Macroeconomic Policy and Unemployment in the 1990s

by

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During the world-wide slump of the last few years the unemployment rate has increased throughout the OECD. This rise in unemployment has almost fully reversed the decline in unemployment that occurred in most countries during the economic expansion of the late 1980s. The OECD average unemployment rate fell from a peak of 8-1/2 percent in 1983 to about 6 percent in 1990. Now, in 1993, the total OECD unemployment rate is above 8 percent, and, according to recent forecasts, is expected to reach about 8-1/2 percent again before beginning to decline in 1994. If the pace of the expansion of the 1980s is any guide, the unemployment rate will not return to 1990 levels until the year 2000.

Although these average OECD unemployment figures hide large differences in cyclical timing (the United States has apparently already passed its unemployment peak) as well as differences in severity (the unemployment rate in the United Kingdom is over 10 percent), the global nature of the slump and labor market slack is unmistakable. Just as the world-wide expansion of the late 1980s was responsible for the decline in unemployment, the recent period of recessions and slow growth has undoubtedly led to the increase in unemployment.

Concerns about the high levels of unemployment have led to proposals that macroeconomic policy, usually through some type of fiscal stimulus, be used to reduce the unemployment rate over the next few years. That the 1990 unemployment rate--the most recent

low point--was well above the low points in earlier post World War II cycles magnifies these concerns and helps motivate the proposals. However, opinions differ widely on the need for such stimulus, and whether, on the contrary, medium term programs of budget deficit reduction are more appropriate than stimulus, at least in those countries with continued large budget deficits.

This paper endeavors to provide a framework to assess the role of macroeconomic policy in affecting unemployment. While microeconomic policy or structural policy also has a significant role in affecting unemployment, this paper focuses entirely on macroeconomic policy. Many of the arguments are bolstered with reference to particular economic trends and episodes in several OECD countries, although selected time-series regressions and computer simulations are used when appropriate.

The first section of the paper provides an update of the analytical issues that are key to understanding how macroeconomic policy affects unemployment. Experience with unemployment and inflation in the late 1980s in different countries has influenced thinking about the role of macroeconomic policy, and in particular how fiscal policy, monetary policy, and exchange rate policy interact. The second section considers the impact of expectations, credibility and capital mobility in assessing the role of macroeconomic policy in affecting unemployment. Empirical simulations to assess the importance of expectations and capital mobility effects are provided using a macroeconometric model of the seven largest OECD countries. The

third section places the results in the context of current economic conditions in several of the major countries, and draws some tentative conclusions about macroeconomic policy in the years ahead.

1. A Basic Macroeconomic Framework

1.1 "Normal" versus "Cyclical" Unemployment, and Macro Policy

Any analysis of the role of macroeconomic policy in affecting unemployment--whether an elementary textbook analysis, a briefing for policymakers, or a sophisticated econometric study--must distinguish between the "normal" level of unemployment and the "actual" level of unemployment. The normal level of unemployment occurs when the overall economy is neither in a boom nor in a slump, that is when the economy is in a "normal" state. Other names have been used for this normal unemployment rate--the "natural" unemployment rate, the "full-employment" unemployment rate, the "high-employment" unemployment rate, and sometimes the non-accelerating inflation rate of unemployment. The actual unemployment rate fluctuates around the normal rate, falling below normal in booms and rising above normal in slumps.

The normal unemployment rate concept is common to most modern theories of macroeconomics including the new classical approach, in which prices are flexible and actual unemployment fluctuates around the normal rate because of unanticipated price changes, and the sticky price-wage approach, in which employment

increases with aggregate demand. It should be emphasized that the normal rate is not necessarily an optimal rate or desirable rate. In fact it is typically assumed that the normal rate is higher than optimal, and that economic policy, though not typically macroeconomic policy, should aim to reduce the normal rate of unemployment.

Despite considerable theoretical refinements, the normal rate concept is no less essential now than it was when it was first introduced in policymaking circles in the late 1960s by Milton Friedman and Edmund Phelps. Although the "full employment unemployment rate" was introduced by the Council of Economic Advisers in the United States in the early 1960s, until the work of Friedman and Phelps it was believed that the actual rate of unemployment could be permanently held below the normal rate indefinitely without continual increases in inflation. The Friedman and Phelps view was that the actual unemployment rate could not be held below the normal rate in the long run. Any attempt to hold the unemployment rate below this normal rate through macroeconomic policy--either monetary policy or fiscal policy--will bring higher and higher inflation. And once the inflation rate rises to intolerable heights a switch to restrictive macroeconomic policies must occur which will eventually raise the unemployment rate above the normal rate. Hence, a simple yet profound and important implication of this normal rate concept is that a goal of macroeconomic policy should be to keep the actual unemployment rate as close as possible to

the normal rate. In practice this goal needs to be balanced against other potentially conflicting goals--such as low inflation or incentives for long term growth. But in circumstances where these other goals are met, stabilizing the actual rate of unemployment around the normal rate is the proper goal of macroeconomic policy. A macroeconomic policy in which the instruments of monetary and fiscal policy are in an expansionary mode when unemployment is above normal, and in a contractionary mode when unemployment is below normal would be consistent with this goal, again assuming that other goals are on track. The automatic stabilizer mechanism of fiscal policy tends to achieve this response systematically. The question in general is whether the automatic stabilizer mechanisms provide the correct magnitude of the response. In principle, the automatic stabilizers could be too large or not large enough.

Making this goal work in practice is of course difficult. The normal unemployment rate depends on a host of microeconomic factors such as the unemployment compensation system (for example, higher replacement rates or extended coverage will tend to increase the normal rate), the demographic composition of the labor force (for example, a greater concentration of young people will tend to raise the normal rate), and the flexibility of the labor market (for example, laws increasing the ease of lay-off provisions or the use of temporary workers can increase flexibility). All these factors can change over time; indeed, they are influenced by public policy and are an important non-

macroeconomic way to reduce unemployment. However, because they change over time and are different in different countries, the normal rate of unemployment changes over time and is different in different countries.

For example, the normal rate of unemployment in Japan is apparently very low--about 2-1/2 percent, while in recent years, the normal rate has been about 5-1/2 or 6 percent in the United States and as high as 9 percent in France. These estimates are not very precise. On the one hand, they are accurate enough to tell us that it would be very unwise to use macroeconomic policy to reduce the unemployment rate in the United States or France to Japanese levels. On the other hand, it is not clear that a more expansionary monetary and fiscal policy is inappropriate (assuming that other goals such as inflation were being met) in the United States when the unemployment rate is 6 percent.

Poor estimates of the normal rate of unemployment can lead to policy mistakes. For example, the normal rate is now estimated to have increased in the United States in the late 1960s and 1970s. But U.S. policymakers did not recognize this increase (at least formally) until the mid-1970s, leading to overly expansion macroeconomic policies which tried to reduce the unemployment rate below the normal rate; this contributed to the rise in inflation in this period, and the turbulent disinflation episode in the late 1970s and early 1980s.

The normal rate is also difficult to measure, making it even harder to achieve the goal of minimizing the fluctuations around

the normal rate. Most estimates of the normal rate use observations on the actual rate. For example, the level of the actual rate for which there is no tendency for inflation to either rise or fall is the classic measure of the normal rate used since the early 1960s, and is the reason for the term non-accelerating inflation rate of unemployment. An alternative is to associate the normal rate with a normal level of real GDP--when real GDP is equal to a normal level of GDP, it is assumed that the unemployment rate is equal to the normal unemployment rate (That is, Okun's law is used).

1.2 Hysteresis Issues

In the mid-1980s when unemployment rates remained near cyclical peaks in the United Kingdom and many other large OECD countries, the normal rate concept was challenged by a number of economists (see Blanchard and Summers (1986) for a review) who emphasized the possibility of hysteresis--that is, increases in the actual unemployment rate could raise the normal unemployment rate. Several underlying theoretical rationales for this effect have been offered: for example, the lower growth of physical or human capital during a slump when unemployment is high can reduce employment after the slump; alternatively insider-outsider theories (see Lindbeck and Snower (1985)) can be used to show how workers with existing jobs (insiders) bargain for real wages that maintain their employment and cause the unemployment rate to persist at essentially any level after a macroeconomic shock that

alters the level of unemployment. Because changes in the actual unemployment rate can affect the normal rate, and because changes in the macroeconomic policy can affect the actual rate, the hysteresis models make the normal rate concept--which assumes that macroeconomic policy does not affect the natural rate-invalid or at best a poor approximation. For example, a stimulative fiscal policy which brought the actual unemployment rate down could eventually also bring the normal rate down according to the hysteresis theory.

It is very difficult to test the empirical validity of the hysteresis view. That unemployment was slow to come down after the economic slump of the early 1980s, was viewed as supportive of the hysteresis view in the mid-1980s when much of the research on the subject was conducted. Figure 1 provides some relevant recent evidence. The cyclical decline in the unemployment rate to the 5 percent range in the United Kingdom in 1989 before the subsequent rise back to the level before the decline in the early 1990s raises doubts about the hysteresis theory. At least in comparison to the empirical evidence in the mid-1980s, the recent cycle is more consistent with large fluctuations around a relatively steady normal rate. The hysteresis theory would have predicted a decline in the normal unemployment rate in the United Kingdom, especially in comparison to France which saw little or no decline in actual unemployment in 1989 or 1990. Yet the normal rate appears to have undergone little change in the United Kingdom. Similarly, the decline in unemployment in

Germany in the late 1980s does not appear to have reduced the normal rate, and in the United States the change in the demographic composition of the labor force appears to explain most of the decline in the normal rate during this period. To be sure, any empirical analysis like this must recognize that many non-macroeconomic factors are affecting and gradually moving the normal rate over time.

