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the EMU: A problem with
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ABSTRACT

This paper deals with fiscal policy coordination within the European Monetary Union. In the first place, it investigates the potential problems which are caused by cross-country differences in key fiscal parameters and the asymmetric nature of these parameters. In the second section, the pros and cons of policy coordination evaluated using some multi-country estimates as point of reference. The empirical results clearly show that policy coordination within the EMU context is very difficult because of these country differences and asymmetries. Even so, it is shown that policy coordination pays off at least in cases where the countries share the same shocks. Some practical problems of policy coordination and future prospects are also considered in the paper.

Contact information

The author is Professor of Economics at the University of Turku and a scientific advisor to the Bank of Finland.

E-mail address: matvir@utu.fi

1. Introduction

Fiscal policy faces a number of challenges in the EU. In the first place there are longer run pressures from ageing and from the competition by countries such as China, with low wage rates and managed exchange rates. These are both requiring politically difficult readjustments to ensure that the fiscal position is sustainable. Second, the nature of the economic cycle tends to mean that downturns are more effective in shaking out labour than upturns of the same size are in (re)employing it. This therefore tends to add further pressures in the same direction. The longer term pressures are being addressed through a number of routes, particularly the Lisbon Strategy to increase the sustainable rate of growth by one per cent a year and the Broad Economic Policy Guidelines that seek to coordinate the macroeconomic responses. Ameliorating the from the economic cycle are treated in part by monetary policy but also by the Stability and Growth Pact (SGP) which seeks on the one hand to encourage the longer term improvement in fiscal positions by trying to ensure that budgets are normally in balance or in surplus and on the other by preventing excessive deficits (deficits exceeding 3 per cent of GDP except under extreme pressures).

The cyclical pressures on fiscal policy are greatest for euro area countries that are out of phase with the bulk of the euro area and hence with the monetary policy set for the area as a whole. The same of course applies to countries that have a fixed exchange rate with the euro, such as those with currency boards. However, several member states have made the problems worse by failing to ensure a sustainable longer term fiscal stance. Such failures are clearly asymmetric. There are no examples of countries that have persistently made errors that lead to them running excess surpluses and finding that they are facing problems from their accumulation of assets rather than debts. In this paper we explore the extent of this asymmetry and show that contrary to some expectations the problems appear to be more in unsustainable tax reductions than unsustainable expenditure increases. However, we also show that even though problems may have increased in recent years they are a lot smaller than they were before the build up to monetary union. Whether or not the SGP is responsible fiscal responsibility is clearly much greater now than it was twenty years ago. The analysis of asymmetry provides us a useful starting-point in reconsidering the case for policy

coordination within the EU. Thus, the paper considers the problems which are related fiscal policy coordination mainly on the practical level and also provides some evidence of the effects of coordination. The structure of paper is quite straightforward: first in section 2 we focus on eventual similarities in differences in fiscal policy effects, and then in section 3 consider prerequisites for policy coordination. Eventual gains from coordination considered in section 4 and, finally, some concluding remarks follow in section 5.

2   *How sensitive is the budget balance to cyclical fluctuations?*

In this section we turn directly an aspect of fiscal policy that is subject to constraint under the SGP, namely whether the current rules impose excessive constraints on the running of deficits. If fluctuations round a prudent longer-term policy would exceed the 3 percent deficit limit without themselves being destabilising then prima facie the constraint is too tight. Avoiding the deficits without altering the overall setting of the fiscal system would involve tightening in the most difficult years just when it is most harmful to economic stability to do so (and presumably some loosening in better years, which might be difficult to organise without contributing to unwanted inflation). Clearly this would defeat the point of stabilising policy. However, to permit such fluctuations in difficult years without adjusting the structure of the tax and benefit system a country might have to move quite strongly into surplus in normal years, such that it would be effectively repaying its debt as a proportion of GDP. For a country with a low debt ratio this would be a strange strategy if it inhibited growth enhancing (or revenue enhancing) investment.

