary policy can bring little more than inflation.

The view that unemployment is a problem of the level of real wages, not of the cyclical downturn in demand, is a sharp challenge to Keynesian macroeconomics, which interprets the world-wide increase in unemployment rates as produced by recession. In the Keynesian view recovery of demand through monetary and fiscal policy will revive employment, while in the perspective of excessive real wages such policies will merely rekindle inflationary pressures. As a preliminary to policy analysis it is therefore essential to sort out these two hypotheses in more detail.

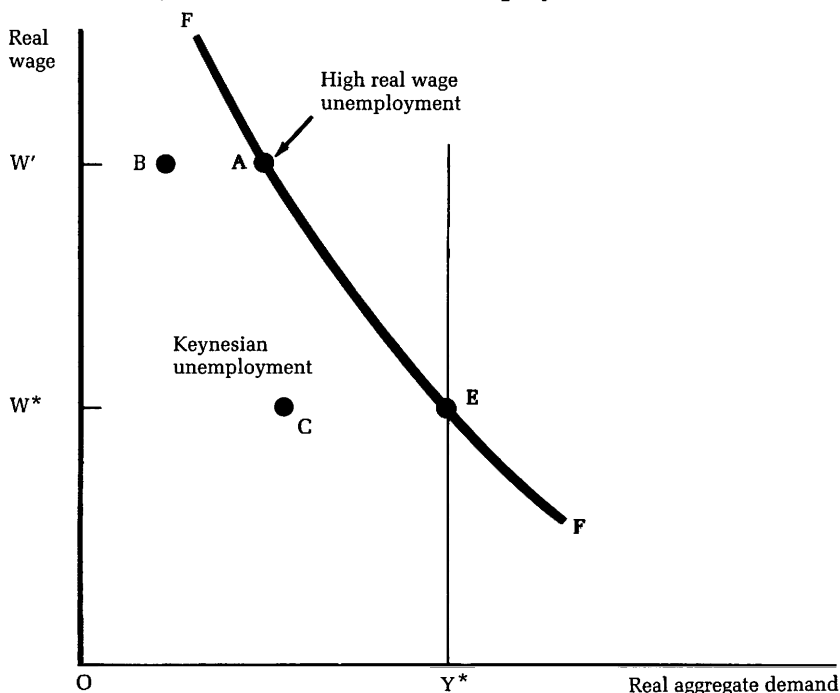**Figure 2. Keynesian and classical unemployment**

Figure 2 helps to explain the two positions.[3] On the axis we show the real wage (understood as the wage deflated by the prices of output *produced* in the economy) and real aggregate demand. The schedule FF shows combinations of real wages and real aggregate demand under which firms are willing to supply an amount of output equal to the level demanded. The schedule is downwards sloping to show that high levels of output on the supply side will only be produced if real wages decline, thus making it profitable for firms to expand employment and production. It is drawn for given technology and a given capital stock. The schedule Y* shows the full employment level of demand. Points to the left of FF represent levels of demand below the competitive supply firms are willing to bring to the market at each level of real wages. These points thus correspond to Keynesian unemployment. By contrast, points to the left of Y* but on or to the right of FF correspond to high real-wage or classical unemployment.

The full employment equilibrium is at point E with a real wage W*. At a higher wage W' there will be unemployment, but that unemployment may be classical (as at point A) or Keynesian (as at point B). If point B were the position of the economy, demand expansion could go *some* way towards solving the unemployment problem, though not all the way. At given real wages, demand expansion can move the economy to point A, but no farther.

If, however, the economy is already at point A, the scope for demand expansion to raise employment may be very limited. At one extreme, with rigidly fixed real wages, there is absolutely no scope for expansion in employment. Any increase in demand, given the output level supplied at the going real wage, will raise prices. The incipient decline in real wages and the resulting expansion in labour demand lead then to an immediate rise in wages that frustrates the expansion of employment and output. Thus with completely rigid real wages, demand expansion is purely inflationary.

Of course, this scenario overstates the speed with which wages respond to prices. A more reasonable description will claim that demand expansion, at a point like A, can only secure *transitory* gains in employment. In this view the increase in demand, by raising the price of a given output supply, leads to a fall in real wages. Firms respond to reduced real labour costs by increasing employment and output. Thus the economy moves down the FF schedule towards full-employment equilibrium. Whether such an expansion can be sustained for any length of time depends on the speed with which money wages react to the decline in real wages. If wages are sluggish, the expansion is relatively durable. In the extreme, if money wages are sticky, the expansion can be lasting. Thus even in the case of classical unemployment there is room for demand expansion to exert expansionary effects on employment, although these effects come about only by eroding real wages through increased inflation.

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Figure 2 focuses on the aggregate economy, not making sectoral distinctions. Of course, it is important to recognize that there may well be sharp differences between sectors. Some industries may well be in full equilibrium with firms selling all the output they wish to produce, while other industries face a shortage of demand because of import competition or for cyclical reasons. Focusing on aggregate unemployment rates conceals these sectoral differences and may lead to unforeseen bottlenecks and inflationary pressures in an expansion.

Table 2 shows the increase in unemployment rates in the EC and, separately, in the UK and FRG. In each case there is a significant rise in unemployment. The question therefore arises whether increased real wages or a failure of product wages to fall in the face of increased real costs of imported inputs are the chief source of the poor performance. Once more, returning to Figure 2, we wish to know whether the economy is at point C, point B, or point A. The diagnosis is essential for any sensible policy advice.

Table 2. Unemployment rates
(% of civilian labour force)

	1970-74 Average	1975-80 Average	1979	1980	1981	1982
EC	2.5	5.3	5.5	6.2	8.1	9.4
UK	2.8	5.5	5.3	6.9	10.6	12.2
FRG	1.1	3.8	3.4	3.4	4.8	6.9

Source: Commission of the EC, *European Economy*, November 1982.

Labour shares and wage gaps

It would be convenient if a simple statistic could be produced that allowed the diagnosis of unemployment, determining whether it is a cyclical problem, a real wage problem, or both. The concept of the real wage gap is meant to fill that function and has been adopted for that purpose by the EC and the OECD. We are very doubtful of the usefulness of this statistic. The reasons for our scepticism are outlined below.