1.3 Recent Evidence on Inflation-Unemployment-Output Tradeoffs.

Another recent challenge to the basic macroeconomic theory and the normal rate concept has been perceptions of breakdown of the relationship between inflation and unemployment or real output. This relationship is at the heart of modern theories of the relationship between macroeconomic policy and unemployment. For example, as stated above, if macroeconomic policy brings the actual unemployment rate down too rapidly below the normal rate, then inflation will rise.

There is still considerable debate among macroeconomists about this relationship. The idea of rational expectations has become dominant in academic research, but there is still a split between those who assume and utilize the assumption of sticky prices and other rigidities and those who maintain the perfectly flexible price assumption.

In the United States, for example, the real business cycle view, in which prices are perfectly flexible and money does not play a role in the cycle, is popular among many academic

economists. From the perspective of formulating macroeconomic policy, however, the real business cycle model is by definition inadequate; it does not include macroeconomic policy and it does not explain the strong correlation between inflation and unemployment fluctuations evident in the data, although modifications of the real business cycle model may eventually incorporate money and explain the link between output and price fluctuations. In the meantime, however, models that incorporate some degree of price rigidities along with rational expectations are better able to explain the facts relevant to designing and choosing a good macroeconomic policy.

Table 1 addresses the issue inflation-unemployment-output by presenting time-series evidence on inflation and output fluctuations using quarterly data from the OECD Quarterly National Accounts for the United States, Germany and Japan. The table shows the coefficients of a simple bivariate vector autoregression of inflation (the first difference of the log of the output deflator) and real output (measured as the percentage deviation from a trend over the 1972:4-91:3 period). To keep the econometrics as simple as possible, this bivariate system only includes two lags of each variable. The general findings are not changed by the inclusion of more lags.

The two equations clearly show the interrelationship between inflation and output. Has recent data indicated any breakdown in this relationship? According to these regressions the answer is no. There is not much reason to change one's thinking about the

aggregate relationship between inflation and output. The last five years saw a combination of lower more stable inflation and more credible monetary policies. However, the recent business cycle is similar to previous cycles in that it began when economic policymakers attempted either to disinflate the economy or to prevent a rise in inflation.

Tests for structural stability (shown in Table 1) indicate little evidence of a change in the parameters. Only in the case of the inflation equation for Japan is there a statistically significant shift in the parameters and this appears to be related to higher coefficients on the lagged value of real output. The sign and general pattern of the effect is preserved.

A reasonable structural interpretation for these equations involves a macroeconomic theory with sticky prices and rational expectations. The underlying macroeconomic theory that underlies these equations can be simply explained. The deviations of real output from trend are interpreted as demand fluctuations--the trend in output is potential output, and positive deviations represent periods of excess demand when there are upward pressures on prices. These upward movements in demand cause, with a lag, inflation to rise. The lag is due to slow adjustment of wages and prices, which may be due to staggered wage and price setting. This empirical correlation corresponds to the short-run trade-off between output or unemployment and inflation.

The other cross correlation shows that shocks to inflation lead to a decline in real output (and a rise in unemployment).

The interpretation for this is that macroeconomic policy endeavors to contain the inflation increases. Hence, interest rates rise and real output falls. Since the impact of macroeconomic policy occurs with a lag, the effects are drawn out over time.

In sum this statistical analysis captures the fact that when output rises above normal (or the unemployment rate falls below the normal rate), inflation rises. Moreover, it also shows that a subsequent tightening of policy then causes output to fall below normal, and inflation then starts to fall and eventually policy begins to ease. Such was the cycle of the 1980s. The statistical analysis shows that the cycle of the 1990s looks very similar. The established relationship between unemployment and output fluctuations and inflation fluctuations continues to hold

2. Expectations and Capital Mobility.

The macroeconomic research on rational expectations in the 1980s has emphasized the distinction between the impact on unemployment of anticipated versus unanticipated changes in fiscal and monetary policy. The issue has become particularly relevant for analyzing plans for medium term budget deficit reduction over a number of years. Some who argue against the need for an expansionary fiscal policy to reduce unemployment in the United States, believe that a credible plan to reduce the budget deficit--which is good for the United States in the long run--would be good stimulus for the economy in the short run as

well. Theoretically, expectations of future budget deficit reductions could stimulate the economy and lower unemployment in the short run as expectations of future budget deficit reductions lower expectations of future interest rates and thereby lower long-term interest rates. But the issue is more empirical than theoretical. Could a credible plan to reduce the government budget deficit over the next few years stimulate the U.S economy in the short run? If so, by how much? And how gradual should the decline in the deficit be? This question has recently been raised in the United States, but similar questions have arisen in the past and are likely to arise again in the future in other countries as well. This section begins with an empirical look at this important question.

2.1 Effects of credible future changes in the budget deficit

During the past decade a new type of macroeconometric model and policy evaluation technique to answer these kinds of policy questions has evolved (see Bryan, Hooper, Mann and Tryon (1993). One of these models--that described in Taylor (1993)-- is used here. The model has the basic features of the macroeconomic framework outlined in the previous section, including a concept of normal trend GDP corresponding to the normal level of unemployment, and a short run relationship between unemployment and inflation. The model uses rational or consistent expectations to describe the reaction of people to changes in policy. It is a multicountry model of the seven largest OECD

countries, in which financial capital is assumed to be mobile. The central banks are assumed to follow empirically estimated policy rules (described below) which reflect their price stability goals.

Table 1 shows the estimated impact on the main components of real GDP in the four European countries, Japan and the United States of a credible plan to eliminate the U.S. structural budget deficit gradually over 5 years starting in 1994, but first announced in the first quarter of 1993. The estimates come from the simulations of the estimated quarterly multicountry rational expectations model. The simulations assume that reduced government purchases make up the entire deficit reduction, but similar calculations could be made with other deficit reduction proposals. The simulations also assume that the European countries are linked together in a fixed exchange rate system in which the Bundesbank sets monetary policy according to unemployment and inflation conditions in Germany. Exchange rates between the United States, Europe and Japan are assumed to be flexible.

As shown in Table 2, according to this model, such a credible deficit reduction program, would actually stimulate the economy slightly in the short run. Real GDP would increase by up to 1/2 percent in the first few years following the announcement of the program. Unemployment would fall slightly. As the actual budget reduction takes hold and the initial stimulus wears off, there is a slight decline in real GDP. After the budget cutting

ends in 1999, the economy then returns to the baseline path.

The mechanism through which this stimulus occurs is surprising and relates to the interaction between monetary and fiscal policy during such a budget deficit reduction program. In the first year, neither short-term nor long-term interest rates change very much. Short-term interest rates rise slightly. The Federal Reserve, the Bundesbank and the Bank of Japan are assumed to be following a policy rule that calls for an increase in the short-term interest rate target when real GDP or the price level rise, and for a decline in the interest rate when real GDP or the price level fall relative to a target. With the slight improvement in the U.S. economy relative to baseline in 1993 and 1994, this policy rule entails an increase in short-term interest rates in the United States (relative to baseline) in 1993 and 1994. Because the term structure of interest rates is forward-looking, the long-term interest rate rises as well in 1993. Eventually the monetary policy rule calls for a decline in short-term interest rates, and anticipation of this decline results in a decline in the long-term rate starting in 1995. Clearly the model of the term structure is affecting this behavior of long-term and short-term interest rates. In this case the long rate is a weighted average of future short rates, but the weights, estimated empirically, decline rather rapidly and thus the expected decline in short-term interest rates in the mid- to late 1990s have little impact on the long-term rates in 1993. However, some preliminary analysis with different assumptions

about the term structure indicates that a term structure in which long rates depend more heavily on future short-term rates only changes these results slightly.

Because there is little change in interest rates, all of the stimulus to the economy that comes from the anticipated decline in the budget deficit is initiated by the depreciation of the exchange rate. The dollar depreciates by about 14 percent against the yen and about 17 percent against the European currencies. The depreciation occurs because the future reduction in the deficit brings about an expectation of an exchange rate depreciation in the future. This depreciation is what "crowds in" net exports. The expectation of future depreciation in turn brings about an immediate depreciation at the time the deficit reduction plan is announced because of the assumption of ex ante interest rate parity and rational expectations assumed in the model.

The increase in real GDP associated with the anticipated cuts in the budget deficit raises questions about the rational expectations assumption. When examining the design of different policy rules, which are assumed to be in operation for a long time, the rational expectations assumption is reasonable: people get used to how the policy works. However, for the budget deficit reduction path to have the effects reported in Table 2 the policy must be completely credible. If it is less than fully credible--as is very likely to be the case in practice--then some adjustment must be made in the results.

Unfortunately, there is no agreed upon way to adjust these simulation results to deal with credibility. Various learning models have been tried, but these usually assume that people passively learn about events without paying any attention to what the policymakers say or do. One thing seems fairly certain, however. Unanticipated changes in fiscal policy generally have larger effects and with the opposite sign than anticipated changes. To the extent that a lack of credibility means that policy changes are unanticipated, a lack of credibility could make this policy change have a contractionary effect on real GDP and employment in the short run.

Actual policy experience may provide a guide. For example, a budget agreement in the United States in 1990 aimed at a budget deficit reduction path much like those in the simulations. At the time of the 1990 U.S. budget agreement an effort was made to make the deficit reduction program credible through the institution of new budget rules, limits on spending, narrower and thus more credible across the board cuts in spending, and a procedure through which cyclical effects of the economy could raise the deficit through the automatic stabilizers. Although those new budget rules are still place in place, the structural deficit did not decline as projected because of the growth in existing entitlement programs and the decline in tax revenue relative to what was forecast. The lack of success in budget deficit reduction in the past makes achieving credibility in the future more difficult.