For the euro area as a whole of course reducing the debt to GDP ratio is precisely what is required at present. Most countries are not starting from what is thought to be a sustainable position and need to consolidate. Indeed for some countries, Finland for example, there has been no contradiction in needing to run a surplus in normal times as the government wanted to run the debt ratio down substantially, both to leave room to act in the event of another serious shock like the banking crisis at the beginning of the 1990s and to cover unplanned difficulties with the ageing of the population for the

funding of pensions or provision of services. Indeed Finland went further in building up buffer funds so that it could absorb some of the shock to unemployment and pensions from a downturn without the need to borrow, increase taxation or reduce benefits. This strategy has proved its worth in the present crisis, where Finland has experienced a greater downturn than most euro area members but without a catastrophic impact on its debt. However, Finland is not typical.

Other countries have behaved differently. The UK was prepared to run considerable deficits in the growth phase of the cycle even before the present crisis put such pressure on it.[1] Indeed one of the reasons why the UK's attempts to offset the financial shock have been so modest is that it had very little leeway. However, at some point this fortunate co-incidence between the need to consolidate and the constraints of the excessive deficit procedure may not exist.

Views vary as to whether output shocks have substantial effects on the fiscal balance. If 'automatic' stabilisers are important then the balance will move in a strongly counter-cyclical manner (Buti *et al*, 1998). The effects may be particularly strong if buffer funds are used, as exist in Finland and Sweden. However, given discretionary behaviour by governments, the effects may be attenuated (Melitz, 1997). For example, when revenues rise governments may be tempted to be somewhat more lax in their fight against rising expenditures or may take the opportunity to cut taxes. However, the process may not be symmetric, as cutting expenditures or raising taxes in downturns tend not to be attractive electorally.[2]

There is considerable debate over how to measure the appropriate balances and Viren (2000b) computes the results for a wide range of definitions as well as for the expenditure and revenue components separately. Here we deal with just three definitions using the common specification

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[1] We do not pursue here the debate about the appropriateness of alternative simple rules for maintaining prudence, as practised inter alia by the UK. A rule that only permits borrowing for investment by the public sector is not necessarily stable since the return on many public investments are not purely financial and may not necessarily pay for themselves. Direct required rates of return may not reflect the appropriate valuation of the social benefits from the investment.
[2] This is the essence of the EDP in the SGP, which is intended to deter countries from getting into the position where they have impose a fiscal tightening in the middle of a downturn. It is expected to be a vote loser and hence a very strong incentive for governments to avoid getting into that position. Experience thus far is decidedly mixed as to whether that incentive has worked. Many of the countries that have had to act have miscalculated how well their system would stand up in a downturn or simply wrongly forecast the rate of growth and ended up with lower revenues/higher expenditures than expected.

$$def/y = b_0 + b_1\, def_{-1}/y_{-1} + b_2\Delta y^- + b_3\, \Delta y^+ + b_4\, r + b_5\, D_{-1}/y_{-1} + u \qquad (1)$$

where *def* refers to the measure of the general government balance (surplus or deficit), *D* refers to the debt-GDP ratio, *y* to GDP, *r* the real interest rate (government bond yield minus inflation) and *u* an error term and Δ denotes a growth rate (in short, $g = \Delta y$). (1) is a straightforward example of a threshold model, where, in this case, the threshold is applied to the growth rate. Thus -/+ denotes whether the growth rate is below or above the threshold (normally zero), Δy^+ includes only the above threshold values and Δy^- only the on and below threshold values. Using data for the period 1971-2011 from the for the 15 ("old") EU countries, the estimates are shown in Table 1. In Table 2, the estimates of the non-linear confidents of output growth for different definitions of deficits (as well as expenditures and revenues) are reported. The country-specific estimates are shown in Appendix Figures A1-A3 and Appendix Table 1)

The three deficit measures, shown in Table 2 (and Appendix Table 1), are cyclically adjusted net lending, cyclically adjusted net lending less interest payments and the cyclical component of net lending, all in relation to (trend) GDP according to the Commission of the EU. These three cover the range of concepts one might want to address. The cyclically adjusted deficit gives an idea of the overall stance of fiscal policy, although the appropriate cyclical adjustment is difficult to achieve. It can be computed after the event but the policy stance is a forward looking concept that depends on the forecast of what the trend is likely to be over the medium term – something that can often be seriously erroneous. We use a well-established definition rather than entering the debate, especially since it is this definition that is used in the official EU discussions about the stance of policy. Similarly, while interest payments are a function of the overall stance, they too vary over the course of the cycle with the fluctuations in interest rates and outstanding debt.