The main two measures that have been used as evidence of excessively high real wages are the labour share in value added and the real wage gap. Conceptually, they measure exactly the same thing: the real wage gap measures the deviation of the labour share from some reference value. They may differ empirically because of data used in their construction.[4]

The labour share is given by:

$$WL/P_v \, V = (W/P_c) \, (P_c/P_v) \, (L/V)$$

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where W is the nominal wage, P_c the consumer price deflator, and P_v the value-added deflator. L is labour and V value added. The labour share will increase or, equivalently, the real wage gap will be positive if the real wage in terms of the consumer price deflator increases, or the consumer price deflator increases compared to the value added deflator, or labour productivity decreases.

Suppose now that the real wage gap measure showed an increase: what can be inferred about the real wage level? The answer comes from production theory and it turns out to be disappointing. If there were only two factors of production — capital and labour, then the competitive share of labour in value added would move in the same direction as the real wage (product wage) when the elasticity of substitution between factors is less than unity. Higher real wages mean then a higher share of labour in income. But if the elasticity of substitution were larger than unity, the converse would occur — as real wages rise, high substitutability implies a decline in labour's share. Finally, in the borderline case of unitary elasticity of substitution, or Cobb Douglas technology, shares are invariant to movements in real wages.[5] (See Appendix 1.)

After an unwarranted increase in real wages, firms initially have little scope for substitution. They have no other choice than to pay these higher wages or go bankrupt. The labour income share increases. Examination of real wage gaps correctly indicates that real wages are too high. If at the same time output declines, the usual procyclical movement of labour productivity leads to a larger decline in output than in employment. This leads to an even larger real wage gap. As time passes, however, firms can change the factor composition of production and they shift to less labour-intensive technology. Labour productivity slowly rises and as a result the real wage gap disappears. In the long run, after firms have modified their capital stock, and with enough substitution between factors, the real wage gap may well be negative. But the real wage problem is still very much there; it does not appear as a gap merely because of the massive decline in employment and the resulting increase in labour productivity. Lest the reader conclude that the real wage gap measure always understates the real wage problem, consider the opposite case where real wages are too low: over time this may lead to a positive real wage gap.

Further doubts about the usefulness of the measure are raised by looking at the real wage gap across countries, as in Table 3. Inside the EC, real wage gaps vary substantially across countries, but with little relation to their employment experience. Furthermore (this is already emphasized in the EC report), the gap index for Japan stands at 112. But it is surely not the case that Japan has a sense that its labour is overpriced or that employment expansion has been small.

To summarize, labour shares and real wage gaps are not useful in determining the existence and the size of a wage problem. The issue of measuring the real wage gap and its relevance to determining whether real wages are excessive is further explored in Appendix 2.

Table 3. Real wage gaps and employment in 1982
(whole economy)

	Real wage gap 1973 = 100	Cumulative percentage change in employment: 1973-82
Belgium	112.1	− 4.1
FRG	95.9	− 5.1
France	108.7	2.5
Italy	105.5	6.4
Netherlands	96.3	− 0.8
UK	100.8	− 6.8
EC	103.2	− 1.3
Japan	112.4	7.7

Source: Commission of the EC.

Is there a real wage problem?

Given the increase in the price of materials and intermediate inputs since 1973, is the real wage too high for full employment? In terms of Figure 2, is W' above W*? If this is the case, then is the low level of employment due mainly to the real wage or due to a very low level of aggregate demand? Are we at point A or at point B? If the real wage gap is not a suitable measure of real wage problems, is there an alternative approach to disentangling classical and Keynesian unemployment? The only way to answer these questions is to use a production function and solve for the relevant demand functions for competitive equilibrium employment levels. Unfortunately, as we shall see, no unambiguous answer comes from this approach either.

Suppose that firms were not constrained in their sales. The equilibrium employment level would then only depend on the existing capital stock, real material prices, and product wages. Changes in employment over time would depend on changes in these determinants. With estimates of a production function and the given changes in capital and real material prices, we can ask the following question: what change in real wages is compatible with a specified growth in employment? It turns out that the answer, not surprisingly, depends on trend productivity growth.

Table 4 shows a calculation for the UK that helps to make the point. (Details are given in Appendix 3.) The UK labour force over

Table 4. Growth in employment and product wages: UK, 1972-80
(cumulative percentage changes)

Actual employment	Actual wages	Wage growth compatible with 4.1% employment growth when productivity growth is:		
		12.6%	8.3%	4.1%
− 17%	16%	13.6%	3.4%	− 7.6%

Note: For calculations, see Appendix 3.

the period 1972-80 grew cumulatively by 4.1%. Suppose we looked for growth in manufacturing employment equal to labour force growth. As a bench-mark, then, we would keep the fraction of the labour force employed in manufacturing constant.

Actual real wages grew by 16% and employment declined by 17%. But how much could real wages have grown, given the behaviour of the capital stock and real material prices? The table shows that with a 1.5% growth per year in total factor productivity (12.6% cumulatively) real wage growth could have been nearly 14% while still leaving room for employment growth. But the sensitivity to productivity growth is apparent by looking at the wage numbers consistent with 1% and 0.5% annual total productivity growth. Here there is no room for real wage growth and in the latter case real wages would actually have to decline. The trend growth rate of total factor productivity in the 1960s was 1%. If that rate was maintained, which is an optimistic assumption, it is clear that real wages actually grew too fast to be consistent with employment growth. In other words, real wages have become too high to secure full employment. But these numbers do not tell us whether *all* of the decline in employment is due to excessive real wages.

The production function approach developed in Table 4 suggests that at least part of the decline in employment is easily explained by real wage growth outpacing trend productivity at a time of adverse supply shocks. But the story seems to be quite different for the last two years (1981-82). Wage growth has moderated in several countries while material prices have stopped increasing and for some countries actually declined. In these circumstances, setting aside lagged adjustments to the earlier real wage increases that may still be going on, we would expect no further decline in employment. But this has not been the case, as Table 5 shows.

In Table 5 we report changes in product wages, real commodity prices, and employment in manufacturing for the FRG, France, and

Table 5. Wages, prices, employment, and output
in manufacturing: 1980-82
(cumulative percentage change)

	Product wage	Real material price	Employment	Output
FRG	−1.9	− 9.5	− 5.7	−4.6
France	6.4	− 5.9	− 5.6	−5.0
UK	6.8	−15.8	−16.4	−6.3

Note: The product wage is calculated as hourly earnings in manufacturing deflated by the producer price index for manufactures. For France the wage is deflated by the price index of industrial output. The real material price is the IMF US dollar index for all commodities, converted into national currency and deflated by the manufactures price index. Employment refers to manufacturing. The 1982 observation for manufacturing prices, output, and employment is the average of the second and third quarters.

