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FISCAL POLICY, AUTOMATIC STABILISERS AND POLICY COORDINATION IN EMU

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Abstract: This paper deals with fiscal policy coordination. In particular, it focuses on the question of how fiscal policy can be coordinated inside EMU, where countries still differ considerably in terms of cyclical behaviour and importance of country-specific shocks and well as the fiscal policy multipliers. To answer this question, we carry out comparative analyses on both automatic stabilisers and policy effects. We also scrutinise the uncertainty, which is related to different indicators of fiscal policy, as well as the forecast uncertainty in terms of the cyclical situation. We find strikingly large differences in both the cyclical effects and policy effects that together with considerable forecasting uncertainty suggest that policy coordination may be enormously difficult. Not surprisingly, we also find that there is very little evidence of fiscal policy coordiation. The main reason for this state of affairs is probably the differences in past policy behaviour among the EU and as well as OECD countries.

Key words: Fiscal policy, forecasts, coordination
JEL Classification E61

Contents

1 Introduction

This paper deals with fiscal policy behaviour of EU/EMU countries. Fiscal policy has become increasingly important in economic policy in general and in the case of European Monetary Union, in particular. In the case of EMU, only fiscal policy can be used in offsetting country-specific shocks. On the other hand, fiscal policy is now subject to certain limits that reduce the room for policy manoeuvring. The 3 per deficit criterion (specified in the Maastricht treaty and in the Growth and Stability pact) may have a deep influence on the policy behaviour because now the policy makers have to consider very carefully what is the correct and feasible policy stance. Accordingly, there is less room for fiscal policy errors (see Buti, Franco and Ongena (1998) for more detailed exposition of EMU constraints).

This change is obviously several implications on policy considerations. It means that we have known much better the cyclical situation, the role of automatic stabilisers and the effects of policy instruments. Also the question of whether fiscal policy actions are coordinated across countries becomes much more important in assessing the performance of fiscal policy and thus the decision maker in an individual country has at least to find out what the other countries do and preferably also what is the effect of the other countries' policies on her or his country.

At the principal level, one can quite easily demonstrate that policy coordination pays off and/or decentralised policy making is inefficient (see e.g. Canzoneri and Gray (1985) and Buiter and Marston (1985) Sachs (1984) but see also Rogoff (1985) for a counter-example[1]). The problem is that there is a long way from this principal level to actual policy[2]. That can be seen already by examining the structure of the theoretical models (see e.g. Oudiz and Sachs (1984)). Very little work has been done to demonstrate that policy coordination (a) is indeed possible and (b) the benefits are important (see, however, Canzoneri and Minford (1988)). The motivation of this paper is related (precisely) to this empirical implementation. Thus we evaluate the problems that the policy makers face in pursuing coordinated fiscal policies in the EU/EMU countries. Although we concentrate on the EU countries some comparative analyses cover all OECD countries that also represent an interesting challenge for cooperated policies.

In order to be able to answer this question we scrutinise the differences between these countries in terms of the prerequisites for fiscal policy actions and in terms of cyclical behaviour of the whole economy and the public sector, in particular. Thus, we analyse the cyclical sensitiveness of government expenditures, revenues and deficits. On the other hand we compare the effects of fiscal policy in different counties in case of un-coordinated and coordinated fiscal policies. We also focus on the measurement and forecasting problems especially in terms of the behaviour of automatic stabilisers.

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[1] Because cooperated policies yield greater output expansions this will raise the policy authorities´ incetives to uses policies and this, in turn, will exacerbate thier credibility problems in terms of their private sectors. In the case of monetrary policy, the outcome is a higher time-consistent rate of inflation (see, e.g. Obstfeld and Rogoff (1996)).

[2] The theoretical literature is here bypassed without going to any details of the models. The main reason for this negligence is that that most policy cooperation models are quite old-fashioned ("obsolete Keynesian models", as Obstfeld and Rogoff (1996) call them in this connection) and static without any explicit microfoundations.

In addition, we try to find out whether there has been any evidence of fiscal policy coordination during this period and whether there are any explanations for eventual deficiencies in policy behaviour. To this aim, we look at the fiscal policy reaction (reaction functions) in these countries.

In this connection, we abstract from many important practical questions which are related to policy coordination. Thus, for instance, we do not discuss the questions of how to coordinate policies, (exactly) which policies should be coordinated and which instruments should be used and, finally, which institutions/organisations should carry out coordination. As far as the first question is concerned we may only point out that policy coordination can either be based on different rules (the above mentioned deficit criterion is in fact such a rule) or it may simply apply to discretionary policy actions. In this connection, we mainly think about the latter alternative. There is no doubt that it would also be the difficult case.

The structure of the paper is the following: First we analyse the economic environment in which policy coordination is possible; in other words we try to find out under which conditions coordination is really possible. Then in section 3 we briefly examine the data to find out whether the nature of economic shocks and the prerequisites for fiscal policy would have enabled (and required) coordinated fiscal policy. In section 4 we try to identify the cyclical and discretionary components of fiscal policy using alternative measurement procedures. Then (in section 5) we focus on the measurement and forecasting uncertainty and in section 6 we carry out a comparative analysis of the policy effects in the case of coordinated vs. uncoordinated policies, and then in section 7 we examine the evidence on policy coordination. Finally, in section 8, some concluding remarks follow.

2 Requirements for fiscal policy coordination

Fiscal policy coordination will not take place unless certain necessary requirements are fulfilled. In particular, the following things can be considered to be essential:

1. The cyclical behaviour of the economies and the nature of shocks must be similar.

2. Countries must have similar prerequisites for policy actions – thus, at least we must exclude different corner solutions.

3. The tax and transfer systems, as well as the budgetary process, must be similar so to provide similar automatic stabilisers.

4. Forecasts and the assessment of the current situations must be sufficiently accurate.

5. Effects of fiscal policy actions must be reasonably similar and predictable.

6. The effectiveness of coordinated policy actions must much larger than un-coordinated actions.

7. Different countries must share the same policy view

Some comments on these points probably merit note here.

If the cyclical movements (of a large set of countries) are completely unrelated, there is obviously no need for policy coordination. In other words, if the output shocks are entirely country-specific, also policy measures must be country-specific. By contrast, if the shocks are common to (a relevant set of) countries, the case for policy coordination is more easily motivated.

As far as policy prerequisites and constraints are concerned we know that countries differ a lot for instance in terms of debt and the size of the public sector. Thus, some countries might face a sort of corner solution in which only restrictive policies can be applied. We also know that countries do differ in terms of the functioning of the labour market and the inflationary effects of aggregate demand changes. All of these differences obviously make it very difficult to pursue similar policy rules in different countries.[3]

A traditional way of analysing the benefits of policy coordination makes use of a Keynesian type model which highlights the importance of fiscal and foreign trade multipliers (see e.g. Fair (1979)).[4] Alternatively, the role of the terms of trade could be the main channel of transmission (see e.g. Corden (1995)). The problem is that different models produce somewhat different results in terms of spillover effects. Thus, for instance, the traditional Laursen & Metzler (1950) model predicts that domestic autonomous government expenditures which raise domestic output lower the level of output abroad, i.e. domestic spending is transmitted negatively to the world. Also the Frenkel & Razin (1985) model produces a similar result. In fact, just the sign and symmetry of inter-country spillover effects of policy is the crucial thing in determining the direction to move in coordinating macroeconomic policies.

The nature of the spillover effects is obviously not the only thing which makes policy coordination so difficult. Coordination requires also very good estimates of the policy transmission mechanism. Thus, we have to know reasonably well both the nature and magnitude of automatic stabilisers and the genuine policy effects. In addition we have know the effects of coordinated (vis a vis un-coordinated) fiscal policy actions.

As for the automatic stabilisers, it is essential that the tax and transfer system (progressivity of taxation, indexation of transfers and so on) is quite similar across countries and, of course, that the relevant parameters are known to the policy makers. Thus, for instance, if the cyclical behaviour of deficits differs very much across countries, all assessments of the state of government finances become very difficult and optimal policy (in the certainty equivalence sense) cannot be pursued (as shown already by Brainard (1967)).

Obviously, systematic fiscal policy also critically depends on the availability of accurate forecasts. Thus, if forecast values on the cyclical behaviour of output are completely unrelated to actual values and if the forecast errors are uncorrelated between countries, policy coordination may fail although one could, of course, attempt to coordinate the policy actions. The problem does not only apply to forecasts on the cyclical situation (i.e. the GDP growth rate) but also to

[3] See e.g. Oudiz and Sachs (1984) for a review of problems in specifying a model for policy coordination and evaluating the gains from coordination. See also Tanzi and Schuknecht (1997) for cross-country comparisons on the role and the size of government.

[4] A classical example of the consequences of policy coordination failures is the experience of Mitterrand's government when it attempted to pursue independent expansionary policies for France in 1981–1983.

assessment on the current and future fiscal situation. In practice, this means that we must be able to distinguish the cyclical and structural components of expenditures, revenues and the deficit. It is well known (see e.g. Brandner, Diabalek and Schuberth (1998)) that just assessment is very difficult and it may produce a wide range of different results.