According to Table 2, the impact of the credible fiscal contraction on the U.S. economy is positive in the short run but relatively small in magnitude. Table 3 shows the effect of the same long-term budget deficit reduction, combined with a temporary (one year) increase in the budget deficit by 1 percent of GDP in 1993. There is an additional positive effect on the economy in 1993, according to the simulations, but by 1994 the stimulus is actually less than in the case of pure budget deficit reduction. The fiscal multiplier for this largely unanticipated fiscal expansion is only about 1. Moreover, the mixture of a fiscal stimulus with promises for future budget deficit reduction would probably make the credibility problem even worse. It may signal a lack of resolve for future budget deficit reduction, and thereby raise interest rates and have an even smaller effect than that shown in Table 3.

2.2 Alternative Exchange Rate Regimes

The depreciation of the dollar against Europe in Table 2 has a contractionary effect on the four European countries. The effect is smallest in Germany, because--as described above--German monetary policy is geared to counteract such external shocks the German economy. The decline in interest rates in Germany--both real and nominal--stimulate investment and thereby partially offset the decline in export demand.

However, the impact on the other counties of Europe is much larger. The decline in real output on France is particularly

large, but both the United Kingdom and Italy have much larger declines than Germany. The reason for this difference is that all-European interest rates move along with the Bundesbank, and these movements are not necessarily optimal for the other countries. For example, real interest rates actually rise in France, Italy, and the United Kingdom, but they fell in Germany.

Table 4 shows the same simulations with a fixed-exchange rate European monetary system in which unemployment and inflation in all four countries--not just Germany as in Table 2--figure into the European interest rate determination. The impact of the U.S. fiscal shock in the other countries is now smaller, but still not insignificant in France. For comparison, Table 5 shows the effects in the case where the other countries drop out of the European monetary system and let their exchange rates float. This gives the maximum amount of monetary independence and minimizes the effects of the U.S. policy on each country. This policy results in the most favorable unemployment conditions of all the exchange rate regimes.

3. The Current Context

How do these theoretical considerations, empirical results and computer simulations apply to the current unemployment situation in the OECD as summarized in the introduction to this report? Conditions differ in each OECD country with respect to the level of unemployment, the degree of fiscal and monetary stimulus, and the credibility about budget policy and monetary

policy, and it is clearly beyond the scope of this report to consider the situation in each OECD countries in detail. However, placing the general results in the specific context of several of the countries is suggestive of what policy recommendations are in order.

Section 1 made it clear that a countercyclical fiscal policy designed to stabilize unemployment around the normal level is appropriate. If such a policy is stable and predictable--as with the automatic stabilizers of fiscal policy which raise the budget deficit during a recession and lower it in a boom--then it will have favorable effects on expectations without raising concerns about that a higher budget deficit in a recession indicates a permanent increase in the deficit. At the same time the desirability for countercyclical fiscal policy does not diminish the need for a reduction in the structural budget deficit, especially in countries where such deficits are large or growing.

3.1 The budget deficit and the unemployment rate

Figures 2, 3, and 4 provide information that has bearing on the need for additional fiscal stimulus in three countries: the United States, the United Kingdom, and France. The charts indicate the countercyclical actions of fiscal policy showing the positive correlation between the budget deficit and the rate of unemployment. All three countries have structural deficits: when the unemployment rate is normal in each country, the government budget would be in deficit. Hence, there is a continued need to

reduce the structural deficit in all three countries in the years ahead. If this is done systematically and credibly then there is the possibility that if could reduce unemployment in the short run, as suggested by the simulations in this report, as well as have beneficial long run effects. But the short run stimulus would not be large according to the empirical model used above.

Regarding the need for additional countercyclical stimulus in the short run, it is important to note that the level of the deficit is larger as a share of GDP, especially in comparison with the level of unemployment, than it was in the early 1980s in both the United States and the United Kingdom. For example, in the United States the level of unemployment is now lower than in the early 1980s, while the level of fiscal stimulus as measured by either the level or the increase in the actual deficit, is larger. As in the early 1980s the recent increase in the deficit in the United States is partly due to the automatic stabilizers and partly due to "discretionary" factors, but together they provide a substantial degree of fiscal stimulus currently. Hence, it is difficult to argue for additional stimulus, especially if one views the level of fiscal stimulus as too large in the early 1980s in the United States. The situation is similar in the United Kingdom, although the unemployment rate is higher. While fiscal stimulus has also increased in France, the deficit is less than it was in the early 1980s, although the unemployment rate is higher. Hence, there appears to be somewhat more room for stimulus in France. Although no additional charts are provided

here, it is clear that the Japanese situation also shows more room for additional fiscal expansion, according to this interpretation.

3.2 Estimates of room to grow and policy lags

A second factor to consider is the degree of departure of real GDP from trend GDP, and how rapidly any gap is expected to diminish over time. Figures 5, 6 and 7 show the level of real GDP along with estimates of trend GDP for the same three countries. There is a great degree of uncertainty about the level of trend GDP as well as its growth rate. The close relationship (i.e. Okun's law) between the departure of real GDP from trend and the unemployment rate is shown in Figures 8, 9, and 10. Clearly narrowing the gap between actual GDP and trend would lower the unemployment rate, and bring it closer to the normal rate. The problem is to find a way to do this without overshooting and creating the boom conditions of the late 1980s which led to the world slump in the early 1990s. Because of the lags in enacting and implementing policy, the possibility of a stimulus that is too late and could overshoot is very real.

According to the estimates of the trend in these figures (and it must be emphasized that there is uncertainty), there is relatively little room for rapid fiscal expansion in the United States. Although off to a relatively slow recovery from the recession in late 1990 and early 1991, the United States is forecast to begin closing the gap in 1994 if not sooner. The

credible phased-in reduction in the budget deficit simulated in Table 2 would provide some additional stimulus, and perhaps about the right amount given uncertainty about the level of trend GDP and the normal unemployment rate. The situation in France is similar, though the normal rate of unemployment is considerable higher. This suggests the appropriateness for structural or microeconomic policies, rather than macroeconomic policies, for unemployment reduction in France.

3.3 Exchange rate issues

On balance, these results suggest that there not much room for fiscal expansion in the United States and that it is advisable to get on with a multiyear program of budget deficit reduction. What should be the response to this action in Europe? While there may be room for some fiscal expansion in a few European countries, the simulation results in this report suggest that at least for this period of transition, it is more important for the exchange rate system in Europe to permit a greater degree of flexibility. Options to float or change parity rather than let interest rate move according to unemployment and inflation conditions in other countries should be kept open, at least for a while. Some countries may have more room for fiscal expansion than the United States, but any increase in the deficit should be undertaken in a clear and predictable fashion so as not to suggest permanent delay of budget deficit reduction in the future.

4. Concluding Remarks

This report has endeavored to assess the role of macroeconomic policy in affecting the unemployment rate. The analysis suggests that, in general, it is appropriate for fiscal policy to expand to reduce the unemployment rate when the unemployment rate is above normal levels and to contract when unemployment falls below normal levels. The automatic stabilizer mechanisms of fiscal policy can systematically provide such a policy response. Current situations in the United States and some other countries suggest that fiscal policy is already quite expansionary and that some reduction in unemployment can come from a credible plan of long-term structural deficit reduction. For countries in which the "normal" rate of unemployment appears very high and in which there is little gap between actual GDP and trend GDP, microeconomic policies are a more appropriate means for lowering unemployment.

For countries with large current and projected structural budget deficits, a good long-run program for budget deficit reduction is likely to be the best short-run strategy as well. Even if this is not effective in stimulating the economy through the mechanism of the expectation effects present in the formal model used in this paper, the recognition that government has a plan that is working would likely raise confidence (which has been low in the early phases of this recovery), reduce uncertainty, and lower risk premiums. This would lower long-term interest rates, stimulate investment, and reduce unemployment.

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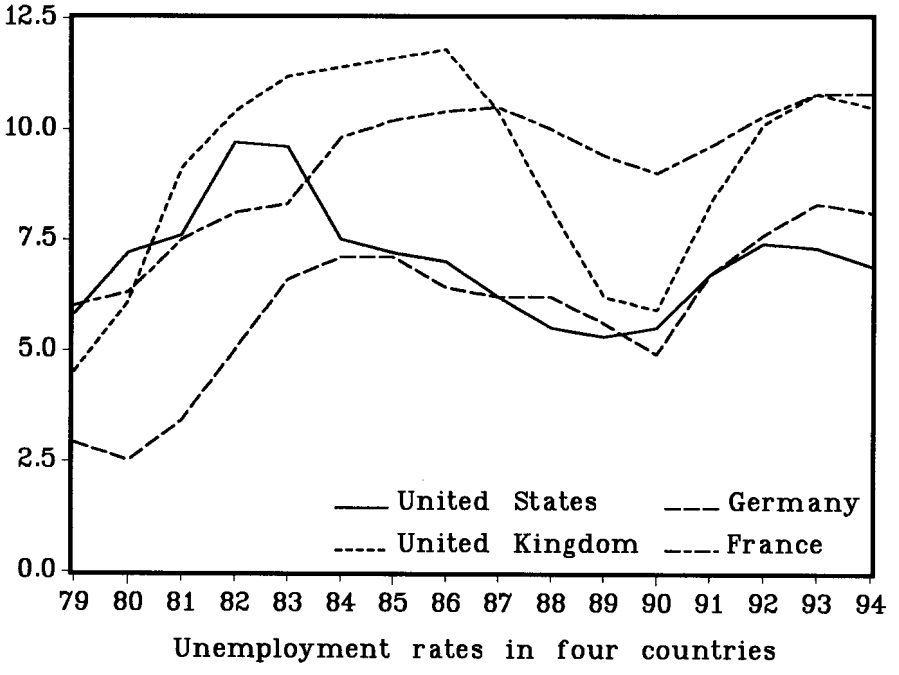
12.5
10.0
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79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94
United States
Germany
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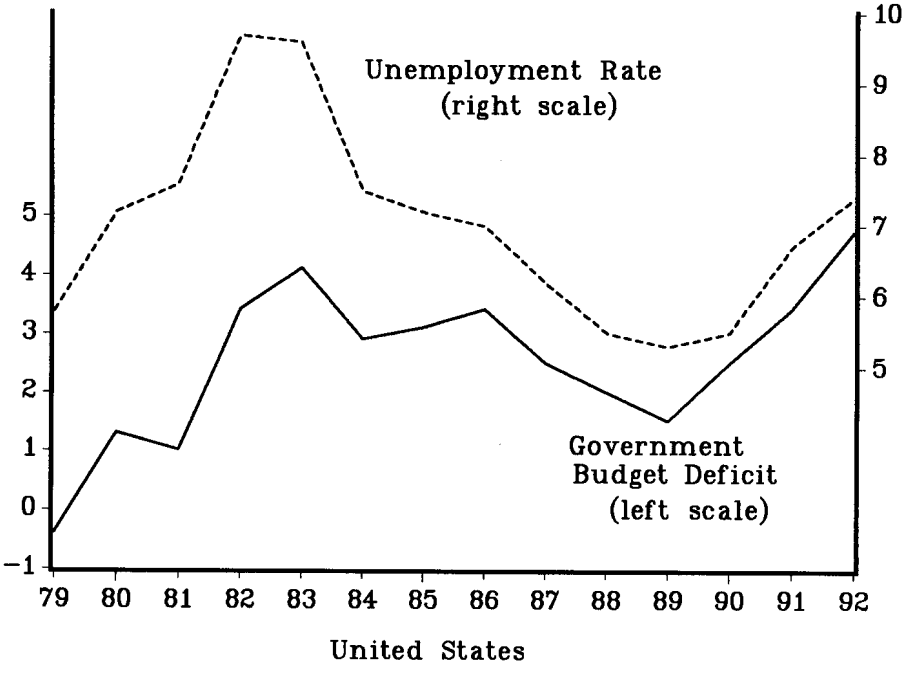
France
Unemployment rates in four countries