Table 1   Evidence of Changing Fiscal Behaviour

Dep.var	g	g|g>0	lagged def/y	debt_{-1}	rr	R^2/ SEE	DW J-stat	Estimator
def/y	0.464 (8.22)		0.744 (7.48)	0.028 (5.10)	-0.106 (2.52)	0.789 2.032	2.00	GLS
def/y *)	0.396 (6.69)		0.797 (16.61)	0.029 (4.62)	-0.142 (3.06)	0.851 1.661	2.03	OLS
def/y **)	0.643 (9.56)		0.578 (3.36)	0.006 (0.38)	0.115 (0.75)	0.741 2.340	2.29	OLS
exp/y	-0.579 (12.06)		0.815 (13.55)	-0.017 (2.13)	0.121 (3.22)	0.932 1.850	2.11	OLS
rev/y	-0.091 (3.02)		0.867 (38.11)	-0.003 (0.80)	0.050 (2.18)	0.976 1.111	1.64	OLS
	g|g<0	g|g>0						
def/y	0.741 (5.34)	0.327 (2.90)	0.750 (7.98)	0.025 (4.21)	-0.104 (2.52)	0.792 2.017	2.06	OLS
def/y *)	0.983 (4.76)	0.265 (3.74)	0.795 (16.94)	0.028 (4.42)	-0.141 (3.11)	0.856 1.636	2.09	OLS
def/y	0.776 (11.21)	0.405 (8.03)	0.536 (4.22)	0.060 (3.40)	-0.257 (2.12)	.. 2.683	30.9	GMM

Def denotes net lending (thus positive values represent surpluses), g denotes the growth rate of GDP and exp denotes government expenditures and rev government revenues in relation to GDP. Debt denotes general government debt in relation to GDP and rr the real interest rate (in terms of government bond yields). OLS denotes panel least squares (with fixed cross-section effects) estimator, GLS and GMM the Arellano-Bond GMM estimator with first differences. *) The sample period is 1971-1998. **) The sample period is 1999-2011.

The main implications of the results in the tables are:

(1) Fiscal policy seems to respond to business cycles quite considerably. Thus, the deficit elasticities with respect to output growth appear to be around 0.2-0.3 for a one-year horizon (clearly more than obtained by Melitz (1997)).

(2) There appears to be strong evidence of asymmetric cyclical behaviour in government deficits. The output effects on deficits seem to differ depending on the business cycle regime: they appear to be much strong in depressions (output falling) than in booms. The hypothesis of equal coefficients for these regimes can be rejected quite clearly.[3]

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[3] The (possibly nonzero) threshold estimated by the maximum likelihood procedure was close to zero so the results using it are not reported.

(3) Asymmetries mainly relate to the structural deficit. Thus, the cyclical component of the government deficit seems to behave more or less symmetrically in terms of output fluctuations. This means that when output decreases structural deficits increase but when output increases structural deficits also tend to increase (surpluses decrease). The problem thus lies with discretionary behaviour rather than with automatic stabilisation. In good times discretionary policy appears to have been perverse.

(4) The different cyclical effects show up in both revenues and expenditures. Revenues seem to be more sensitive to output growth in depressions than in booms. Thus, when output grows, the revenue/trend output ratio remains more or less constant, while in depressions it decreases quite markedly. Expenditures seem to increase in depressions and decrease in booms. This probably reflects changes in government transfers (e.g. unemployment benefits).

(5) The direct effect of interest rates on deficits can be clearly discerned. The effect is particularly strong with net lending but it also shows in primary deficits. Thus, an increase in interest rates leads to some loosening of fiscal policies, and vice versa. The net lending effect obviously reflects the direct expenditure effect on interest expenses but the primary deficit effect is a bit hard to be interpreted.

(6) More interestingly, the effect of government debt also turns out to be both significant and of 'correct' sign and magnitude. Larger debt leads to some correction in the form of lower deficits.

We do however have to be rather cautious in interpreting these results, as the reverse impact of the fiscal balance on output has not been taken into account in estimation on the grounds that it occurs with a lag (while the effect of growth on the deficit is contemporaneous).