The question of policy goals is somewhat difficult because there is no agreement on the level of agreement between economists and policy makers on the desirability of policy activism and the direction and magnitude of "the right policy" (see e.g. Region Magazine (1997)). The problem is that at least in Europe, opinions in terms of e.g. policy activism seem to follow to some extent also geographical lines.

Policy coordination is obviously successful only if (here) fiscal policy has desirable effects on aggregate demand (an other relevant variables). In addition, we have to assume that policy effects are similar. Thus, if, for instance, an increase in public expenditure by, say, one per cent of GDP increases GDP by 0.1 per cent in one country and 2 per cent in another country, it may become difficult to design the contents of the coordinated policy package. The problem would obviously become aggravated if some of the relevant relationships were nonlinear. Then, we could simply not aggregate the EMU country numbers and design policy simply on the basis of average values of different macro variables.

Assuming that policy effects are of reasonable magnitude and reasonable similar (and that other coordination problems are not relevant) we have to demonstrate that policy coordination also pays off also in practice. If the effect of coordinated actions it only marginally larger than un-coordinated actions we have to question the practical usefulness of coordination. Of course, this is really a question of the practical importance of spillover effects and given the information that we have we would be somewhat surprised if we found that the effects of coordinated and un-coordinated actions were the same.

3 Differences in fiscal policy environment in OECD countries

Next we briefly review some indicators of the fiscal policy environment in OECD countries for the period 1960–1996. The indicators give us some idea of the level of interdependence of economies and the role of common shocks. The indicators also illustrate the room for manoeuvring in terms of (additional) public expenditure and debt. Assume for instance that the policy maker evaluates the possibilities of fiscal expansion. Then, for sure, the borrowing possibilities and the (expected) borrowing costs, the inflationary consequences of fiscal expansion affect at least the magnitude of the fiscal policy action.

The first thing we look here is the nature of output shocks: whether they are common to the Euro area or alternatively country-specific (see Figure 1).

Clearly the cyclical movement (output shocks) are far from being highly correlated. In some countries, like Finland, country-specific shocks dominate output fluctuations. Important changes have, however, taken place over time. It seems that the variability of output has considerably decreased over time for most of the sample countries. The EMU-11 countries seem to behave in a similar

manner but even then country-specific shocks represent about one half of the total output variability.

But the most difficult obstacles are related to the overall fiscal policy environment (cf. Table 1). The size of the public sector is somewhat different in these countries but the differences in the level of deficit and debt are far more important.[5] Not only is the level of debt different, but also the market value of debt is different. Thus, the maturity of debt varies a lot. Also the balance between domestic and foreign debt seems to follow a country-specific pattern. From the fiscal point of view, the important thing is the borrowing cost, i.e. the interest rate (see Figure 2 for the interest expenses and indebtedness in the EU countries).

The differences are clearly important. For instance, a comparison of the United States and Greece indicates that the borrowing cost could be even threefold among the OECD countries. In some cases (see the ratings) excessive borrowing would not succeed but it would face some credit rationing. Finally, it can be seen that the inflationary consequences of fiscal expansion are probably quite different owing to the differences in the functioning of the labour markets in the OECD countries.

One way summarising the different situation of countries is to make use of the so-called snowball effect which the combined effect of interest rates and output growth on government debt. This is computed using the conventional debt accounting equation (3.1)

$$\frac{D}{Y} = \frac{D_{-1}}{Y_{-1}} + \frac{PD}{Y} + \left(\frac{D_{-1}}{Y_{-1}}\right) \cdot \left\{\frac{(r-y)}{(1+y)}\right\} + \frac{SF}{Y}, \qquad (3.1)$$

Where D denotes government debt, Y nominal income, PD primary debt, r nominal interest rate, y output growth and SF the stock-flow adjustment. The now-ball effect is the third term on the right-hand side. The values of this measure of reported in Figure 3 for all EU countries.

Needless to say, these values are indeed quite different. Thus, the range of values has been at least four per cent. Thus, in some countries debt/DGP ratio would have increased automatically by 4 per cent while in other countries the macroeconomic determinants would have had a zero contribution to the increase of indebtedness.

All in all, the indicators in suggest that fiscal policy actions affect output in a quite different way in these countries. Obviously, one should at least know the fiscal policy multipliers. There is, however, no up-to-date assessment of these indicators. One may only suspect that they differ at least as much as the monetary policy multipliers (see e.g. Ramaswamy and Sloek (1997)).

[5] The level of government debt is important not only because of its effect on credit risk (and thus on borrowing costs). Recently, there has been a growing interest in the theoretical implications of debt on the fiscal policy transmission mechanism. For instance, Sutherland (1997) has shown that the power of fiscal policy to affect consumption can greatly vary depending on the level of public debt. Thus, when debt reaches extreme values a fiscal deficit can have a contractionary effect.

4 Distinguishing between cyclical and structural deficits

Automatic stabilisers constitute an essential ingredient in fiscal policy. To pursue correct cyclical policy one has know what is the nature and magnitude of cyclical elements in both expenditures and revenues. If cyclical sensitiveness is very important discretionary policy measures may not be needed and vice versa. Overly sensitive cyclical deficits may create problems in achieving the deficit criterion. Thus, already in modest depression the deficit may fall below the three-percent level.

Thus, it is very important one is able to distinguish between the cyclical and structural components of expenditures, revenues and the deficit. Although the basic idea in distinction is quite simple empirical applications are not that easy. Assume, for instance, that the government pursues systematic (counter)-cyclical fiscal policies. How can the effect of such policies be distinguished from pure cyclical effects (automatic stabilisers) if we used only unrestricted time series models in deriving the cyclical effects as it is customarily done? If the policies were totally discretionary, the case would be a bit easier but not trivial even then.[6]

Not surprisingly, there are several competing ways of making the structural corrections and there is really no consensus how to make the decompositions. International organisations like IMF, OECD and the European Union make their own adjustments and, in addition, several other (national) adjustment procedures are applied.[7]

The most important differences are, however, related to the cyclical behaviour of government expenditure and revenues. Thus, the corresponding GDP elasticities are not only different in terms of magnitude but also different in terms the sign. Thus, it is very difficult to forecast the development of government expenditure and revenues and it clear that even if the output increased (decreased) in the similar way in all countries, government deficits would behave in a completely different way. The differences in other policy environment variables (debt & unemployment) are, however, even much larger. The most surprising fact is, however, that the GDP elasticities of government revenues and expenditures differ enormously between countries suggesting the systems are very different indeed (the corresponding elasticities are in quite extensive way reported in Mäki and Virén (1998)).

Here we report only the aggregate elasticities of government deficit/GDP ratio debt with respect to output growth (see Figure 4). In addition we compute the same measure for the cyclical component of government deficit (in relation to trend GDP, see Figure 5).[8] Here, we use the EU definition of the cyclical

[6] In this connection, we should perhaps refer analogous problems which may turn out when we try to distinguish the policy effects on, say, output growth. As pointed out by Blinder and Solow (1973), it can be shown that if we pursued systematic counter-cyclical policies and if were completely successful in eliminating the cycles, it would look like policies were completely impotent.

[7] See e.g. Blanchard (1990), Barrell, Margan, Sefton, Veld (1994) Brandner, Diabalek and Schuberth (1998) and Giorno et al. (1995) for overviews of these procedures.

[8] In the case of DEF/Y measure there is an obvious simultaneity problem in terms of output growth.

component of deficit (net lending). The estimating equation takes simply the form:

$$\frac{DEF}{Y} = \alpha_0 + \alpha_1 t + \alpha_2 (y - p) + u, \qquad (4.1)$$

where DEF is government deficit (alternatively the cyclical component of DEF) Y is GDP (alternatively the trend GDP), y–p the growth rate of real GDP and u the error term.

The elasticity estimates from (4.1) give the same basic result that is obtained from disaggregated expenditure and revenue regressions (see Mäki and Virén (1998)). Thus, the EU countries seem to differ strikingly much in terms of the cyclical behaviour of the deficits. Thus, in some countries like in Sweden deficits are very sensitive to output growth while in some other countries there is no significant relationship between deficits and output growth. Moreover, the results appear to very sensitive to the estimation period. If the 1980–1998 period is compared to the long period 1960–1998 it turns out that two completely different outcomes may arise: either the output growth elasticities increase or they go zero (like in the case of the Netherlands, Italy, Germany and Denmark). In the later case, the explanation in related to some policy changes or country-specific factors (Germany, Ireland) which break the conventional cyclical relationship.

This interpretation is supported by the results with the cyclical component of government deficit (Figure 5). Although, they are some outlier observations (Luxembourg and Ireland) the results are generally quite time-invariant. Also the ranking of elasticities seems to follow a pattern according to which large public sector economies have large output elasticities. These results to, of course, depend on the way the cyclical component of deficit is computed. A somewhat surprising result is the fact that the estimated elasticities are quite low (and the explanatory power of the regression is only about 20 %). Thus, the cyclical deficit appears to be largely non-cyclical.