Figure 1


Unemployment Rate
(right scale)
Government
Budget Deficit
(left scale)
5
4
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−1
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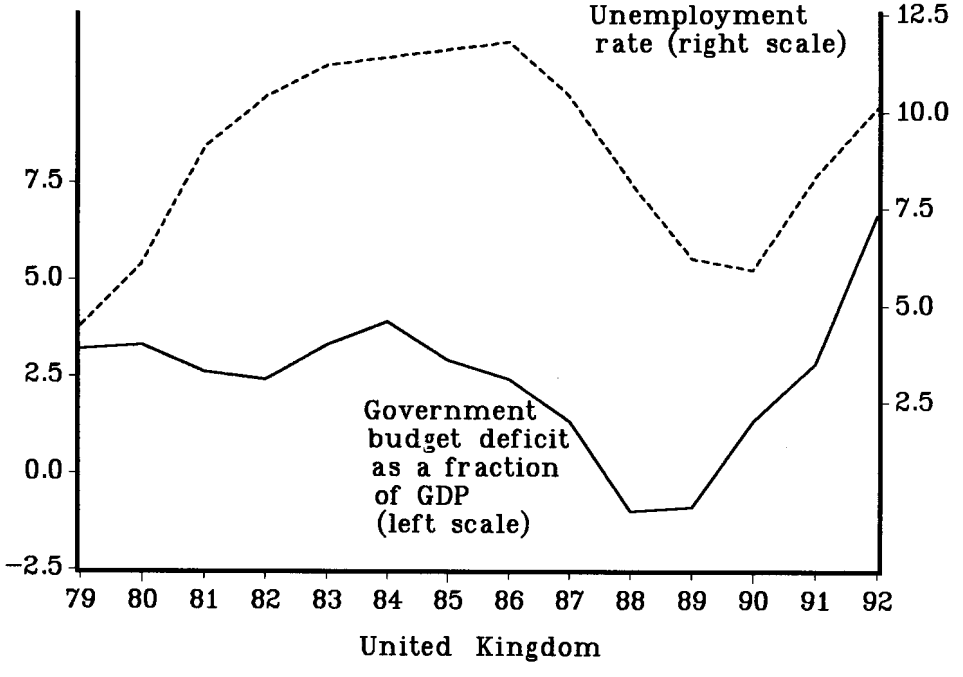
United States

Figure 2


Unemployment
rate (right scale)
12.5
10.0
7.5
5.0
2.5
7.5
5.0
2.5
0.0
−2.5
Government
budget deficit
as a fraction
of GDP
(left scale)
79
80
81
82
83
84
85
86
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89
90
91
92
United Kingdom

Figure 3

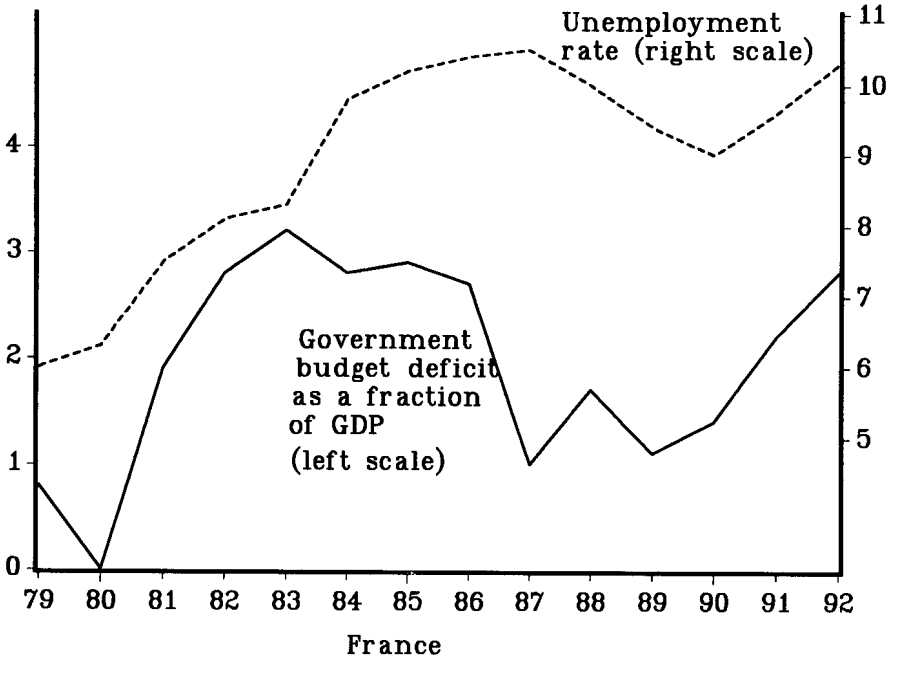
Unemployment
rate (right scale)
Government
budget deficit
as a fraction
of GDP
(left scale)
0
1
2
3
4
5
6
7
8
9
10
11
79
80
81
82
83
84
85
86
87
88
89
90
91
92
France

Figure 4

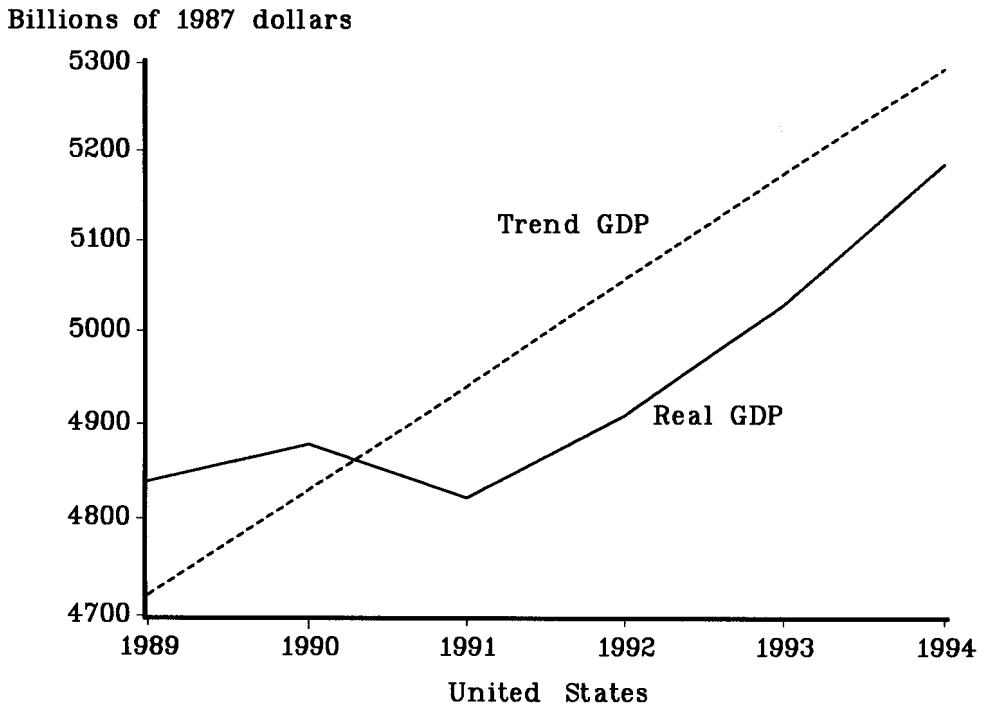
Billions of 1987 dollars
5300
5200
5100
5000
4900
4800
4700
Trend GDP
Real GDP
1989
1990
1991
1992
1993
1994
United States