Source: OECD, *Main Economic Indicators*, December 1982, *Economic Outlook*, December 1982; IMF, *International Financial Statistics*, February 1983.

the UK. The most interesting case is that of the Federal Republic of Germany, where product wages declined, real material prices declined sharply, and yet employment contracted very significantly. This is certainly a very strong indication of a demand-induced decline in employment. The cases of the UK and France appear more ambiguous because product wages actually grew. But here, too, there was a strong offset from real material prices and, of course, the table does not yet make allowance for some trend productivity growth. Furthermore, a comparison of the UK and French observations suggests a demand effect for the UK.

What can be concluded from the discussion of real wages? First, that it would be difficult to argue that a large part of the unemployment developing in 1975-80 is *not* due to a failure to adjust real wages to lower productivity growth and material price shocks. In this sense demand expansion could not be expected to restore the unemployment levels of the early 1970s except by accelerating inflation. Equally important is the recognition, supported by Table 5, that in the very recent past real wages and material prices are not the source of reduced employment, but that recent increases in unemployment are due to low demand. In this sense there is room for demand expansion to eliminate some of the unemployment. In terms of Figure 2, then, the economy is at a point like B.

The conclusion that some unemployment is cyclical and some due to excessive levels of real wages is perhaps a let-down. But it is worth stressing that no evidence whatsoever has been offered to date for the claim that unemployment is due to high real wages only, as the argument of those favouring a *Lohnpause* (wage-freeze) would imply. At the same time, of course, the fact that some unemployment is no doubt due to excess real wages serves as a caution in interpreting the magnitude of the expansion and possible recovery. Furthermore, in shaping policies for higher employment the composition of unemployment — Keynesian versus classical — is relevant. This is particularly the case when low levels of aggregate demand and capacity utilization discourage the normal adjustment to real wage cuts through increased profitability of capital formation.

The effects of real wage cuts

Suppose, then, that measures were undertaken to reduce real wages. The effects would be very different, depending on whether there is classical or Keynesian unemployment.

In Keynesian unemployment, the effects on domestic demand are likely to be ambiguous at best. Redistribution of income towards profit may avoid bankruptcies, but it is unlikely to increase consumption or investment demand. A cut in real wages may, however, be translated through depreciation into a gain in external competitiveness, leading to increased world demand for domestic goods and to higher production and employment. Employment expansion through increased competitiveness is obviously at the

expense of other countries. If the EC as a whole follows such a strategy, it must be at the expense of the US and Japan. These countries are likely to take counter measures, either through exchange rates, protectionism, or parallel real wage cuts. The experience of the 1930s suggests that such competitive wage cutting is unlikely to succeed.

In classical unemployment, the real wage is the problem. Reducing real wages leads firms to want to supply and employ more. Where does the demand for the increased output come from? If demand was rationed to start with, there will be no problem, but this possibility appears unlikely. Demand may come instead from an increase in investment. If firms believe they can sell the increased output, they will decide not only to employ more labour but also to increase capital, thus increasing investment demand and validating their initial beliefs of higher demand. The bootstrap flavour of this argument suggests that such a demand expansion should not be relied upon too strongly. Real wage cuts must, even under classical unemployment, be accompanied by an accommodating fiscal or monetary expansion. This, indeed, is recognized in the quote by Giersch above.

We conclude then that any real wage cuts that are part of a stabilization programme are in themselves insufficient to guarantee recovery and stability. There needs to be a complementary expansion in demand.[6]

III. Nominal income rules

In the last ten years macroeconomics has come to an ambivalent reassessment of monetary rules. The enthusiasm for fine tuning without explicit restraints on accommodation through monetary and fiscal policy is widely recognized to be part of the problems of adjustment to recent oil shocks. Not only did it lead to higher inflation, but, it is often argued, by introducing uncertainty about policy it may have done little good even to employment and output.

As a result, and under the guise of monetary rules, a sharp reduction in money growth was engineered in several countries, leading to substantial disinflation and deflation. Unemployment rates now average more than inflation rates in industrialized countries, as shown in Figure 3. Inflation remains high but appears on the retreat. The question then appears which nominal target to adopt in the transition to a less inflationary economy.

Figure 3. Inflation and unemployment in the EC: 1969-83

Source: Commission of the EC, *European Economy*, November 1982.

The instability of money demand due to financial innovations, changes in the menu of alternative assets, and so on has made monetary management very difficult. In such an environment strict money growth rules are not likely to perform well. Innovations which reduce money demand make a given money growth rule

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more expansionary and inflationary than was intended. Conversely a fall in velocity is contractionary. This is where nominal income rules come in. Given the quantity theory identity, we can think of these rules as velocity-adjusted money growth rules.[7]

How does a velocity-adjusted rule perform compared to a simple money rule? It does well against autonomous movements in velocity: autonomous decreases in money demand — disturbances in the money demand equation — are accommodated by decreases in supply, with no effect on nominal and real income. It also does well in protecting real income from disturbances in aggregate demand. A decrease in aggregate demand which would decrease real income, inflation, and velocity leads to an increase in money until real income and prices are back to normal. By the same token, if the increase in aggregate demand is deliberate, the result of fiscal expansion for example, nominal income targets must be increased for output expansion to take place. Thus for both velocity and demand shocks a nominal income rule dominates a money rule. (The algebra underlying these arguments is given in Appendix 4.)

Both rules are, however, likely to do badly in the presence of supply shocks. The traditional approach to monetary policy is to consider the two components of nominal income growth — inflation and growth — separately and to aim for the best feasible mix. Nominal income targeting shifts the decision on how to split nominal income growth to firms and workers. Unfortunately, as the recent UK experience has shown, the lack of synchronization and coordination of price and wage decisions and the numerous game aspects of price and wage setting prevent any group from being in a position to take such a rational "decision".

Unemployment turns out to be in fact the tool used to control inflation. The division of nominal income growth between real growth and inflation depends on the unemployment sensitivity of inflation, which has no particular optimality property. Both rules share this characteristic and the nominal income rule does not obviously dominate the other.

When we turn to implementation there is a major difference between the two rules. It is already a non-trivial task to adhere to a money rule; it is an even more difficult one to achieve a nominal income target. There is overwhelming evidence that over a period of a few months, growth and inflation are unaffected by current movements in money, except through exchange rate effects on the Consumer Price Index. If nominal income increases, a countervailing decrease in money leads initially only to sharp interest rate adjustments and thus an opposite movement in velocity. Nominal income adjusts only over time. Nominal income targeting is then a feedback rule for money which affects nominal income with long and variable lags. Traditional issues in monetary policy, such as size and timing of feedback, all return through the back door and have to be addressed before nominal income targeting can be used.