5 Forecast errors and forecast uncertainty

Successful fiscal policy necessarily requires reasonable accurate forecasts. Forecasts are needed at least for the following purposes:

(1) Forecasts of output growth (and other macro variables) for the current and future periods to assess the need for cyclical/structural policy

(2) An assessment of the current structural and cyclical deficit

(3) A forecast for future developments of cyclical effects on deficits.

It is well know that most macroeconomic forecasts have been very inaccurate (see e.g. Andersen (1997), Artis (1996) and Viren (1998c)). This inaccuracy can be illustrated by the following facts: the average Mean Absolute Forecasting Error for the all OECD countries (for output growth forecasts for one year ahead) for 1981–1998 is 1.6 %. The corresponding number for G7 countries for 1969–1997 is 2.3 % (see Mäki and Virén (1998) and Virén (1998c)). These errors are

illustrated by the some national data from Finland (Ministery of Finance forecasts) and from OECD. Figure 6 contains the Finnish data and Figure 7 the OECD data for G7 countries and, finally, Figure 8 data for all OECD member countries.

Clearly, the forecast errors are strikingly large and the forecasts seem to be systematically biased. Thus, in the case of G7 countries, output growth is overpredicted by more than half per cent. By contrast, public consumption and inflation is underpredicted by 0.3 and 0.4 %, respectively.

Figure 8 further illustrates the nature of forecast errors. They are almost perfectly correlated with actual GDP growth rate values (r = .87). Thus, the OECD has largely failed to forecast the cyclical movements in GDP. This failure appears to be similar for all countries. The one-year-ahead forecasts have been quite invariant over time being close to the past growth rates of GDP.

This observation is supported by empirical analyses, which make use of the following data description equation:

$$f_t = a_0 + a_1(y-p)_t + a_2 f_{OECD,t} + a_3 f_{t-1} + u_t \qquad (5.1)$$

where f denotes the one-year-ahead forecast errors, y–p the growth rate of real GDP, f_{OECD} the (unweighted) average forecast error for all OECD countries and u the error term. Estimating this equation by SUR for the G7 countries and restricting the coefficients to be the same give the following estimates: α_1 = .628, α_2 = .428 and α_3 = –.038.

Some comments on this result merit note. The very high value of the coefficient of $(y–p)_t$ suggests that OECD has failed to forecast the changes in the growth rate of GDP (or more precisely, the deviations of GDP growth form the corresponding average rate). The coefficient of e_{OECD} is positive indicating that forecast errors are similar across countries. Thus, the overall cyclical assessment is incorrect. Finally, the coefficient of the lagged forecast error term is negative (although rather unprecise) which suggests that OECD reacts to large positive forecast errors by increasing the forecast value of the following year's GDP growth rate (and vice versa).

In this connection, it is well founded to ask what is the link between deficit and output growth forecasts. We analysed the OECD data for 17 countries for 1981–1996 and found that the on average the deficit-forecast errors are correlated with the output growth forecast errors. Thus, using the corresponding panel data we arrived at the following restricted SUR coefficient estimate for the coefficient of output growth errors: = .40 (t = 41.93), R2 = 0.25.[9]

Output growth forecasts are not necessary the only weak link in planning of fiscal policy actions. The assessment of structural vs. cyclical elements of government finances may be more difficult and the corresponding errors may more important.

[9] Both deficit and output growth forecasts appear to strongly biased in this sample. Thus, with the deficit/GDP ratio the regression coefficient of actual deficit/output ratio was 0.67 (t = 87.28) R2 = 0.80 and with output growth 0.10 (t = 3.69) R = 0.34. Clearly, the output growth forecasts appear to be the weak link here.

Because there is no consensus of the correct way of distinguishing the cyclical and structural components we can only illustrate the differences between different procedures. Here it boils down in showing the time series of structural deficits computed by EU, IMF and OECD. In addition, the BFI values are derived so that we have altogether four alternative indicators of the fiscal policy stance. These indicators are presented in Figure 9 for one example (that is Finland; for other EU countries, the data are reported in Mäki and Virén (1999)).

Clearly, the four series differ a lot so that we may well have a four per cent corridor for alternative structural deficit measures (with different signs).

The problem is that the uncertainty in choosing the proper measure is not the only problem we have in evaluating the fiscal situation. As shown in Figure 10, we have also the problem of knowing the correct way of updating and computing the corresponding indicator. The fact that the forecast values of cyclical/structural deficit vary a lot is no surprise – the problem is that the values computed for the current and past periods seem to be overly sensitive reflecting both new data and new computational solutions (disaggregation, detrending methods, and so on).

In the case of OECD, the "updating" error seems to be of the magnitude of 2–4 per cent which is obviously too much when take into account the error which is related to different organisations assessments.

The OECD numbers are by no means extraordinary in the sense that other cyclical adjustments would produce clearly smaller errors. That becomes evident by scrutinising the IMF values for structural deficit (again, in the case of Finland, see Figure 11). The difference between historical values is really striking: one does not know whether the policy stance has been restrictive or expansionary.

6 A comparison of policy effects in different countries

Given the large differences in the cyclical components of government expenditures, revenues and deficit, we can suspect that the effectiveness of fiscal policy differs a lot across countries. To get some idea of these differences we carried out a cross-country analysis with a small VAR model and with the NIGEM world model (see National Institute (1999)).

The VAR model that we estimated made use of three variables: GDP growth y, the rate of inflation p and the measure for fiscal policy. Several alternative measures were used (including the IMF´s structural deficit) but here we report results which makes of the Blanchard Fiscal Impulse (BFI) measure (see Blanchard (1990) and Alsesina and Perotti (1997)). In addition, linear time trend was added in the model as an exogenous variable.[10]

The lag structure of the model was determined on the basis of the Schwartz Bayesian Information Criterion (SBIC). Given those values we concluded that the proper lag length is just 1 and that the lag length was used in the experiments for all countries although in a couple of cases a better result was obtained with the lag length equalling 2 (the results with two lags were qualitatively quite similar,

[10] A more complete set results with alternative models is reported in Virén (1998a).

however). As for the empirical results, we display here only the BFI effects. Thus, in Figure 12 we report the impulse responses of BFI for all OECD countries.

Some comments on the results merit note. There are considerable differences between countries in terms of effectiveness of fiscal policy but that something one might expect on the basis the analyses we have done thus far. Looking at the impulse responses, the differences in the dynamics of fiscal policy effects are, in fact, not so important. There are some countries like Sweden, Denmark, Netherlands, France, Greece, and Spain where the effects are very small and even of the ”wrong” sign both in the short and long run. But in the case of countries, in which the effects are more important (like Finland, Austria, Germany, Ireland, UK, Italy, Portugal, Canada, Australia and the United States) the dynamics of fiscal policy effects is quite similar. The effect of a fiscal policy shock lasts two or three years but then dies out quite quickly. The set of countries does not come as a complete surprise. It is only Italy which does not so obviously belong to the latter set of countries but rather to the set of Mediterranean countries.[11]

The NIGEM model simulations were carried out by increasing either public consumption or direct taxes. Here we concentrate on the public consumption effects. Simulations were carried out so that in the first case public consumption was increased in all EU countries in an un-coordinated way (i.e. the analyses were carried out in a country-by-country manner). In the second case, public consumption was increased in all EMU countries at the same time and by the same amount (i.e. 1 per cent).[12]

The results from these simulations are reported in Figures 13–15 Figure 13 contains a summary of the un-coordinated fiscal policy experiment, Figure 14 illustrates the time paths of policy effects in the coordinated policy experiment and, finally, Figure 15 illustrates the difference between coordinated and uncoordinated policy effects. All effects here are GDP effects.

Although the qualitative results for different countries are largely similar, the quantitative results differ a lot. This applies both to short- and long run results. Thus, increasing public consumption in, say, Belgium and Germany by the same amount may produce five time larger output effects in Germany. For Ireland, the fiscal policy effects appear to be practically zero (in the un-coordinated case).

In the coordinated case the results are clearly larger suggesting that policy coordination can really pay off! The difference is – as one might expect – larger for the small countries. For instance, in the case of Finland, the difference is almost 50 per cent.

[11] The countries which participate in the EMU do not completely follow the pattern of fiscal policy effectiveness illustrated above. The same problem seems, however, to apply to the effectiveness of monetary policy (see Ramaswamy and Sloek 1997). The results for Japan and quite sensitive in terms of lag structure. If the current period value of BFI is included the sign is clearly negative.

[12] The share of public consumption of GDP differs somewhat in the EU countries, thus the corresponding GDP effects may also differ. The difference in the Public consumption/GDP ratio are after all not so large as the following 1996–1998 sample average values indicate: Austria 17 %, Belgium 15 %, Denmark 23 %, Finland 18 %, France 17 %, Germany 18%, Greece 11 %, Ireland 15 %, Italy 15 %, the Netherlands 15 %, Portugal 14 %, Spain 12 %, Sweden 24 % and the UK 20 %.