Figure 5

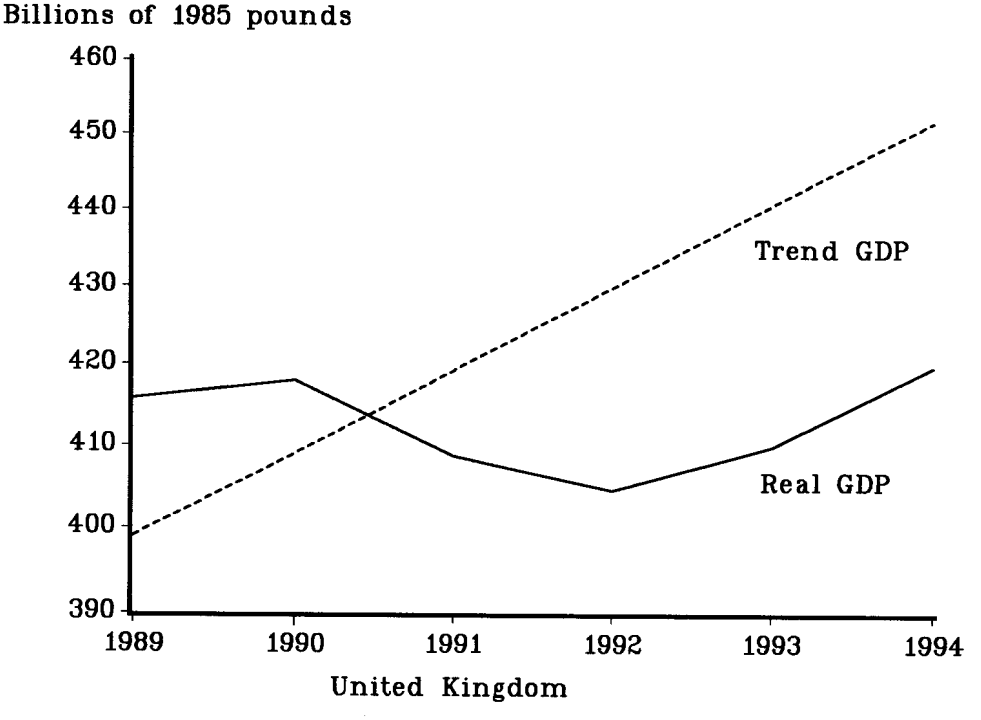
Billions of 1985 pounds
460
450
440
430
420
410
400
390
1989
1990
1991
1992
1993
1994
Trend GDP
Real GDP
United Kingdom

Figure 6

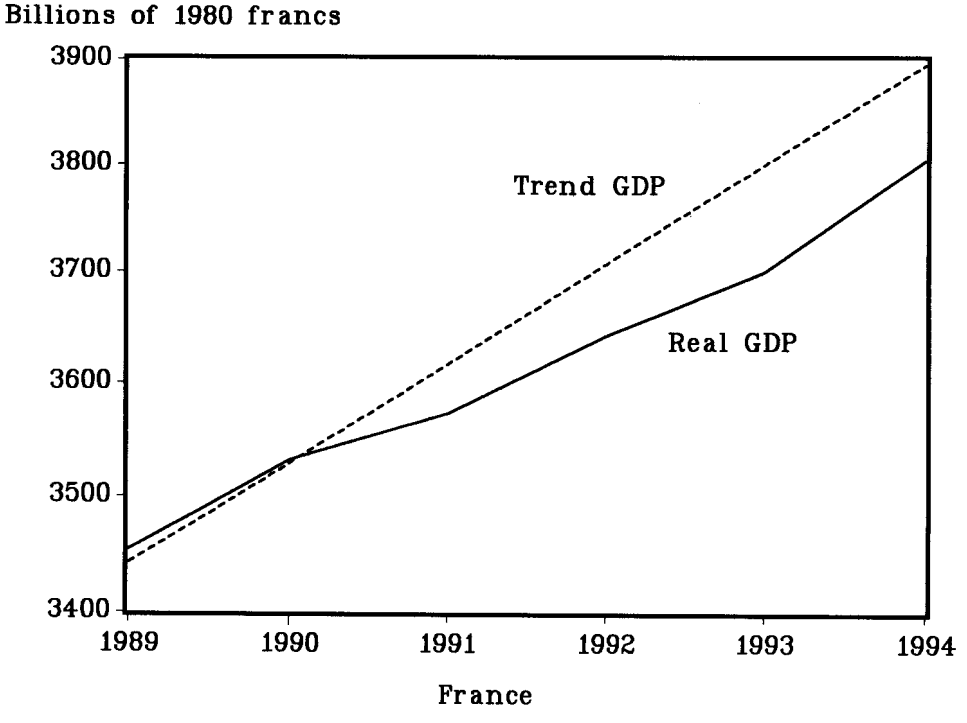
Billions of 1980 francs
3900
3800
3700
3600
3500
3400
Trend GDP
Real GDP
1989
1990
1991
1992
1993
1994
France

Figure 7

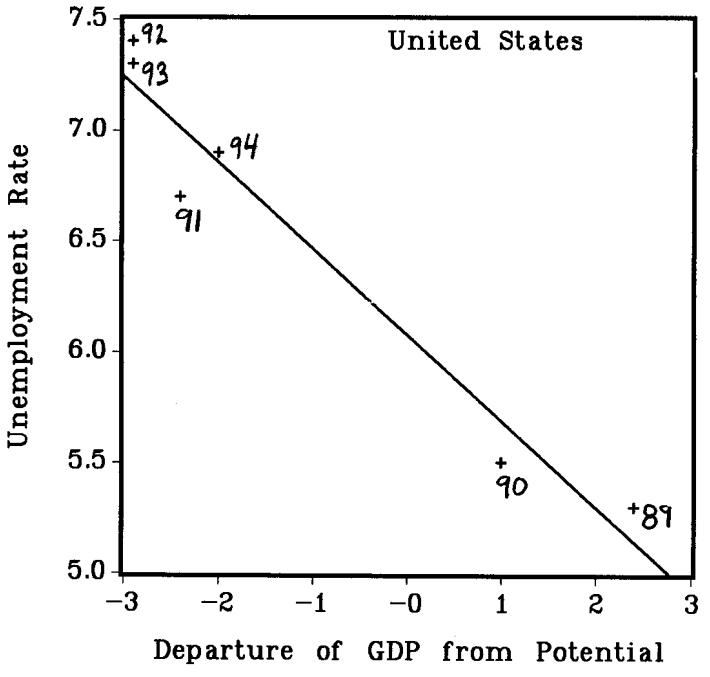
United States
Unemployment Rate
7.5
7.0
6.5
6.0
5.5
5.0
−3
−2
−1
−0
1
2
3
Departure of GDP from Potential
92
93
94
91
90
89

Figure 8

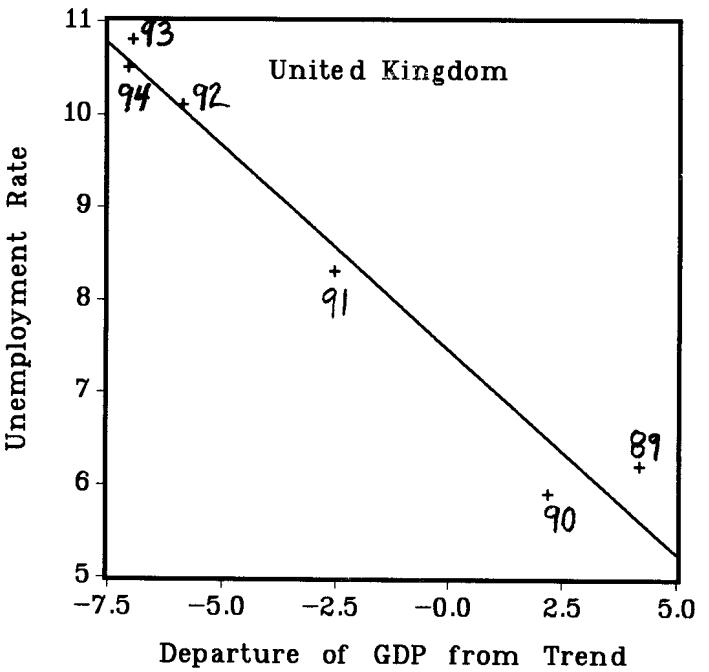
United Kingdom
Unemployment Rate
Departure of GDP from Trend
11
10
9
8
7
6
5
−7.5
−5.0
−2.5
−0.0
2.5
5.0
93
94
92
91
90
89

Figure 9

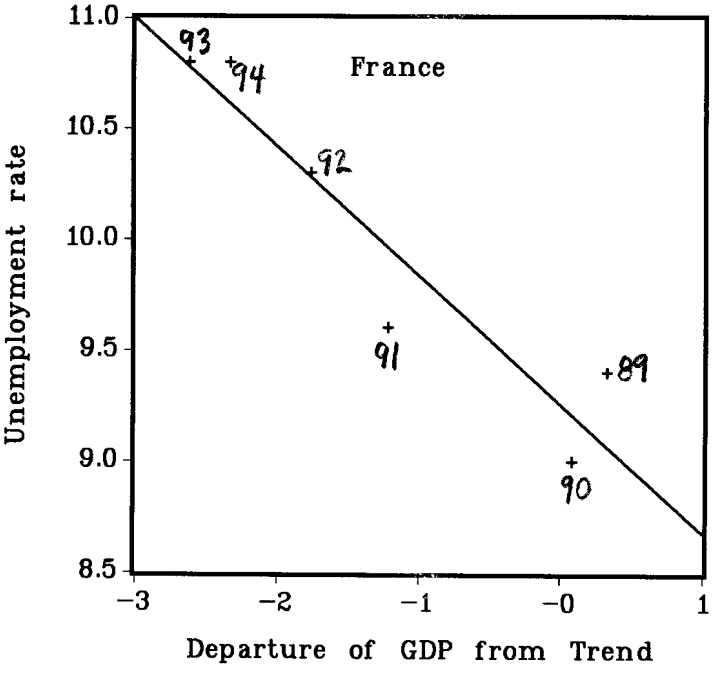
France
Unemployment rate
Departure of GDP from Trend
11.0
10.5
10.0
9.5
9.0
8.5
−3
−2
−1
−0
1
93
94
92
91
89
90