But the strong argument for nominal income targeting comes from another side. If disinflation, which is underway, lowers the general level of interest rates, then real money demand will rise or velocity

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will decline.[8] Under a monetary rule the adjustment in velocity deepens the recession. By contrast, under nominal income targeting the fall in velocity can be accommodated by transitorily higher money growth. Overall, a shift from a strict money rule to nominal income targeting appears then to be an improvement, being a compromise with monetarism. However, once inflation and inflationary expectations are under control, it would be better to steer the economy with prices and output as separate objectives, rather than being concerned with their product. Neither monetary targets nor nominal income targets have any justification as ultimate objectives of economic policy. Nor do they even offer assurance of long-run price stability. They are intermediate targets that can be improved upon by directly gearing policies to the ultimate, separate objectives of price stability and high employment.

IV. Reflation, inflation, and crowding out

We have argued that although the level of real wages is quite likely too high to allow a return to full employment, it is aggregate demand which is the proximate cause of the current recession and should be the primary focus of policy.

There are obviously very stringent restrictions on the use of fiscal and monetary policy. It would be unwise to disregard the progress made in containing and already lowering inflation and to advocate a major monetary expansion; we agree with the Commission that nominal income targeting might be, for the time being, a convenient framework for monetary policy. The scope for fiscal policy is also severely limited at a time of large deficits: any policy recommendation which would lead to a larger deficit has to deal with issues of crowding out if debt finance is used, isssues of inflation if deficits are monetized.

Disinflation

On the inflation issue some useful things can be said. First, the current enormous unemployment levels are exerting vigorous dampening effects on wages. As a consequence inflation is indeed decelerating. Moreover, on the current course of minimal recovery, that deceleration of inflation would continue and might even speed up.

Leaving aside supply shocks, price inflation is governed by the growth in money wages relative to the growth rate of trend productivity. The core of disinflation is thus centred on the deceleration of wage inflation. The deceleration of wages in turn depends on the excess of actual unemployment rates, u_t, over the noninflationary rate of unemployment, $\bar{u}_t$:

$$\dot{w}_t = \dot{w}_{t-1} - a\,(u_t - \bar{u}_t) + x$$

where x is a constant term.

There is considerable controversy over the precise value of the noninflationary unemployment rate, $\bar{u}_t$, the rate of unemployment at which wage inflation neither increases nor declines. Equal controversy surrounds the parameter a that translates unemployment changes into changes in wage inflation.

A conservative estimate is to accept the 5.5% 1979 level of EC unemployment as corresponding to $\bar{u}_t$. With 1982 unemployment at 9.4%, letting a be equal to 0.5 would imply a decline in the rate of wage inflation of about 2 percentage points. Using a value of $a = 1$, wage inflation in 1982 should have declined by almost 4 percentage points.[9]

On the other hand, if the level of $\bar{u}_t$ were higher, perhaps as high as 6.5%, the deceleration of wage inflation would have been commensurately reduced. In any event the point that is beyond controversy is the following: with current rates of unemployment, deceleration of wages is very substantial unless the economy has strong indexation features geared to previous price increases.

Second, should expansion of demand take place this will assuredly interfere with rapid further deceleration of inflation. How much so depends on the vigour of the expansion and on any incomes policies — in addition to nominal income targeting — that accompany expansionary policies. But it is also fair to recognize that at present inflation is falling sharply, so that expansion and a lowering of slack in the labour market does *not* mean sharply rising inflation. In the best of circumstances it means that inflation will only fall moderately, but more likely it means that disinflation will come roughly to a halt. However, there is room for policy to ensure that recovery is not bought at the price of more inflation. Relevant proposals reach from outright wage controls to the more attractive schemes that involve fiscal-carrot tax packages in which firms are taxed on above-norm wage settlements.[10] Active incomes policy in the recovery process is essential in improving the growth/ disinflation trade-off.

A third point concerns the improved outlook for inflation in the recovery, which comes from capital deepening that has taken place and from the better utilization of scale economies. As aggregate demand rises, higher utilization levels of plant and equipment lower unit labour costs or raise productivity. This factor will certainly operate to dampen the inflationary consequences of continuing wage increases.

Budget deficits

Are current deficits such that additional deficit financing would risk financial instability and that the increase in interest rates would reduce aggregate demand enough to offset the fiscal stimulus?

The first consideration is that deficits are drastically distorted both by the cyclical position and by inflation. For example, for 1982 the UK shows a general government budget deficit of 0.9% of GDP. Once the adjustment for the inflation component of nominal interest payments on debt is made, the budget turns into a surplus of more than 2% of GDP. Once the further adjustment for the cyclical position is undertaken, one finds that in the deepest recession in fifty years the government runs a whopping surplus in excess of 6% of GDP, in effect raising taxes to reduce the real value of public debt outstanding. In other EC countries fiscal policy is not as perversely misdirected. But in each instance, once adjustments for the inflationary component of interest payments and for the cyclical position are made, budget deficits look much less startling and out of line with historical experience than the raw data suggest. In sensible policy analysis there is no reason not to make these adjustments.

Table 6 shows data for actual government net lending and for net lending adjusted for the inflation component of debt service as well as for cyclical factors. It is essential to note that the inflation-adjusted full-employment budget not only is in surplus, but actually has been increasing. Indeed, there is no reason to assume, given the low inflation of the 1960s, that full-employment

surpluses today are any lower than they were in the 1960s. In other words, correcting cyclically and making allowance for inflation the "budget problem" assumes an entirely different appearance.

Of course, one must also recognize important limitations of the cyclical and inflation corrections. While the principle of these corrections is entirely beyond controversy the exact details certainly are not. In that respect the last column of Table 6 is indicative of the level, and even more so of the trend; it is not an uncontestable number. These figures, though, are vastly more representative of budget trends than the actual budget deficit in column (1).

Table 6. EC general government net lending
(% of GDP)

	(1) Net lending	(2) Inflation adjustment	(3) Cyclical adjustment	(1)+(2)+(3) Corrected net lending
1961-73	− 0.4	n.a.	n.a.	n.a.
1973-79	− 3.3	2.8	0.6	0.1
1980	− 3.5	4.1	0.5	1.1
1981	− 4.8	3.9	2.1	1.2
1982	− 5.0	3.5	3.3	1.8

Note: The cyclical correction assumes that 1973 and 1979 were high activity years, thus setting the bench-mark for cyclical adjustment. The inflation adjustment is specified in the source for column (2).