Since the requirements were to be able to keep the public sector deficit below 3per cent of GDP and the debt to GDP relation below 60 per cent (or show adequate progress in bringing the debt ratio down to that level) we could expect a change in behavior as countries tried to qualify. The assessment was made in the first part of 1998 and hence member states needed to qualify from around 1997 onwards, which implies action in the years before then if the general structure of the fiscal stance

needed adjustment.[4] In the same way, within Stage 3 the members are bound by the terms of the SGP which also attempts to get countries to bring their debt to GDP ratios down and to keep their deficits less than 3 per cent of GDP. Indeed, as discussed earlier, the objective has been to try to attain a surplus or at least balance in normal times. However, once membership was achieved, the sanctions became different. Countries could be subject to an Excessive Deficit Procedure under the terms of the SGP. Thus far no sanctions have been applied and the SGP itself was revised in 2005, making the occurrence of an excessive deficit less likely, nevertheless, the chances are that countries would become increasingly concerned to control deficits as they rose as a proportion of GDP.

Table 2 The output growth coefficients with different fiscal variables

Dependent variable	g<0	g>0
def: cyclically adjusted	0.329	0.042
	(2.06)	(0.36)
def: cyclically adjusted, exl. interest expenses	0.409	0.024
	(2.38)	(0.22)
def: cyclical component	0.403	0.359
	(10.34)	(16.11)
exp: cyclically adjusted	-0.578	-0.425
	(3.77)	(3.27)
exp: cyclically adjusted exl. interest expenses	-0.637	-0.397
	(3.89)	(3.40)
exp: cyclical component	-0.058	-0.046
	(4.30)	(9.39)
rev: cyclically adjusted ca	-0.251	-0.444
	(3.17)	(3.89)
rev: cyclical component	0.343	0.314
	(12.05)	(17.03)

The data cover the period 1971-2011. Data source: AMECO data base. All variables are expressed in relation to trend GDP.

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[4] We can probably neglect the first possible qualification date in 1996 as at that point only Luxembourg qualified on all criteria and it was clear early on that there would be insufficient countries to make starting the third stage of monetary union politically feasible. Hence countries are unlikely to have made special efforts during that period.