7 Evidence on policy coordination

At this point, it is well founded to ask to which extent there has been coordination in fiscal policy and – taking it for granted that coordination has not been perfect – when policies have been so different.

In trying to answer the question of whether policy actions have indeed been coordinated we simply scrutinise the cross-country correlations between fiscal policy indicators. We may also use variance decomposition procedure (applied in the context of output growth relationships reported in Figure 1). Thus, we may run regressions between country i deficits and EU aggregate deficits in the following way:

$$\frac{DEF_i}{Y_i} = \beta_0 + \frac{\beta_1 DEF_{eu}}{Y_{eu}} + u \qquad (7.1)$$

The correlation coefficients for all OECD countries using the BFI measure are presented in Figures 16–18. Figure 16 contains the frequencies of BFI and Figure 17 output growth correlations while Figure 18 presents the cross-plot of these correlations. The common and country-specific variances of government deficits (derived from equation (5.1)) for the EU countries are, in turn, presented in Figure 19.

The correlations are remarkably low. One fourth of the correlation coefficients are even negative! For the sake of comparison one should notice that only a few of the GDP growth rate correlations are negative (see Figure 17). Thus average correlation is about 0.1, which does not give much support to idea that there has been a lot of coordination in fiscal policy actions[13].

Also variance decompositions suggest that behaviour of deficits has been far from perfect harmony. Still, there is some similarity, especially with the "core countries" which seem to include France, Germany, Austria, the Netherlands, Spain and – somewhat surprisingly – the UK.

Correlation analysis is not, of course, a very powerful tool in analysing the performance of policy coordination. To obtain more affirmative results, one should try to identify the relevant policy reaction functions. We did indeed try to do that although we did disregard the cross-country spillover effects. Thus we estimated a VAR model (again, with three variables and with the identifying restriction that fiscal policy may react to contemporaneous information while the fiscal policy effects may only come out after some time lag (for details, see Virén (1998b)

The results from this analysis are summarised in Figure 20. The reported values are impulse responses with respect to output growth innovations. Annual data are used so that lags denote years.

[13] Correlation coefficients for different measures of government structural deficits are quite different, and with the BFI measure the lowest values are obtained. Thus, only about one tenth of the coefficients are positive and statistically significant. By contrast, with the EU measure almost one half of the coefficients are significant (although they are not very high either). Thus using the BFI measure, a bit too gloomy picture of the situation is obtained.

The estimated values again show that the countries are remarkably different. There seems to clear difference between the Anglo-Scandinavian and other OECD countries. The "core countries" (like Germany and France) seem to react to output growth only weakly and one hardly speak about conscious counter-cyclical policy. By contrast, for the Scandinavian countries there is some evidence of such policy.

This may obviously reflect a different choice of policy instruments between countries: some countries have relied more on monetary policy (including the exchange rate policy) and maybe also incomes policy. In the current situation in which there is not much room for choosing between different policy instruments, behaviour may, of course change, and fiscal policy reactions may become more similar.

Finally, one further problem should be shortly discussed. As mentioned in chapter 2, one serious obstacle for policy coordination is nonlinearity of key economic relationships. Thus, if for instance, the relationship between public expenditure and output were nonlinear, it would be very difficult to predict the effects of such a change. Moreover, one could not make conclusions on the basis of the average values of different macro-variables inside, for instance, the EMU area. Instead, the policy makers should also take into account the distribution of values.

In this context we may refer some recent evidence on nonlinearities. This evidence is mainly based on estimation of threshold models in which we assume that the coefficients vary from one regime to another and that the regimes are related to regime indicator that we call the threshold variable.

In Figure 21, we report coefficient estimates, which illustrate the nonlinear effects of public sector employment on private sector output (see Koskela and Virén (1999) for more details of the corresponding models and estimation results). In Figure 22 we report similar values for the slope of the Okun curve (i.e. effects of output growth on unemployment, see Virén (1999) for details). Finally, in Figure 23 we report some nonlinear slope estimates of a Phillips curve (see Mayes and Virén (1998) for details).

All of these exercises suggest that the relationships are not necessarily linear. Thus, increasing government output it affects total output in a completely different way depending on the size of the public sector. In the same way, the effect of output growth on unemployment is very small in the case of depression but relatively large in the case of booms. Finally, the effect of output growth on inflation appears to be of the right sign and magnitude when output increases but when output decreases the effect is very small and sometimes even of the wrong sign.

These examples may be sufficient to demonstrate that designing policies even in a single country framework is quite difficult and hence coordinated policies really requite a lot of better information and experience.

8 Concluding remarks

Policy coordination inside EMU will be largely a new thing. In the past, the EMU countries - in the same way as the all OECD countries – have pursued dominantly nationally oriented policies which is also found out in this paper. Given the policy

environment this is not surprising. Large differences between countries – both in terms of institutions and values of various macroeconomic indicators – create formidable obstacles for coordinated policy actions. Also the effectiveness of various policy instruments appears to quite different. To obtain better coordination one has necessarily to harmonise the key elements of the fiscal policy process so that, at least, the basic prerequisites of policy actions and the automatic stabilisers are reasonably similar. Also better quality forecasts are required. Coordination necessarily requires also some sort of coherence of basic policy rules and practice not to speak of attitudes and policy views. In these respects, the need for changes may be most urgent.

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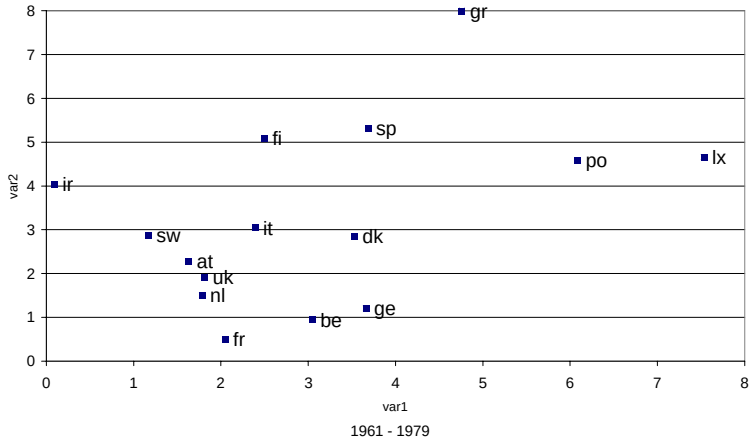
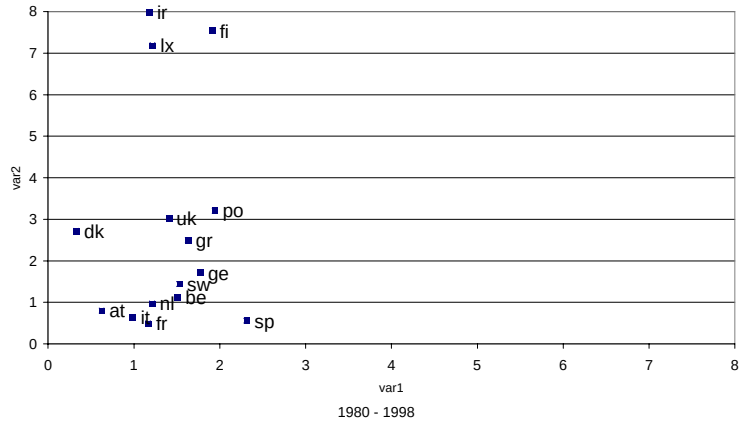
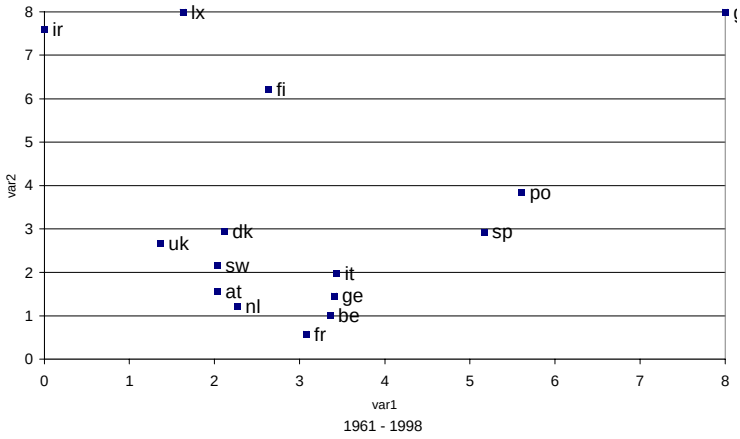
Data sources

Eurostat/European Commission
OECD National Accounts (OECD CD-ROM)
International Finance Statistics (IFS/IMF)
Government Finance Statistics (IMF)
OECD Economic Outlook (June issues)
World Economic Outlook (June issues)
Economic outlook (Ministery of Finance)

Figure 1. Common and country-specific variance of GDP for EU Countries, 1960–1998







Var1 = common variance with the EU and Var2 = country-specific variance. The values are obtained by running a regression $\Delta y_{it} = \alpha + \beta \Delta y_{EU,t}$, where Δy_{it} is the GDP growth rate for country i while y_{EU} denotes the corresponding value for the EU aggregate. In this sense $Var(u_t)$ and $(Var\ (\Delta y_{it}) - Var(u_t))$ represent the common and country-specific variance components.