Figure 10

TABLE 1

United States

	INF(-1)	INF(-2)	GDP(-1)	GDP(-2)	S.E.	RES.AC.	CHOW
INF	0.368 0.321	0.518 0.494	0.090 0.087	-0.052 -0.037	0.0037	-0.076	1.05 (.396)
GDP	-0.284 -0.346	0.005 -0.001	1.28 1.23	-0.374 -0.132	0.0090	-0.043	0.457 (.807)

Correlation of residuals: 0.110

Germany

	INF(-1)	INF(-2)	GDP(-1)	GDP(-2)	S.E.	RES.AC.	CHOW
INF	0.215 0.212	0.425 0.424	0.115 0.163	-0.059 -0.113	0.0035	-0.160	1.85 (.116)
GDP	-0.146 -0.089	-0.331 -0.231	1.28 1.32	-0.310 -0.383	0.0068	-0.067	1.09 (.376)

Correlation of residuals: -0.095

Japan

	INF(-1)	INF(-2)	GDP(-1)	GDP(-2)	S.E.	RES.AC.	CHOW
INF	0.445 0.460	0.189 0.261	0.101 0.149	0.049 0.109	0.0069	0.125	3.13 (.013)
GDP	-0.169 -0.205	0.016 0.084	0.938 0.967	-0.011 -0.057	0.0082	-0.037	0.921 (.473)

Correlation of residuals: 0.006

First line are coefficients for period 1972:4-1991:3; second line for period 1972:4-1986:4. RES.AC. is the first order autocorrelation of the residuals from the regressions. CHOW is the test statistic from performing a Chow test of parameter stability; asymptotic probabilities are given in parenthesis.

Table 2. EFFECTS OF A PERMANENT REDUCTION IN THE UNITED STATES BUDGET DEFICIT--1993-2000. A decline in U.S. government purchases of 3% of GDP is phased in over five years beginning in 1994. Figures are in percent differences from baseline values (or percentage point difference for interest rates) during the first quarter of the year. (Monetary Policy in the EMS is oriented towards German targets).

Date	1993	1994	1995	1996	1997	1998	1999	2000
SHORT RATES								
US-Fed Funds	0.19	0.39	0.2	-0.19	-0.66	-1.07	-1.32	-1.34
Japan-Call Money	-0.2	-0.61	-0.91	-1.04	-1.07	-1.04	-0.99	-0.92
EMS-Call Money	-0.47	-0.79	-0.92	-0.95	-0.94	-0.92	-0.89	-0.84
EXCHANGE RATES								
Yen	13.9	14.7	15.9	17.1	17.9	18.2	18	17.6
D-Mark	16.6	17.6	19	20.2	20.9	21.1	20.7	20.2
LONG-TERM RATES (nominal and real)								
US-Gov't Bonds	0.28	0.28	-0.03	-0.46	-0.88	-1.2	-1.33	-1.33
Japan-Gov't Bonds	-0.41	-0.77	-0.98	-1.06	-1.05	-1.01	-0.95	-0.9
Germany-Gov't Bonds	-0.61	-0.85	-0.93	-0.94	-0.93	-0.91	-0.87	-0.82
France-Gov't Bonds	-0.57	-0.83	-0.93	-0.95	-0.93	-0.91	-0.88	-0.83
Italy-Gov't Bonds	-0.47	-0.79	-0.92	-0.95	-0.94	-0.92	-0.89	-0.84
UK-Gov't Bonds	-0.71	-0.88	-0.94	-0.94	-0.92	-0.89	-0.85	-0.81
US-Real Rate	0.12	0.26	0.13	-0.2	-0.62	-1	-1.24	-1.31
Japan- Real Rate	-0.23	-0.5	-0.72	-0.88	-0.97	-1.01	-1.01	-0.97
Germany Real Rate	-0.19	-0.53	-0.71	-0.81	-0.87	-0.9	-0.9	-0.87
France-Real Rate	0.87	0.87	0.49	0.03	-0.41	-0.75	-0.96	-1.06
Italy-Real Rate	0.36	0.04	-0.6	-1.16	-1.47	-1.47	-1.25	-0.88
UK-Real Rate	0.92	0.64	0.12	-0.27	-0.56	-0.77	-0.9	-0.96
REAL SPENDING								
US Consumption	0.09	0.23	0.16	0.06	-0.07	-0.16	-0.16	-0.06
US Investment	0.28	0.32	-0.26	0.09	0.89	1.9	3	4.24
US Exports	0.15	1.8	4.07	6.25	8.15	9.66	10.8	11.5
US Imports	-0.15	-0.98	-2.6	-3.93	-5.02	-5.93	-6.64	-6.31
US GDP	0.14	0.54	0.27	0.08	-0.11	-0.31	-0.49	-0.18
Japan Consumption	-0.01	-0.05	-0.01	0.05	0.1	0.13	0.13	0.11
Japan Investment	0.19	0.87	1.6	2.36	3.04	3.56	3.87	3.97
Japan Exports	-0.18	-1.13	-1.71	-2.01	-2.18	-2.31	-2.41	-2.38
Japan Imports	0.11	0.72	1.31	1.9	2.47	2.99	3.39	3.65
Japan GNP	-0.01	-0.12	-0.12	-0.04	0.04	0.08	0.07	0.05
Germany Consumption	-0.02	0.04	0.18	0.32	0.42	0.47	0.5	0.5
Germany Investment	0.29	1.87	3.21	4.18	4.82	5.2	5.37	5.36
Germany Exports	-0.41	-2.03	-2.93	-3.42	-3.72	-3.94	-4.09	-4.01
Germany Imports	-0.08	-0.32	-0.26	-0.13	-0.02	0.02	0.02	0.05
Germany GNP	-0.06	-0.17	-0.14	-0.06	-0.01	0.01	0.01	0.03
France Consumption	-1.06	-1.97	-1.75	-1.29	-0.82	-0.43	-0.15	0.01
France Investment	-1.36	-2.15	-1.69	-0.96	-0.17	0.55	1.09	1.45

TABLE 2 continued.

France Exports	-1.35	-3.68	-3.53	-2.88	-2.23	-1.74	-1.46	-1.11
France Imports	-0.38	-2.16	-2.45	-1.98	-1.27	-0.6	-0.09	0.3
France GNP	-1.24	-2.12	-1.75	-1.25	-0.79	-0.44	-0.2	-0.04
Italy Consumption	-0.09	-0.33	-0.31	-0.13	0.1	0.25	0.28	0.2
Italy Investment	-1.49	-1.51	0.2	2.26	3.91	4.72	4.61	3.85
Italy Exports	-0.12	-0.77	-1.01	-1.01	-0.97	-0.99	-1.06	-0.98
Italy Imports	-0.04	-0.05	0.32	1.08	1.88	2.43	2.59	2.45
Italy GNP	-0.35	-0.69	-0.52	-0.21	0.05	0.15	0.09	-0.04
UK Consumption	-0.25	-0.65	-0.63	-0.52	-0.4	-0.3	-0.21	-0.14
UK Investment	-0.4	-0.87	-0.61	-0.26	0.04	0.28	0.44	0.56
UK Exports	-0.72	-1.4	-1.25	-1.02	-0.85	-0.76	-0.74	-0.57
UK Imports	-0.13	-0.68	-0.73	-0.56	-0.37	-0.21	-0.09	0.03
UK GNP	-0.4	-0.76	-0.65	-0.5	-0.38	-0.3	-0.24	-0.16
PRICES								
US GDP Deflator	0	0.17	0.19	0.03	-0.22	-0.49	-0.69	-0.77
Japan GNP Deflator	0	-0.19	-0.45	-0.71	-0.88	-0.96	-0.95	-0.89
Germany GNP Deflator	-0.01	-0.42	-0.74	-0.96	-1.09	-1.16	-1.17	-1.14
France GNP Deflator	-0.07	-1.5	-3.16	-4.52	-5.45	-5.95	-6.1	-6.02
Italy GNP Deflator	-0.04	-0.87	-1.7	-2.01	-1.81	-1.29	-0.74	-0.38
UK GNP Deflator	-0.07	-1.68	-3.17	-4.18	-4.82	-5.16	-5.28	-5.23
US Import Price	1.56	6.47	9.83	12.2	13.9	15	15.7	15.9
US Export Price	0	0.12	0.19	0.08	-0.14	-0.4	-0.62	-0.75
US NET EXPORTS								
Real	0.04	0.35	0.81	1.23	1.58	1.86	2.08	2.11
Nominal	-0.15	-0.46	-0.48	-0.45	-0.41	-0.37	-0.32	-0.37

Table 3. EFFECTS OF A TEMPORARY BUDGET DEFICIT INCREASE COMBINED WITH PERMANENT BUDGET DEFICIT REDUCTION --1993-2000. U.S. government purchases are increased by 1% of GDP in 1993 followed by a five-year phased in reduction reaching 3% of GDP ending in 1998. Figures are in percent differences from baseline values (or percentage point difference for interest rates) during the first quarter of the year. (Monetary Policy in the EMS is oriented towards German targets).