Sources: Column (1) from Table 4.6 and column (2) from Table 6.6, Commission of the EC, *European Economy*, November 1982. Column (3) calculations kindly provided by Bernard Connolly.

The foregoing remarks do not recognize the important differences between EC countries. In Table 7 we further pursue the question by looking at four different countries. Once again we caution that the corrected net lending is only indicative of a corrected budget figure. Even so the table reveals striking contrasts between two extremes: the UK with an extraordinary real full-employment budget surplus and Denmark with an equally extraordinary real full-employment budget deficit.[11]

Table 7. General government net lending in 1982
(% of GDP)

	Net lending	Inflation adjustment	Cyclical adjustment	Corrected net lending
FRG	− 3.9	0.8	3.0	− 0.1
UK	− 0.9	3.3	4.1	6.5
Belgium	− 12.9	7.0	3.8	− 2.0
Denmark	− 9.5	0.4	2.8	− 6.3

Source: Calculations of the authors. See also, W.H. Buiter, "The Proper Management of Government Budget Deficits: Comprehensive Wealth Accounting or Permanent Income Accounting for the Public Sector: Its Implications for Policy Evaluation and Design", London School of Economics Working Paper, 1983.

A real full-employment surplus of 4.5 or 6% has no justification in terms of macroeconomic stability. The argument that over the business cycle budgets should balance can be accepted without requiring such large full-employment surpluses in the midst of vast unemployment. At the same time it must be said that full-employment deficits of the order of 4.5 or 6% are not sustainable. In a world with positive real interest rates they imply growing real debt burdens which are bound to lead to financial instability. Ultimately taxpayers would not be willing to consider paying the taxes to service and amortize the debt. Capital levies or currency depreciation would be the way out.[12]

Once we accept the idea that *moderate* full-employment budget deficits *per se* are not an obstacle to a cyclically expansionary fiscal policy, we still have to determine whether the expansion and the resulting deterioration in the budget will lead to crowding out. It would certainly represent a very poor trade-off if fiscal expansion and the resulting deficits showed no pay-off in terms of growth because they led to a substantially matching decline in private spending. There is no reason to fear that course of events.

In an economy where output can expand in response to demand, crowding out occurs because with growth, income money demand rises. If the money supply fails to accommodate the expansion in nominal income, higher interest rates dampen the increase in spending. The issue then is to secure the right monetary-fiscal policy mix. Specifically, in a context of nominal income targeting, the nominal income target must leave room for real expansion, given the prevailing rate of inflation.

Assume an expected inflation rate of, say, 8.5% and a 0.5 income elasticity of money demand. To leave room for a real expansion of 3%, an 11.5% nominal target implies that nominal money would have to grow by about 10%, not taking into account trend velocity movements. The right monetary-fiscal policy mix thus solves the issue of crowding out. It also implies that fiscal expansion will not run into added deficit effects through increases in the level of interest rates.

Concerns about crowding out arise in yet another perspective. It is argued that the very fact of deficits, through expectations, raises real interest rates and thus reduces private demand. This argument is entirely correct in the case of permanent (inflation corrected, real) deficits. A rise in the real full-employment budget deficit would raise real demand at full employment and that inevitably raises real interest rates. Given this mechanism, a permanent worsening of the budget would indeed raise long-term real interest rates, almost independently of short-term monetary policy. For this reason it is important to focus on purely cyclical fiscal expansion, not a permanent increase in the budget deficit. In this manner there is no threat of expectations-induced increases in long-term real interest rates.

Which set of fiscal measures to adopt?

Measures which expand aggregate demand without affecting aggregate supply would, after some reduction in unemployment, run into bottlenecks: unwillingness on the part of firms to supply more, both because of labour costs and a largely antiquated capital stock. Thus fiscal measures should be directed at investment, increasing investment demand in the short run and allowing firms to accumulate capital, increase productivity, and thus reduce unit labour costs. Specifically we suggest a transitory investment subsidy.

At the same time there is room to improve directly slack in the labour market by providing subsidies or tax credits on the *increase* in employment above some bench-mark. Such a measure is all the more warranted in that the growth of non-wage labour costs has become a growing disincentive to employment. The problem of non-wage labour costs is an important issue of long-run fiscal reform, an issue on which we do not touch here. But as a separate cyclical policy we call here for at least temporary marginal employment subsidies.

We believe that a temporary set of investment subsidies, coupled with some reduction in non-wage labour costs on extra employment, represents a good policy package. By being temporary, it induces firms to start investment projects earlier and has therefore a stronger effect than a permanent credit. By being temporary, it would also phase itself out automatically, rather than decrease fiscal revenues forever. The reduction in non-wage labour costs would also have two effects. By increasing the cash flow of firms, it would actually make some of the financial resources needed for investment directly available to firms; it might decrease the growing number of bankruptcies. Of course, on the supply side it would reduce labour costs, making it easier to accommodate the increase in demand.

Our recommendation for an investment subsidy needs amplification in two respects. First, in many countries public sector investment represents an important share of total investment. More importantly, budgetary stringency has cut off in many places public sector investment projects that are well warranted on cost-benefit grounds. We would therefore believe that it is important to expand public sector investment in these areas along with the increase in private investment brought about by the subsidy.

Second, we do not propose investment as the instrument of recovery because in that manner the employment problem would be coped with most effectively. That certainty is not the case as directly targeted public works would in all likelihood absorb more slack in the labour market. The case for investment subsidies and public sector investment is to favour those industries which have suffered particularly from the downturn in demand but which have long-run viability. It is thus a recommendation grounded in supply-side economics.

In making the case for expansionary fiscal policy, we have assumed that countries are willing to incur increased deficits in the recovery. But it is worth adding that those countries that find it impossible to consider deficit finance can still undertake expansion by looking to balanced budget policies. Indeed it is even possible to consider cuts in government transfer payments matching the investment subsidies and yet obtain some stimulus. (Appendix 5 presents some simple computations to this effect.)

We return once more to the actual or perceived trade-off between financial stability and recovery brought about by fiscal expansion. There is no question that even proponents of real-wage-cut therapy recognize that aggregate demand expansion is a necessary part of the recovery. To resolve the possible conflict, if any, between budget deficits and financial stability we have made quite explicitly a recommendation for transitory policies. Being transitory they do not apply to countries that are concerned with reducing the size of government spending and thus favour reductions in budget deficits.