Figure 2. Debt and interest expenses in EU countries 1998

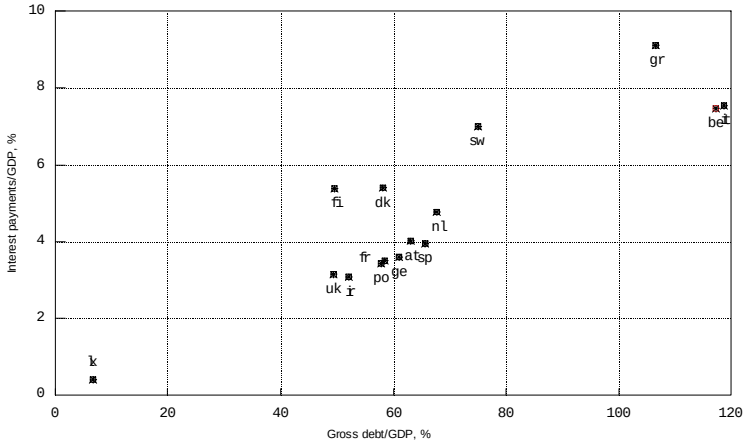


Figure 3. Snow-ball effect on government debt in EU countries 1970–2000

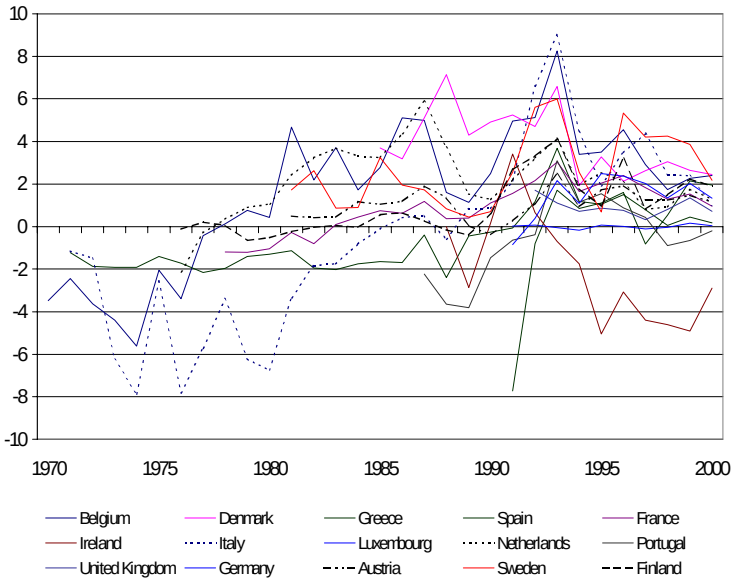
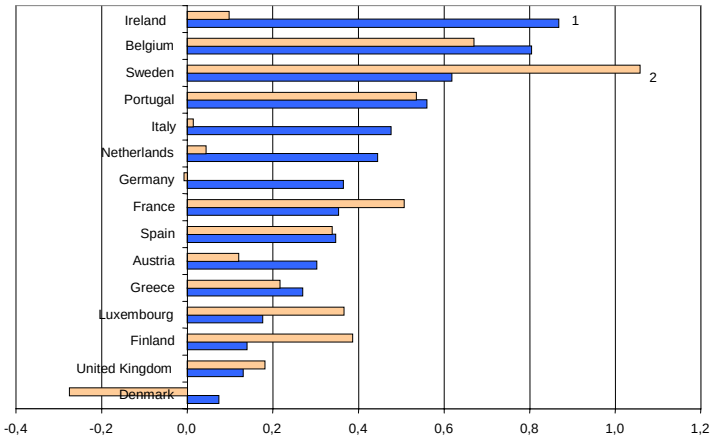


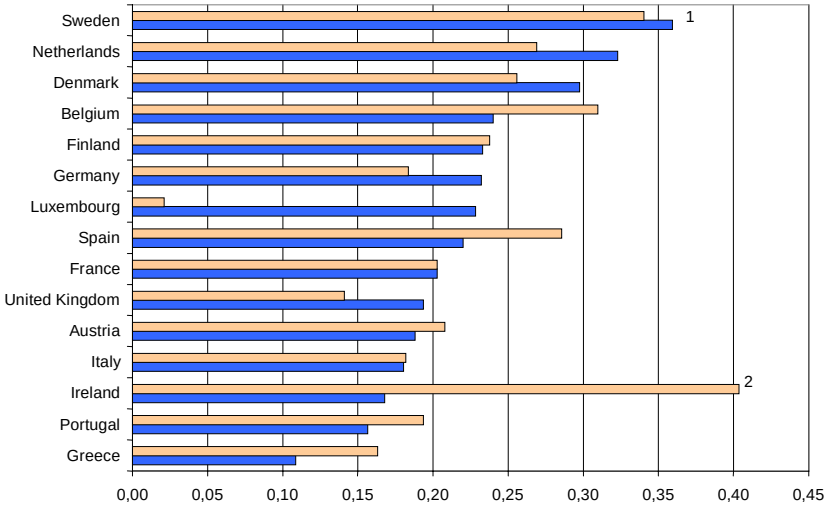
Figure 4. Output growth elasticity of government deficit



1 1961–1998 values

2 1980–1998 values

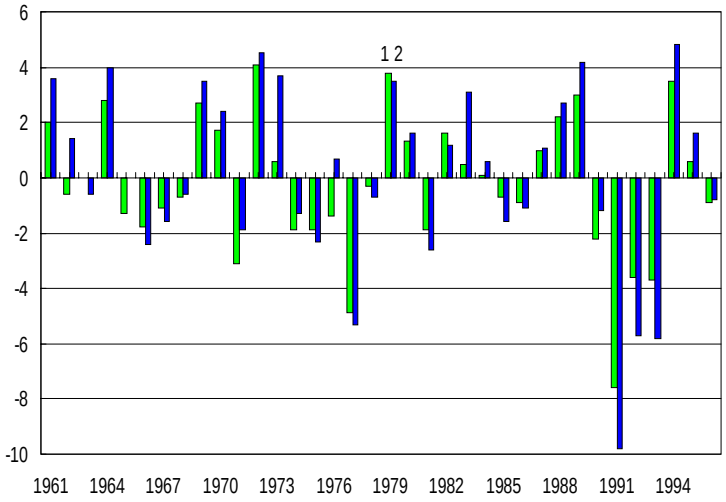
Figure 5. Output growth elasticity of cyclical deficit



1 1961–1998 values

2 1980–1998 values

Figure 6. Forecast errors for output growth in Finland 1961–1998

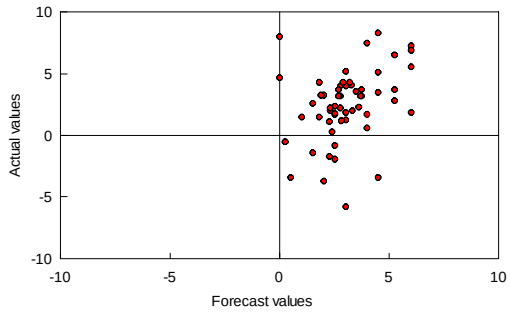


1 one year-ahead forecast error

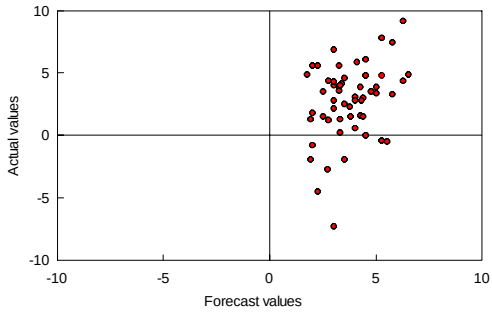
2 combined current and next year’s forecast error

Figure 7. Actual and forecast GDP values in G7 countries

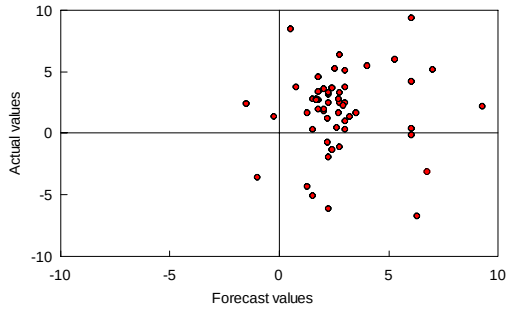
Actual and forecast GDP values for USA



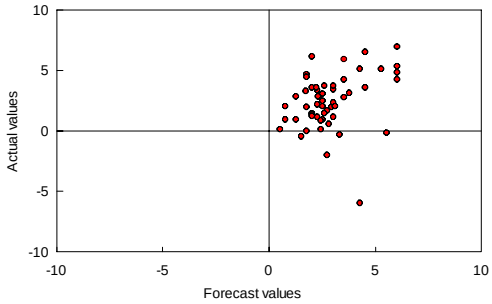
Actual and forecast GDP values for Canada