Date	1993	1994	1995	1996	1997	1998	1999	2000
SHORT RATES								
US-Fed Funds	0.46	0.42	0.23	-0.19	-0.66	-1.07	-1.32	-1.34
Japan-Call Money	-0.16	-0.54	-0.88	-1.04	-1.08	-1.05	-1	-0.93
EMS-Call Money	-0.41	-0.77	-0.92	-0.95	-0.94	-0.92	-0.89	-0.84
EXCHANGE RATES								
Yen	13.7	14.7	15.9	17.1	17.9	18.2	18	17.6
D-Mark	16.3	17.5	19	20.2	20.9	21.1	20.8	20.2
LONG TERM RATES (nominal and real)								
US-Gov't Bonds	0.48	0.31	-0.01	-0.45	-0.89	-1.2	-1.33	-1.33
Japan-Gov't Bonds	-0.36	-0.72	-0.97	-1.06	-1.07	-1.02	-0.96	-0.9
Germany-Gov't Bonds	-0.55	-0.84	-0.94	-0.95	-0.94	-0.91	-0.87	-0.82
France-Gov't Bonds	-0.5	-0.82	-0.93	-0.95	-0.94	-0.91	-0.88	-0.83
Italy-Gov't Bonds	-0.41	-0.77	-0.92	-0.95	-0.94	-0.92	-0.89	-0.84
UK-Gov't Bonds	-0.67	-0.88	-0.94	-0.94	-0.92	-0.89	-0.85	-0.81
US Real Rate	0.26	0.31	0.17	-0.19	-0.62	-1	-1.24	-1.31
Japan Real Rate	-0.19	-0.46	-0.71	-0.88	-0.98	-1.02	-1.01	-0.98
Germany Real Rate	-0.14	-0.52	-0.71	-0.81	-0.87	-0.9	-0.9	-0.87
France Real Rate	0.92	0.88	0.5	0.03	-0.41	-0.75	-0.97	-1.06
Italy Real Rate	0.41	0.06	-0.58	-1.15	-1.46	-1.48	-1.25	-0.89
UK-Real Rate	0.94	0.64	0.12	-0.27	-0.56	-0.77	-0.9	-0.96
REAL SPENDING								
US Consumption	0.22	0.29	0.17	0.05	-0.07	-0.17	-0.16	-0.06
US Investment	1.81	-0.88	-0.57	-0.05	0.83	1.88	2.99	4.24
US Exports	0.17	1.81	4.02	6.2	8.11	9.64	10.8	11.5
US Imports	1.31	-0.41	-2.67	-3.98	-5.04	-5.94	-6.65	-6.32
US GDP	1.28	0.28	0.22	0.05	-0.12	-0.31	-0.49	-0.18
Japan Consumption	-0.01	-0.04	-0.02	0.04	0.1	0.13	0.13	0.12
Japan Investment	0.14	0.81	1.54	2.3	3	3.53	3.86	3.98
Japan Exports	-0.03	-0.84	-1.61	-1.99	-2.18	-2.31	-2.41	-2.38
Japan Imports	0.11	0.73	1.32	1.9	2.47	2.98	3.38	3.65
Japan GNP	0.01	-0.08	-0.12	-0.05	0.03	0.07	0.08	0.06
Germany Consumption	-0.01	0.04	0.18	0.31	0.41	0.47	0.5	0.5
Germany Investment	0.25	1.7	3.16	4.16	4.81	5.2	5.38	5.37
Germany Exports	-0.12	-1.82	-2.93	-3.43	-3.73	-3.94	-4.09	-4.01
Germany Imports	0	-0.25	-0.28	-0.14	-0.03	0.02	0.02	0.05
Germany GNP	0	-0.16	-0.14	-0.07	-0.01	0.01	0.01	0.03
France Consumption	-1.02	-1.96	-1.76	-1.3	-0.82	-0.43	-0.15	0.01
France Investment	-1.29	-2.24	-1.73	-0.98	-0.18	0.54	1.09	1.45
France Exports	-0.95	-3.41	-3.53	-2.91	-2.25	-1.76	-1.47	-1.11

TABLE 3 continued.

France Imports	-0.3	-2.02	-2.45	-2	-1.29	-0.61	-0.09	0.3
France GNP	-1.13	-2.11	-1.77	-1.26	-0.8	-0.44	-0.2	-0.04
Italy Consumption	-0.08	-0.32	-0.31	-0.13	0.09	0.25	0.28	0.2
Italy Investment	-1.26	-1.74	0.1	2.19	3.87	4.7	4.61	3.85
Italy Exports	0.1	-0.46	-0.97	-1.03	-0.99	-1	-1.07	-0.98
Italy Imports	0.05	0.05	0.31	1.05	1.85	2.42	2.59	2.45
Italy GNP	-0.27	-0.66	-0.53	-0.22	0.04	0.14	0.09	-0.04
UK Consumption	-0.23	-0.64	-0.63	-0.52	-0.41	-0.3	-0.21	-0.14
UK Investment	-0.37	-0.89	-0.62	-0.26	0.04	0.27	0.44	0.56
UK Exports	-0.29	-1.4	-1.27	-1.04	-0.87	-0.77	-0.74	-0.57
UK Imports	-0.05	-0.61	-0.74	-0.57	-0.38	-0.21	-0.1	0.03
UK GNP	-0.28	-0.79	-0.66	-0.51	-0.39	-0.3	-0.24	-0.16
PRICES								
US GDP Deflator	0.01	0.23	0.22	0.04	-0.22	-0.49	-0.69	-0.78
Japan GNP Deflator	0	-0.17	-0.43	-0.68	-0.87	-0.96	-0.96	-0.91
Germany GNP Deflator	0	-0.41	-0.73	-0.95	-1.09	-1.16	-1.17	-1.14
France GNP Deflator	-0.07	-1.48	-3.14	-4.51	-5.45	-5.95	-6.1	-6.02
Italy GNP Deflator	-0.04	-0.85	-1.67	-2	-1.81	-1.3	-0.75	-0.39
UK GNP Deflator	-0.06	-1.66	-3.15	-4.17	-4.82	-5.17	-5.28	-5.23
US Import Price	1.54	6.41	9.79	12.2	13.9	15	15.7	15.9
US Export Price	0	0.17	0.23	0.1	-0.14	-0.4	-0.63	-0.75
US NET EXPORTS								
Real	-0.12	0.26	0.82	1.23	1.58	1.86	2.08	2.11
Nominal	-0.27	-0.53	-0.47	-0.44	-0.41	-0.37	-0.32	-0.37

Table 4. EFFECTS OF A PERMANENT REDUCTION IN THE U.S. BUDGET DEFICIT--1993-2000. (MONETARY POLICY IN THE EMS IS ORIENTED TOWARDS WEIGHTED EMS TARGETS.) A decline in U.S. government purchases of 3 percent of GDP is phased in over five years, beginning in 1994. Figures are in percent differences from baseline values (or percentage point difference for interest rates) during the first quarter of the year.

Date	1993	1994	1995	1996	1997	1998	1999	2000
SHORT RATES								
US-Fed Funds	0.19	0.38	0.19	-0.19	-0.65	-1.06	-1.31	-1.33
Japan-Call Money	-0.22	-0.64	-0.9	-1	-1.02	-1	-0.97	-0.93
EMS-Call Money	-0.27	-0.54	-0.66	-0.76	-0.86	-0.92	-0.95	-0.92
EXCHANGE RATES								
Yen	14.1	14.8	16.1	17.2	18	18.2	18	17.6
D-Mark	15.3	16.1	17.1	18	18.6	18.6	18.3	17.9
LONG-TERM RATES								
US-Gov't Bonds	0.28	0.27	-0.03	-0.45	-0.88	-1.19	-1.32	-1.32
Japan-Gov't Bonds	-0.44	-0.77	-0.95	-1.01	-1	-0.98	-0.94	-0.9
Germany-Gov't Bonds	-0.4	-0.59	-0.7	-0.8	-0.88	-0.93	-0.94	-0.9
France-Gov't Bonds	-0.36	-0.57	-0.69	-0.79	-0.87	-0.93	-0.94	-0.91
Italy-Gov't Bonds	-0.27	-0.54	-0.66	-0.76	-0.86	-0.92	-0.95	-0.92
UK-Gov't Bonds	-0.48	-0.64	-0.75	-0.84	-0.91	-0.94	-0.92	-0.89
US Real Rate	0.11	0.25	0.13	-0.21	-0.62	-0.99	-1.23	-1.3
Japan Real Rate	-0.23	-0.5	-0.72	-0.86	-0.95	-0.99	-0.99	-0.96
Germany Real Rate	-0.38	-0.83	-0.98	-1	-0.97	-0.92	-0.87	-0.82
France Real Rate	0.66	0.53	0.16	-0.24	-0.59	-0.84	-0.99	-1.03
Italy Real Rate	0.01	-0.44	-0.88	-1.2	-1.35	-1.36	-1.26	-1.07
UK Real Rate	0.67	0.29	-0.2	-0.54	-0.76	-0.89	-0.96	-0.97
REAL SPENDING								
US Consumption	0.09	0.23	0.17	0.07	-0.06	-0.16	-0.16	-0.06
US Investment	0.28	0.36	-0.21	0.13	0.91	1.9	2.99	4.22
US Exports	0.17	1.92	4.23	6.42	8.27	9.75	10.8	11.5
US Imports	-0.13	-0.87	-2.46	-3.8	-4.92	-5.88	-6.63	-6.32
US GDP	0.15	0.54	0.28	0.09	-0.1	-0.3	-0.49	-0.18
Japan Consumption	-0.01	-0.04	0	0.06	0.11	0.12	0.12	0.1
Japan Investment	0.19	0.88	1.61	2.35	3	3.48	3.78	3.89
Japan Exports	-0.16	-0.97	-1.41	-1.65	-1.85	-2.05	-2.24	-2.27
Japan Imports	0.14	0.92	1.59	2.19	2.73	3.17	3.5	3.7
Japan GNP	-0.01	-0.12	-0.1	-0.02	0.05	0.07	0.06	0.04
Germany Consumption	0.17	0.75	1.05	1.09	0.98	0.8	0.65	0.55
Germany Investment	0.92	3.78	5.48	6.19	6.26	6.03	5.69	5.35
Germany Exports	-0.33	-1.65	-2.49	-3.05	-3.47	-3.79	-4.01	-3.94
Germany Imports	0.17	0.75	1.06	1.05	0.83	0.53	0.25	0.12
Germany GNP	0.13	0.43	0.57	0.56	0.43	0.27	0.12	0.06
France Consumption	-0.81	-1.47	-1.28	-0.96	-0.65	-0.42	-0.24	-0.13
France Investment	-1.06	-1.51	-1.03	-0.4	0.23	0.77	1.16	1.41
France Exports	-1.12	-2.83	-2.57	-2.09	-1.73	-1.56	-1.52	-1.3

TABLE 4 continued.