The need for coordinated expansion

An essential part of the fiscal expansion programme is that it should be an *EC-wide coordinated* expansion. A coordinated expansion provides much more expansionary potential per ECU deficit; it implies smaller deficits and smaller deterioration in the external balance with the associated risks of depreciation and inflation. The attempt of France to expand by herself in 1981 showed very dramatically that the individual country, upon expanding, runs rapidly into external deficits and exchange rate pressure as imports grow relative to export revenues. This is an effective obstacle to fiscal expansion and is rightly seen as such by fiscal authorities in each country.

But it is equally important to recognize that these risks do not attach to a coordinated expansion. In a coordinated expansion increased imports are matched by increased export revenues due to partner country expansion. In the current world situation leakages to third countries, which are likely to occur, will also be recovered to the extent that these countries are at present constrained in their import spending by the available export revenues. They would assume a less restrictive policy stance in response to an EC expansion. In sum, a coordinated expansion is a vastly more effective, less risky venture and for that reason must be insisted on.

Simulations in Table 8 show clearly the difference between isolated and coordinated fiscal action. Coordinated fiscal action shows nearly twice the growth impact that isolated expansion achieves. It also shows very much smaller budget deficits.

While the case for coordinated fiscal expansion is compelling, individual countries have not seen their interests in that direction. On the contrary, they have been waiting for other countries to expand, specifically the US, seeking recovery through increased net

Table 8. An increase of public investment of 1 % of GDP after two years

Effects on	EC	FRG	France	UK
Individual action:				
GDP growth	—	1.0	0.4	0.9
Trade balance/GDP	—	− 0.5	− 1.0	− 0.6
Budget deficit/GDP	—	− 0.6	1.0	0.9
Coordinated expansion:				
GDP growth	1.6	1.9	1.3	1.6
Trade balance/GDP	− 0.4	− 0.4	− 0.5	− 0.4
Budget deficit/GDP	0.6	0.2	0.6	0.5

Source: COMET III simulations provided by Commission of the EC.

exports. There has thus been a waiting game underway, even as the world economy has been slipping and the recovery of 1982 failed to materialize. It is time now to shift attention forcefully to the interests that all countries share in the world economy and to call for coordinated, cooperative strategies. These will, perforce, be differentiated across countries, with the hard currency countries taking a relatively major and early initiative and the countries with more acute budget and/or current account deficit problems looking to more moderate expansion programmes. But subject to that qualification, agreement should be reached on a joint programme of expansion to be taking place with urgency.

Designing a programme of differentiated yet coordinated expansion may be difficult to agree on. Yet there is a simple principle that might help set a bench-mark for minimum expansion. Suppose only one group of countries in the EC expands while the others do not take any fiscal initiative. The expanding group would incur budget and current account deterioration, but the non-expanding group would have improved budget and external balances. A natural bench-mark for minimum expansion might then be oriented towards a fiscal expansion that ensures weak currency countries a zero change in the budget or a zero change in the current balance. In this manner the weak countries neither serve as locomotives of expansion, nor are they a drag on the expansion.

The coordination problem goes beyond the EC. There is also need for the EC to agree with the US and Japan on expansion in the world economy. Much of the pressure here should be on the US to ensure a further decline in real interest rates and on Japan to allow both further appreciation and fiscal expansion. Coordination at the world level is in Europe's narrow interest — especially as regards further lowering of real interest rates. But it is also a reponsibility of industrial countries at a time when high real interest rates, low real prices of commodities, and reduced manufactures exports have led to a major collapse in third world countries. Growth in the world economy in this perspective is essential to restore stability in world financial markets.

Appendix 1. Production functions

Work by Berndt-Wood for the US (among others) and by Dramais and Dicks-Mireaux for Europe using cost functions has shed some light on the shape of the technology. We present the estimated elasticities of substitution (Allen elasticities) from these studies.

They are only meant to be suggestive and to support the claim made in the text that the assumption that gross output is Cobb-Douglas in materials (or intermediate inputs), capital, and labour ($\sigma_{KL} = \sigma_{KM} = \sigma_{ML} = 1$) is not in gross contradiction with the econometric evidence. (This neglects energy, which has a relatively small share of gross output.)

Table 9. Estimated elasticities of substitution

	US (Berndt-Wood)	France (Dramais)	FRG (Dramais)	UK (Dramais)	UK (Dicks-Mireaux)
Elasticities					
σ_{KK}	− 8.8	− 6.6	− 3.9	− 6.4	− 6.8
σ_{LL}	− 1.5	− 3.5	− 3.2	− 3.4	− 2.5
σ_{MM}	− 0.3	− 0.5	− 0.5	− 0.5	− 0.7
σ_{KL}	1.0	1.2	0.8	1.0*	0.6
σ_{KM}	0.6	0.9	0.5	1.0*	0.9
σ_{LM}	0.6	1.0	1.0	1.0	1.1
σ_{EE}	− 0.1	− 3.9	− 34.0	− 3.3	
σ_{LE}	0.6	− 0.4	− 0.5	1.0*	
σ_{KE}	− 3.0	− 2.6	− 4.0	− 7.0	
σ_{ME}	0.8	0.5	1.7	1.0*	
Shares					
S_K	.05	.11**	.11**	.11**	.11
S_L	.25	.22**	.22**	.22**	.29
S_M	.66	.63**	.64**	.64**	.60
S_E	.04	.02**	.02**	.02**	

* Constrained to be unity in estimation.
** Intercepts of share equations, not mean shares.

Sources: Berndt and Wood, "Technology, Prices and the Derived Demand for Energy", *REStat*, August 1975, pp. 259-268, using an unrestricted cost function in K, L, E, M; Dramais, "Trans-Log KLEM Model for France, Germany, Italy and the U.K.", Working Paper 41, mimeo, DULBEA, 1980, using an unrestricted cost function in K, L, E, M; Dicks-Mireaux, thesis in progress, Harvard University, using an unrestricted cost function in K, L, M.

Appendix 2. A note on the real-wage gap[13]

The problem

Suppose you know the labour demand function, and employment (E) depends on the real product wage (w), real import prices (π), capital (K), and time (t).[14] Then if you know what full employment (E^*) is, you know what the real wage gap is. It is $(w - w^*)$ where

$$E^* = f(w^*, \pi, K, t)$$

and

$$E = f(w, \pi, K, t).$$

Computing the wage gap does not help to explain low employment but it tells us how much wages have to fall.