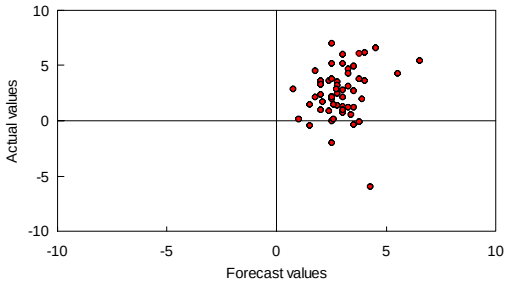
Actual and forecast GDP values for Italy



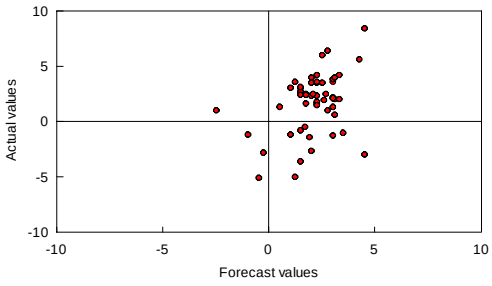
Actual and forecast GDP values for France



Actual and forecast GDP values for Germany



Actual and forecast GDP values for UK



Actual and forecast GDP values for Japan

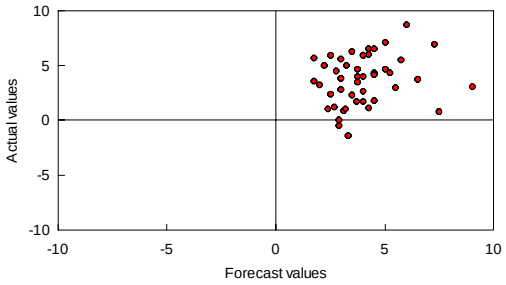


Figure 8. GDP growth and forecast errors in OECD countries

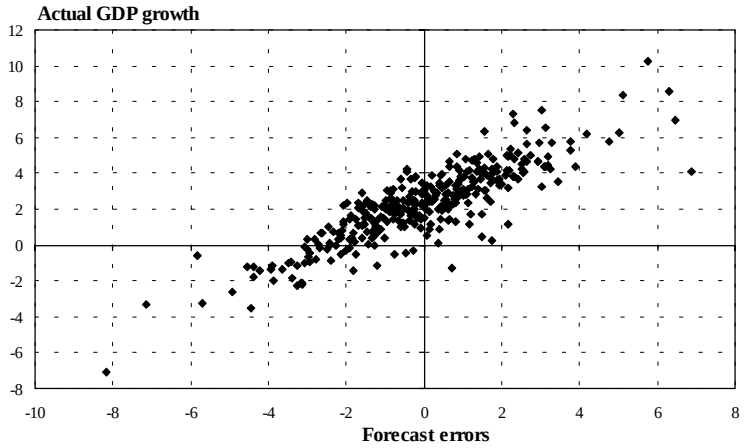
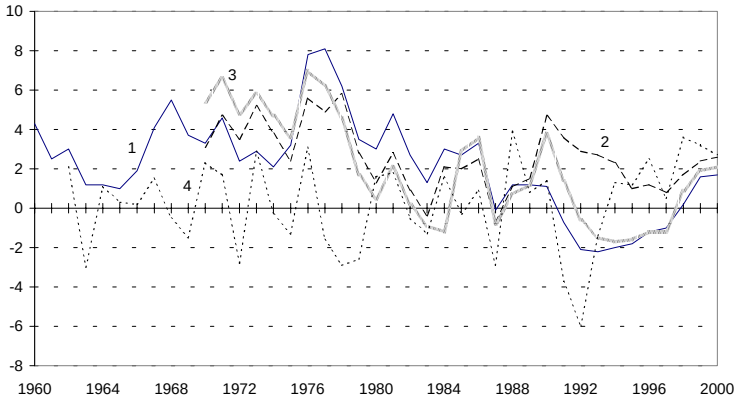


Figure 9. Different structural deficit estimates for Finland



1 EU 1999

2 IMF 1999

3 OECD 1999

4 BFI 1999

Figure 10. Different OECD structural deficit estimates for Finland

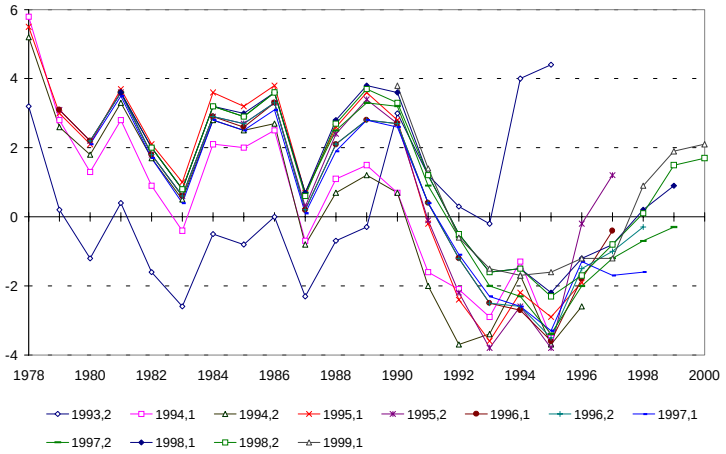


Figure 11. Different IMF structural deficit estimates for Finland

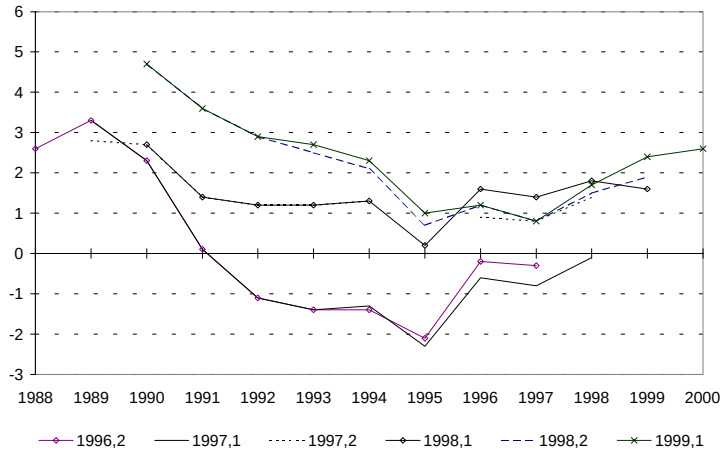
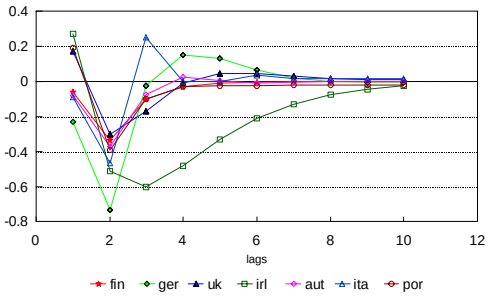
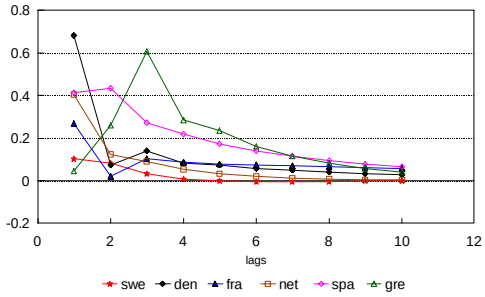