France Imports	-0.25	-1.48	-1.58	-1.19	-0.71	-0.3	-0.01	0.24
France GNP	-0.99	-1.62	-1.29	-0.92	-0.63	-0.42	-0.28	-0.17
Italy Consumption	-0.03	-0.06	0.05	0.22	0.38	0.48	0.5	0.47
Italy Investment	-0.58	0.41	1.97	3.41	4.45	4.99	5.06	4.79
Italy Exports	-0.06	-0.42	-0.54	-0.57	-0.65	-0.8	-0.98	-0.96
Italy Imports	0.13	0.7	1.27	1.91	2.46	2.79	2.89	2.86
Italy GNP	-0.18	-0.25	-0.07	0.14	0.27	0.31	0.26	0.2
UK Consumption	-0.17	-0.43	-0.38	-0.31	-0.25	-0.2	-0.16	-0.12
UK Investment	-0.29	-0.54	-0.25	0.05	0.27	0.42	0.52	0.57
UK Exports	-0.55	-0.94	-0.79	-0.66	-0.63	-0.68	-0.75	-0.62
UK Imports	-0.08	-0.37	-0.33	-0.19	-0.08	-0.02	0	0.07
UK GNP	-0.3	-0.52	-0.42	-0.32	-0.26	-0.24	-0.22	-0.17
PRICES								
US GDP Deflator	0	0.16	0.18	0.02	-0.23	-0.49	-0.68	-0.77
Japan GNP Deflator	0	-0.21	-0.48	-0.71	-0.86	-0.92	-0.91	-0.87
Germany GNP Deflator	0.02	0	0.25	0.52	0.72	0.81	0.8	0.73
France GNP Deflator	-0.05	-1.06	-2.14	-2.97	-3.5	-3.77	-3.85	-3.81
Italy GNP Deflator	0	-0.28	-0.39	-0.17	0.26	0.76	1.2	1.52
UK GNP Deflator	-0.03	-1.18	-2.1	-2.62	-2.92	-3.06	-3.1	-3.07
US Import Price	1.48	6.17	9.47	11.9	13.7	14.9	15.6	16
US Export Price	0	0.12	0.18	0.07	-0.15	-0.4	-0.62	-0.74
US NET EXPORTS								
Real	0.04	0.35	0.81	1.23	1.58	1.87	2.08	2.12
Nominal	-0.14	-0.43	-0.45	-0.42	-0.39	-0.35	-0.32	-0.37

Table 5. EFFECTS OF A PERMANENT REDUCTION IN THE U.S. BUDGET DEFICIT--1993-2000. (EXCHANGE RATES ARE FLEXIBLE.) A decline in U.S. government purchases of 3 percent of GDP is phased in over five years, beginning in 1994. Figures are in percent differences from baseline values (or percentage point difference for interest rates) during the first quarter of the year.

Date	1993	1994	1995	1996	1997	1998	1999	2000
SHORT RATES								
US-Fed Funds	0.18	0.36	0.16	-0.23	-0.69	-1.09	-1.34	-1.36
Japan-Call Money	-0.24	-0.67	-0.93	-1.04	-1.06	-1.04	-1	-0.95
EMS-Call Money	-0.52	-0.78	-0.89	-0.93	-0.94	-0.93	-0.91	-0.85
EXCHANGE RATES								
Yen	14.1	14.9	16.1	17.3	18	18.3	18	17.6
D-Mark	16.9	18	19.3	20.4	21.1	21.1	20.8	20.2
LONG-TERM RATES								
US-Gov't Bonds	0.26	0.24	-0.07	-0.49	-0.92	-1.22	-1.35	-1.34
Japan-Gov't Bonds	-0.47	-0.81	-0.99	-1.05	-1.05	-1.02	-0.97	-0.93
Germany-Gov't Bonds	-0.63	-0.83	-0.91	-0.93	-0.93	-0.92	-0.88	-0.83
France-Gov't Bonds	-0.4	-0.65	-0.84	-0.98	-1.08	-1.12	-1.12	-1.06
Italy-Gov't Bonds	-0.63	-1.07	-1.19	-1.18	-1.13	-1.07	-0.99	-0.88
UK-Gov't Bonds	-0.58	-0.77	-0.91	-1.01	-1.08	-1.1	-1.07	-1.03
US Real Rate	0.11	0.23	0.09	-0.24	-0.66	-1.03	-1.26	-1.33
Japan Real Rate	-0.24	-0.53	-0.76	-0.9	-0.99	-1.03	-1.02	-0.99
Germany Real Rate	-0.15	-0.52	-0.71	-0.82	-0.88	-0.91	-0.91	-0.87
France Real Rate	-0.19	-0.39	-0.58	-0.76	-0.91	-1.01	-1.06	-1.05
Italy Real Rate	-0.12	-0.57	-0.89	-1.05	-1.12	-1.12	-1.08	-1
UK Real Rate	-0.25	-0.46	-0.67	-0.83	-0.94	-1.01	-1.04	-1.04
REAL SPENDING								
US Consumption	0.09	0.24	0.18	0.07	-0.06	-0.16	-0.15	-0.05
US Investment	0.3	0.42	-0.11	0.25	1.04	2.04	3.11	4.34
US Exports	0.2	1.99	4.21	6.31	8.11	9.57	10.7	11.4
US Imports	-0.11	-0.77	-2.35	-3.72	-4.85	-5.82	-6.57	-6.26
US GDP	0.15	0.55	0.28	0.09	-0.1	-0.31	-0.49	-0.18
Japan Consumption	-0.01	-0.03	0.01	0.06	0.11	0.13	0.12	0.1
Japan Investment	0.2	0.92	1.7	2.48	3.14	3.63	3.92	4.02
Japan Exports	-0.13	-0.86	-1.34	-1.66	-1.92	-2.14	-2.33	-2.34
Japan Imports	0.17	1.08	1.8	2.39	2.9	3.32	3.64	3.84
Japan GNP	-0.01	-0.11	-0.09	-0.02	0.05	0.07	0.06	0.04
Germany Consumption	-0.01	0.09	0.23	0.35	0.43	0.47	0.5	0.5
Germany Investment	0.23	1.83	3.25	4.24	4.88	5.26	5.44	5.42
Germany Exports	-0.3	-1.75	-2.78	-3.37	-3.75	-4.01	-4.17	-4.06
Germany Imports	-0.05	-0.19	-0.16	-0.07	-0.01	0.01	0	0.04
Germany GNP	-0.04	-0.1	-0.08	-0.03	0	0.01	0	0.03
France Consumption	-0.09	-0.17	-0.16	-0.13	-0.1	-0.06	-0.01	0.04
France Investment	-0.03	0.24	0.55	0.85	1.12	1.36	1.53	1.63
France Exports	-0.21	-0.59	-0.82	-0.99	-1.12	-1.26	-1.38	-1.21

TABLE 5 continued.

France Imports	0	-0.02	0.02	0.11	0.21	0.3	0.37	0.48
France GNP	-0.12	-0.2	-0.2	-0.18	-0.16	-0.14	-0.12	-0.05
Italy Consumption	-0.02	-0.04	0.03	0.12	0.19	0.24	0.27	0.28
Italy Investment	-0.33	0.77	2	2.92	3.53	3.88	4.03	4.06
Italy Exports	0.01	-0.18	-0.41	-0.56	-0.69	-0.82	-0.96	-0.9
Italy Imports	0.26	1.08	1.52	1.9	2.19	2.36	2.42	2.47
Italy GNP	-0.13	-0.2	-0.1	-0.01	0.04	0.05	0.05	0.06
UK Consumption	-0.01	-0.02	0	0.02	0.03	0.04	0.05	0.07
UK Investment	0.03	0.19	0.35	0.48	0.58	0.65	0.7	0.73
UK Exports	-0.14	-0.25	-0.35	-0.41	-0.47	-0.55	-0.62	-0.49
UK Imports	0.01	0.06	0.09	0.13	0.16	0.17	0.17	0.23
UK GNP	-0.04	-0.07	-0.07	-0.06	-0.06	-0.07	-0.08	-0.03
PRICES								
US GDP Deflator	0	0.15	0.16	0	-0.25	-0.51	-0.7	-0.79
Japan GNP Deflator	0	-0.23	-0.51	-0.75	-0.9	-0.95	-0.94	-0.9
Germany GNP Deflator	0	-0.49	-0.8	-0.99	-1.11	-1.16	-1.17	-1.15
France GNP Deflator	-0.01	-0.22	-0.48	-0.74	-0.96	-1.13	-1.24	-1.29
Italy GNP Deflator	-0.01	-0.52	-1.02	-1.31	-1.44	-1.46	-1.41	-1.31
UK GNP Deflator	-0.01	-0.34	-0.65	-0.89	-1.07	-1.2	-1.28	-1.31
US Import Price	1.4	5.91	9.17	11.6	13.4	14.7	15.4	15.8
US Export Price	0	0.11	0.16	0.05	-0.17	-0.43	-0.64	-0.76
US NET EXPORTS								
Real	0.04	0.34	0.79	1.2	1.55	1.84	2.06	2.09
Nominal	-0.13	-0.41	-0.43	-0.41	-0.39	-0.35	-0.31	-0.36