If you do not know the demand function, then you cannot calculate the wage gap or do any informative calculation. For illustration assume separability of imports, since this is always assumed in the calculations. Then the labour demand function is

$$E = g(\underline{w}, K, t)$$

where $\underline{w}$ is the wage relative to the GDP deflator. If this comes from a CES value-added function

$$V^{-\varrho} = \delta K^{-\varrho} + (1 - \delta) L^{-\varrho},$$

in competitive conditions

$$\frac{\underline{w}}{V/L} = (1 - \delta)\left[\frac{V}{L}\right]^{\varrho}.$$

If the real wage is too high, in the medium term the share of wages will rise if $\varrho > 0$, that is, if the elasticity of substitution $[1/(1 + \varrho)]$ < 1. It will fall if the elasticity of substitution is high. Unless we know these parameters we cannot infer anything from what we see happening to the share of wages.

However, out of interest we have computed the share of wages, taking the national accounts shares of employees and adjusting them by

- multiplying by (Employees + Self-employed)/Employees;
- multiplying by $(V/L)/(\overline{V/L})$, where $\overline{V/L}$ is trend productivity.[15]

Results

Table 10 shows the following index:

$$I^*_t = \left[\frac{I_t}{I_{1973}} - 1\right]100; \quad I_t = \left[\frac{\underline{w}}{V/L} \frac{V/L}{\overline{V/L}}\right]_t.$$

As the table shows, there has been a rise in the index since 1973 in most EC countries, but not in the US or Canada.

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The preceding approach is preferable to that based on wage indexes for the following reasons.

- There is consistency in the data set used to measure output and remuneration.
- Issues such as labour taxes are handled automatically.
- Problems of restricted coverage of wage data are avoided.

For the record, even using wage data there is never any need to use data on import prices and final output prices if the separability assumption is used, as it invariably is.

Table 10. Total wages relative to total value added,
corrected for short-run productivity fluctuations
and for self-employment earnings
(1973 = 0, percentages)

	Belg.	Denm.	France	FRG	Irel.	Italy	Neth.	UK	EC	Can.	US
1960	− 7.2	− 3.0	0.0	− 4.2	3.1	5.6	− 8.0	− 2.4	− 1.8	1.1	− 0.2
1961	− 8.6	1.7	1.5	− 2.8	6.2	3.3	− 6.1	− 1.3	− 0.9	1.6	− 0.4
1962	− 7.6	2.4	2.7	− 2.9	8.5	2.8	− 6.2	− 2.5	− 0.9	1.4	− 0.9
1963	− 7.2	− 1.8	2.4	− 4.5	8.1	5.3	− 5.5	− 2.2	− 1.0	1.1	− 1.3
1964	− 6.6	0.7	2.1	− 4.1	5.4	1.6	− 2.4	− 1.9	− 1.2	0.6	− 0.9
1965	− 6.5	3.4	0.9	− 3.0	2.1	− 5.1	− 1.4	− 3.6	− 2.3	0.7	− 1.8
1966	− 6.1	3.7	− 0.5	− 3.8	1.8	− 5.9	− 1.5	− 5.0	− 3.2	0.6	− 1.3
1967	− 5.8	2.0	− 1.3	− 6.2	1.3	− 6.5	− 1.5	− 5.4	− 4.3	0.9	− 3.1
1968	− 6.2	1.7	0.9	− 5.8	2.9	− 6.8	− 1.9	− 5.0	− 3.7	0.4	− 2.9
1969	− 6.0	3.6	0.9	− 4.4	2.6	− 8.3	− 0.4	− 6.1	− 3.5	1.4	− 1.1
1970	− 5.6	2.6	0.8	− 1.4	4.5	− 5.8	1.4	− 3.8	− 1.7	− 1.1	− 0.8
1971	− 4.1	3.0	1.0	− 1.7	2.2	− 4.3	0.9	− 4.7	− 1.7	1.2	− 2.1
1972	− 1.3	− 0.9	− 0.3	− 2.0	0.7	− 2.9	− 1.0	− 3.3	− 1.8	1.7	− 1.0
1973	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1974	1.6	4.1	2.4	0.6	8.0	1.0	2.1	1.8	1.6	− 2.4	− 1.4
1975	1.9	3.6	3.8	− 2.5	11.8	3.9	1.7	3.6	1.7	− 1.3	− 3.3
1976	6.8	4.4	5.5	− 1.2	7.4	5.3	1.5	1.9	2.6	1.4	− 1.8
1977	7.0	4.6	6.5	− 0.3	8.1	3.5	1.6	− 2.9	2.1	3.0	− 0.9
1978	9.5	0.1	7.1	− 0.5	9.6	3.6	1.9	− 2.1	2.3	2.8	− 0.9
1979	8.4	1.9	6.1	− 0.2	12.9	3.2	2.6	− 2.8	2.1	0.2	− 0.6
1980	10.4	0.2	6.3	0.2	18.8	1.4	1.6	− 3.1	2.0	− 1.1	− 1.4

Appendix 3. On computing the "correct" real wage

Let q, l, k, m be percentage changes in gross output, labour, capital, and intermediate inputs. Let w, r, π be percentage changes in the rental prices (in terms of the price of gross output) of labour, capital, and materials. Then:

$$q = \alpha t + \alpha_l l + \alpha_k k + \alpha_m m, \tag{1}$$

$$m + \pi = q, \tag{2}$$

$$l + w = q, \tag{3}$$

$$k + r = q. \tag{4}$$

The first equation is the production function, with shares α_l, α_k, α_m, rate of factor productivity growth α. The next three equations are first order conditions for profit maximization. If k is quasi-fixed, the last equation determines the percentage change in the shadow rental price.

To solve for the real wage growth consistent with a given growth of employment $\bar{l}$, we solve for q, m, and w, given $\bar{k}$, $\bar{\pi}$, and $\bar{l}$. Replacing (2) in (1) and rearranging:

$$q^* = (1 - \alpha_m)^{-1} (\alpha t + \alpha_l \bar{l} + \alpha_k \bar{k} - \alpha_m \bar{\pi}).$$

Replacing in (3):

$$w^* = q^* - \bar{l}.$$

To solve for the growth of employment consistent with a given growth of the real wage, the price of materials, and capital, we solve for q, l, and m, given $\bar{k}$, $\bar{w}$, and $\bar{\pi}$. Replacing (2) and (3) in (1) and rearranging:

$$q = \alpha_k^{-1} (\alpha t - \alpha_l \bar{w} - \alpha_m \bar{\pi}) + \bar{k}.$$

Replacing in (3):

$$l = \alpha_k^{-1} [\alpha t - (\alpha_k + \alpha_l)\bar{w} - \alpha_m \bar{\pi}] + \bar{k}.$$

Table 11. Data for capital, labour, and sector prices
(1972 = 100)

	1964	1972	1980
Gross output	74	100	94
Labour	113	100	83
Capital	70	100	121
Materials	74	100	94
Product wage	63	100	116
Product price of materials	100	100	115
Shares of labour	.28	.29	.30
capital	.14	.11	.06
materials	.57	.59	.64

Appendix 4. Money rules

Consider the quantity equation in logarithms:

$$m + v = p + y.$$

Assume further that:

$$v = \alpha i + \beta y + \varepsilon,$$
$$y = -\theta i + \xi,$$
$$p = \gamma y + \eta.$$

ε, ξ, and η are the autonomous components of velocity, spending, and inflation respectively.