Figure 12. Impulse responses of output to interest rate shock in OECD countries

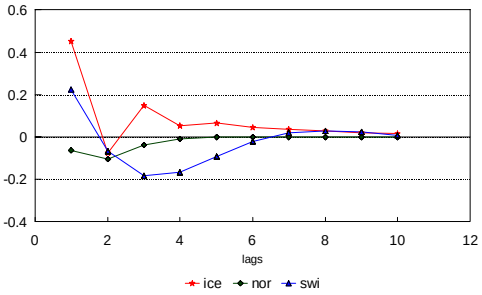
Impulse responses of GDP to BFI: EMU1



Impulse responses of GDP to BFI: EMU2



Impulse responses of GDP to BFI: Non-EMU



Impulse responses of GDP to BFI: Pacific rim

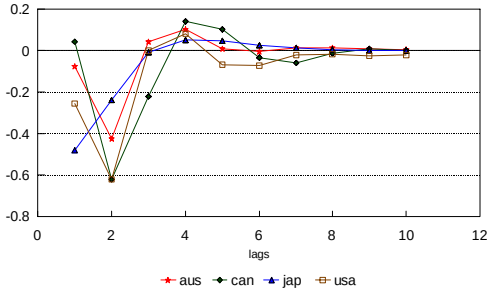


Figure 13. Effects of a one per cent increase in public consumption on GDP

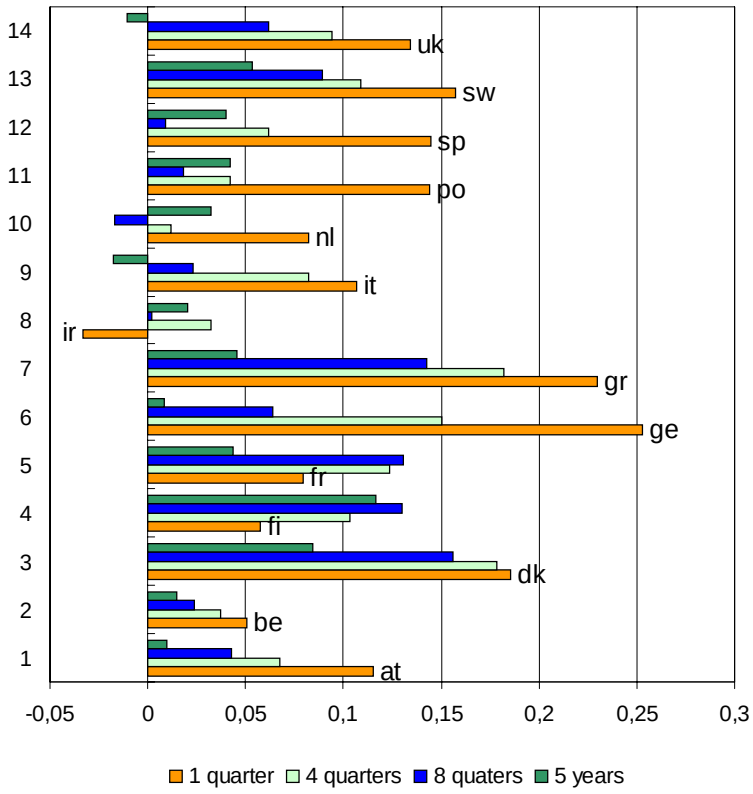
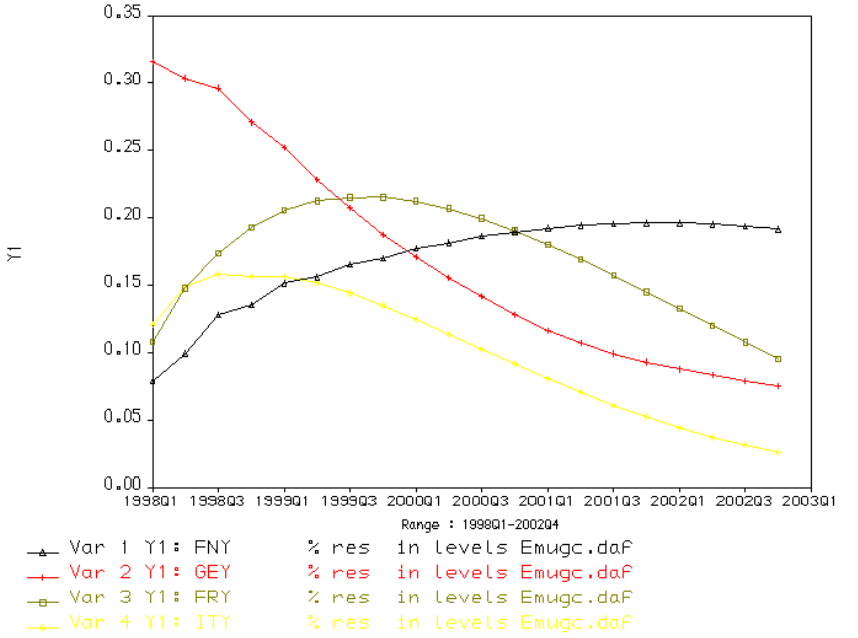
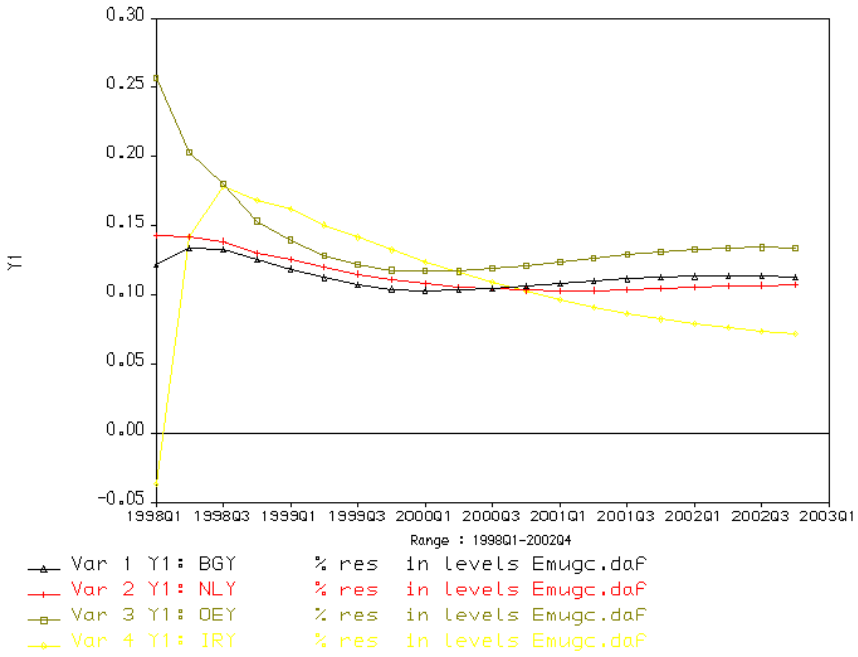


Figure 14. Effects of a coordinated increase in public consumption on GDP





FN = Finland, GE = Germany, FR = France, IT = Italy, BG = Belgium, NL = Netherlands,
OE = Austria, IR = Ireland, PT (next page) = Portugal, SP = Spain

Figure 14 continued

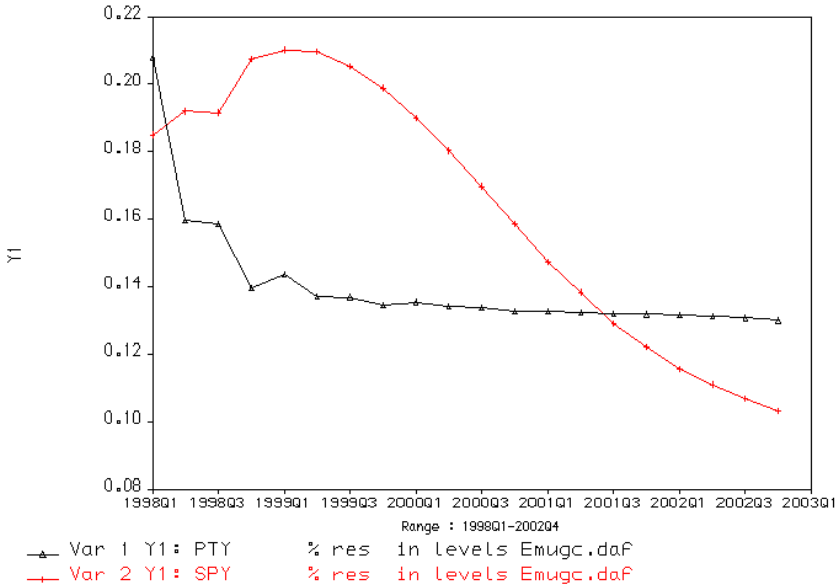
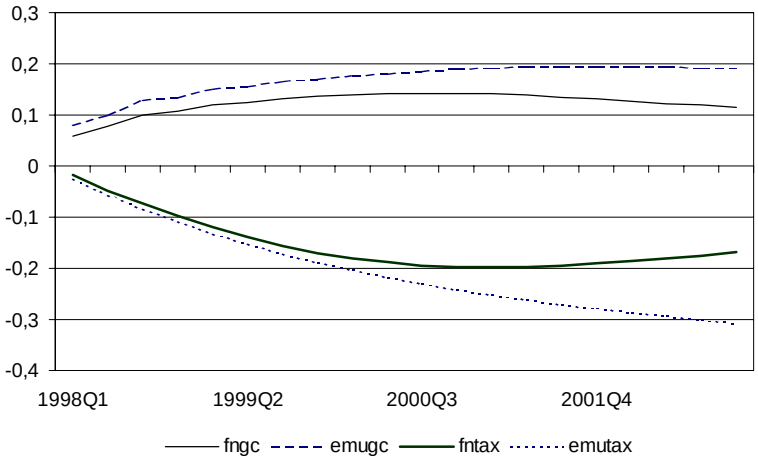
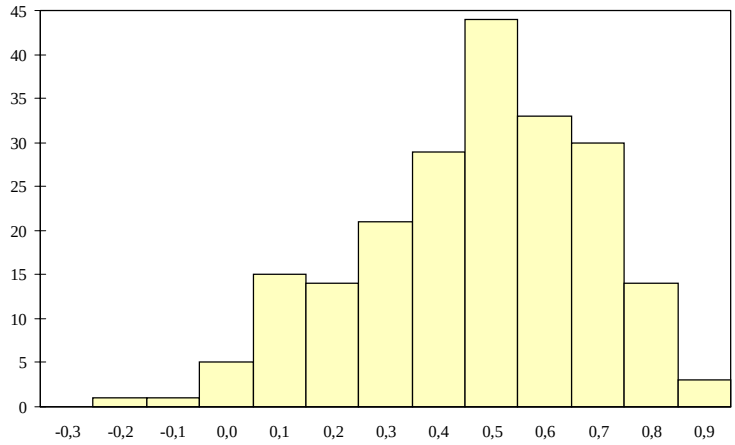


Figure 15. Comparison of a coordinated and un-cordinated fiscal policy effects for Finland



Fn denotes the output effect of an un-coordinated one-for-all increase in public consumption by one per cent in Finland, emugc denotes a corresponding coordinated EMU-wide increase in public consumption. Fntax and emutax denote analogous effects of an increase in direct taxes by one per cent.