Then under a constant money rule, $\overline{m} = 0$ say,

$$y = [\alpha + \theta (1 + y - \beta)]^{-1} (\alpha\xi + \varepsilon - \eta).$$

Under a constant nominal income rule $m = -v$,

$$y = -(1 + \gamma)^{-1}\eta.$$

Thus a constant nominal rule dominates a constant money rule for ξ and ε disturbances. Whether it dominates in the face of η disturbances is ambiguous. This analysis assumes a given level of output. Further complications arise if output is variable.

Appendix 5. The impact of an investment subsidy

Let q be the present value of marginal profits and let "adjusted q" be:

$$q_A = (1 - k - \zeta z)^{-1} q$$

where k is the rate of investment tax credit, ζ the corporate profit tax rate, and z the present value of depreciation deductions.

According to the q theory, investment is then a function of q_A. Let α be the elasticity of investment with respect to q_A.

A temporary investment tax credit has little effect on q. If we assume q to be constant, we get:

$$dI/I = \alpha dk/(1 - k - \zeta z).$$

Estimates of α vary between 0.5 and 1. ζ is approximately 0.5; z varies between 0.6 and 1, depending on type of good and country. This implies that in response to an increase in k from 0.1 to 0.3 for example, the percentage change in investment is between 8% and 25%.

Thus if investment tax credits are matched by reductions in government spending, the direct change in total spending per dollar of investment tax credit is given by:

$$(dI - Idk) / Idk = (dI/I) / dk - 1.$$

The expression varies between -0.2 in the worst case ($\alpha = 0.5$, z = 0.6) and 2.5 in the best case ($\alpha = 1$, z = 1). This clearly does not take into account further multiplier effects.

A more elaborate treatment is given in A. Abel, "An Assessment of Tax Credits and Tax Cuts", *New England Economic Review*, November/December 1978, pp. 54-66.

Notes and Sources

1. Commission of the European Communities, "Real Wages and Employment", July 1982.

2. Herbert Giersch, "Kaufkraft und Lohne", Deutsche Bundesbank, *Auszuge aus Presseartikeln*, November 6, 1982 (translated). See also the discussion of J. Roth, "Mehr Beschaftigung durch Reallohnzüruckhaltung", *Kieler Diskussionsbeiträge*, March 1982. Roth concludes that a 1% cut in real wages generates 400,000 jobs in the FRG. In terms of that analysis, a 5% cut in real wages would restore full employment.

3. This figure is adapted from the early disequilibrium model of R. Mundell, "Some Subtleties in the Interpretation of Keynesian Equilibrium", *Weltwirtschaftsliches Archiv,* 1964.

4. Another difference between the two is due to the approximation of (P_c/P_v), by the terms of trade (P^*/P_v). If P^* is the price of imports and a the share of imports in consumption, then: $(P_c/P_v) = (P_v^{1-a} P^{*a}/P_v) = (P^*/P_v)^a$.

5. One cost component increased significantly during this period, the real interest rate. In the short run, this has substantially increased the carrying costs on working capital and inventories, acting like any other factor price increase to decrease employment. In the long run, it leads to a larger decline in employment, as capital itself decumulates.

6. The discussion here has focused on "the" wage. But many of the problems in the labour market may well arise from an insufficiently flexible *relative* wage structure. If there are some markets with excess demand or classical unemployment and others with Keynesian unemployment, generalized wage cutting will not be the answer. There is need for a mix of aggregate demand policy, perhaps some economy-wide real wage cuts or equivalent fiscal policies that reduce the marginal cost of labour, and finally changes in the relative wage structure. Relative wage-flexing ties in with issues of indexation. Should social policy be implemented in the labour market, raising the marginal cost of labour for the sake of equality, or should that be a matter of fiscal policy? We do not address that question here but indicate it as a crucial medium-term problem.

7. Henry Simons, in advancing the notion of a monetary rule in 1936, argued: "... it is clear enough and reasonable enough to provide the basis for a new religion of money, around which might be regimented strong sentiment against tinkering with the currency." But he immediately continued, "With all its merits, however, this rule cannot now be recommended as a basis for monetary reform. The obvious weakness of fixed quantity, as a sole rule of monetary policy, lies in the danger of sharp changes on the velocity side...". See H.C. Simons, "Rules Versus Authority in Monetary Policy", reprinted in F. Lutz and L. Mints, *Readings in Monetary Theory,* Richard D. Irwin, Inc., 1951, p. 341.

8. See R. Mundell, *Monetary Theory,* Goodyear Publishing Company, 1971.

9. In D. Grubb, R. Jackman, and R. Layard, "Causes of the Current Stagflation", unpublished manuscript, London School of Economics, 1982, an estimate of $a = 1.17$ is reported for the EC in Table I.

10. For details of such a proposal see D. Grubb, R. Layard, and J. Symons, "Wages, Unemployment and Incomes Policy", unpublished manuscript, London School of Economics, 1982, and R. Layard, "Is Incomes Policy the Answer to Unemployment?", unpublished manuscript, London School of Economics, 1982.

11. The inflation adjustment for Denmark only includes the depreciation in the real value of the domestic debt. No adjustment is made for the external debt, either because of inflation or (for the part denominated in foreign currency) of depreciation.

12. See J.M. Keynes, *A Tract on Monetary Reform*, Royal Economic Society, 1977, pp. 59-60. "... the level of the franc is going to be settled in the long run not by speculation or the balance of trade, or even the outcome of the Ruhr adventure, but by the proportion of his earned income which the French taxpayer will permit to be taken from him to pay the claims of the French rentier".

13. Prepared by R. Layard.

14. See J. Symons, "Relative Prices and the Demand for Labour in British Manufacturing", unpublished manuscript, London School of Economics, 1982.

15. Computed in D. Grubb, R. Layard, and J. Symons, "Wages, Unemployment and Incomes Policy", unpublished manuscript, London School of Economics, 1982, p. 5, footnote.