Figure 16. Frequency distributions of output growth



The data are OECD data, total number of correlation coefficients = 210 (the same applies to for Figures 17 and 18).

Figure 17. Frequency distributions of BFI correlations

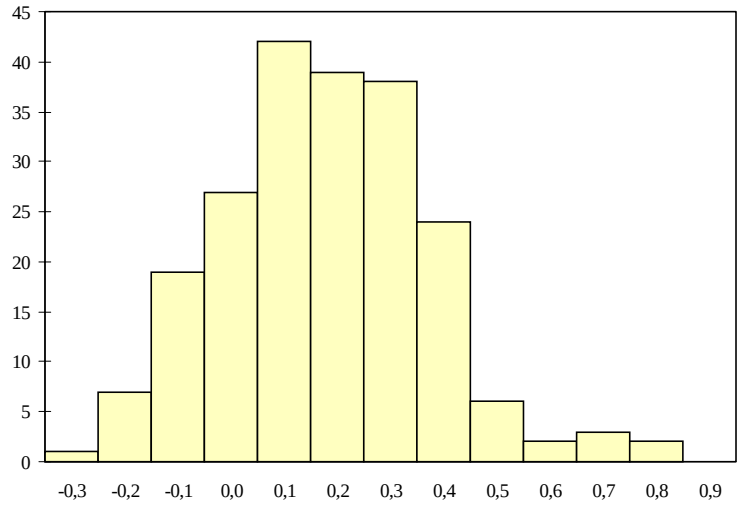


Figure 18. Cross-country relationship between BFI and output growth correlations

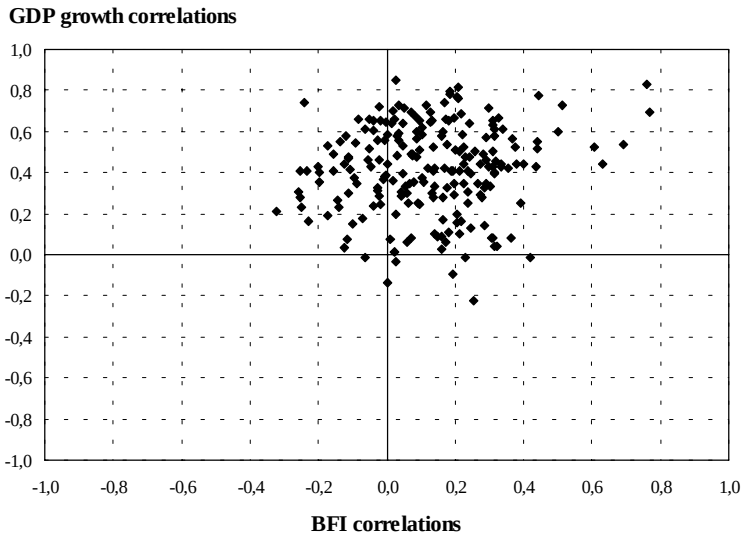
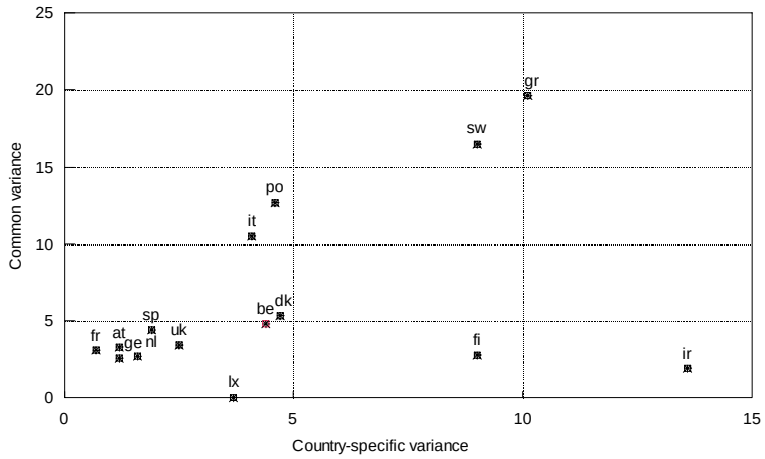


Figure 19. Common and country-specific variance of government deficits



The data are EU data, estimation period is 1960–1998.

Figure 20. Fiscal policy reactions to output growth in OECD countries

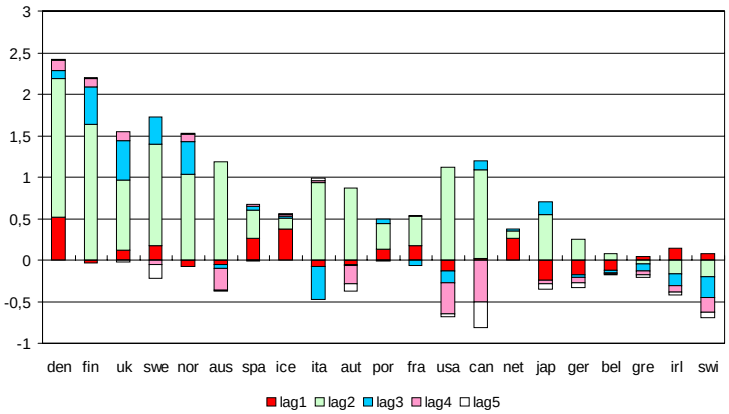


Figure 21. Effect of public sector employment on private output

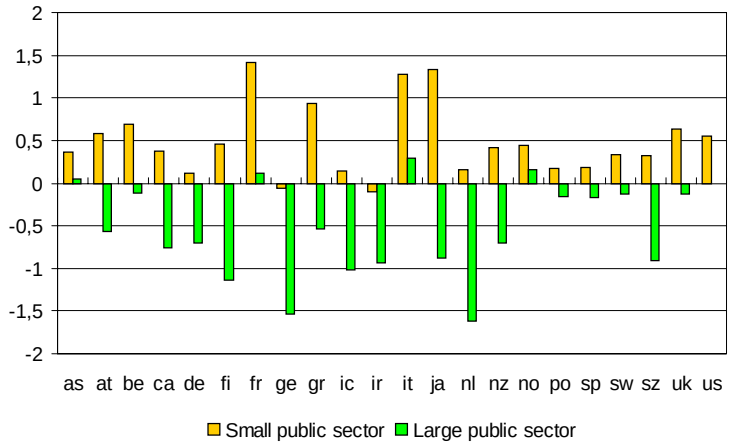


Figure 22. The slope of the nonlinear Okun curve

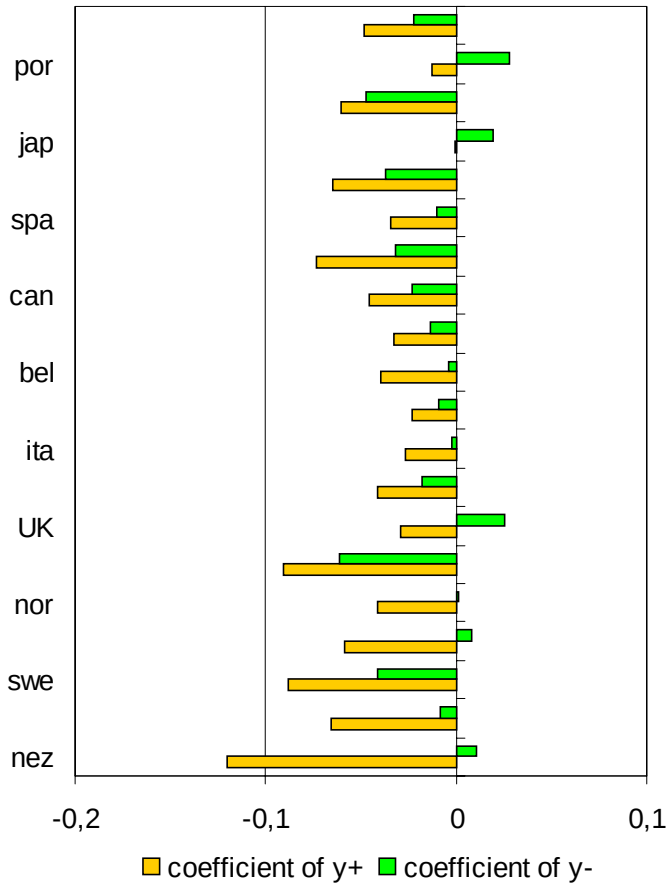


Figure 23. The slope of the nonlinear Phillips curve