Figure 1 Fiscal data from EU countries
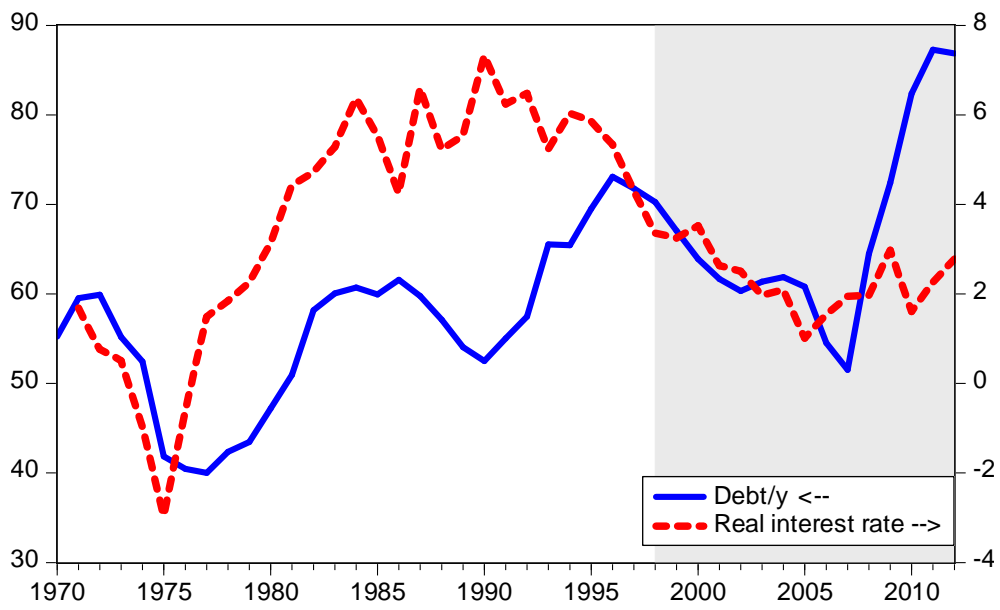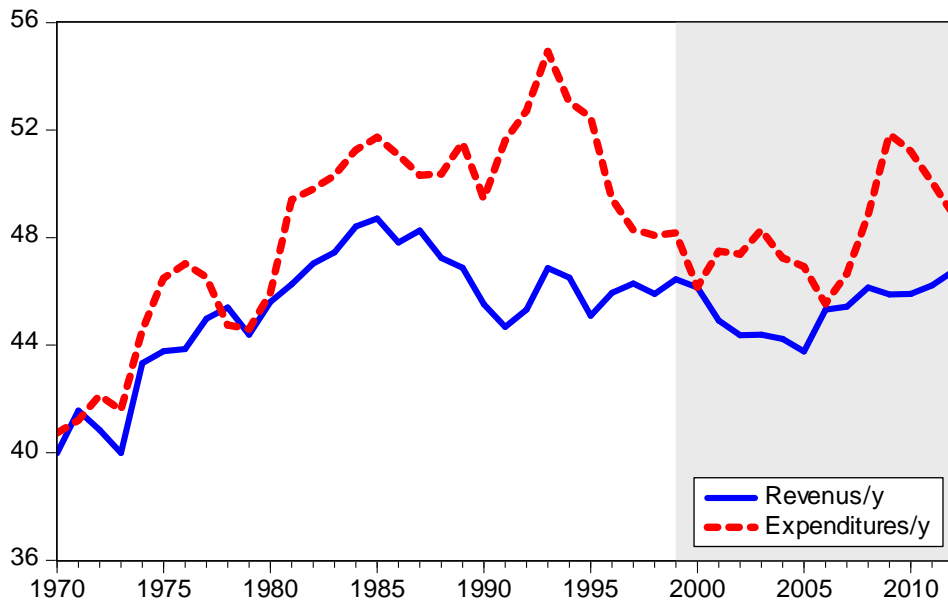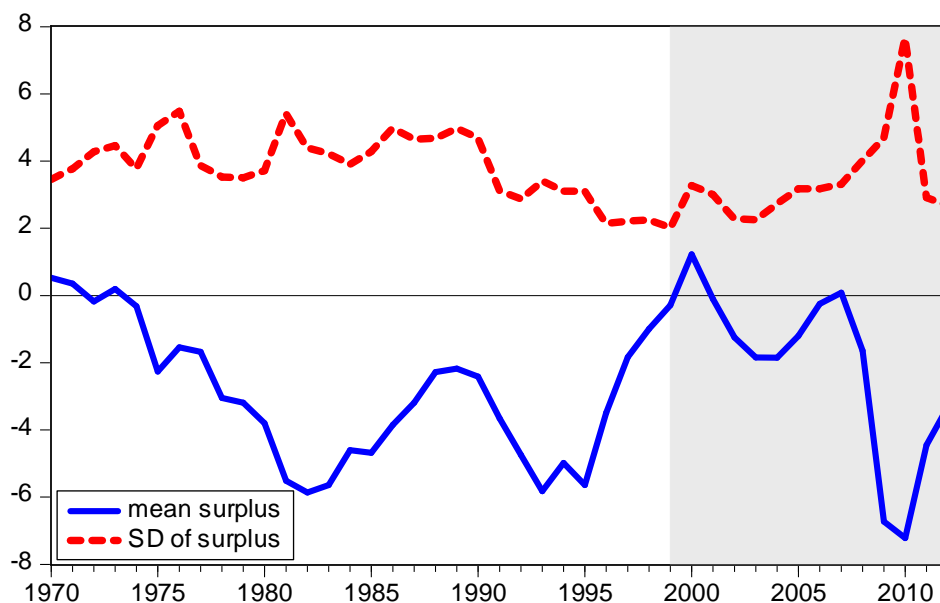
The implications behind this are that we would see two or possibly three regimes in the data. The period of qualification would entail a very specific effort as failure would lead to not being in monetary union at the start. Hence the sanction is clearly harsher than that through the EDP. A look at the data, Figure 1, confirms this. Deficits did indeed decrease markedly after 1995. Similarly the debt ratio began to fall. It is clear that the main adjustment came through expenditures rather than revenues. After monetary union there is little further change and the improvement in debt ratios tails off. Of course if we were to add the most recent years we would see a drastic worsening. However, these remarks ignore the state of the economic cycle. As is clear much of the adjustment is simply on the back of the upturn between 1996 and 2000 and the worsening thereafter reflects the downturn. Nevertheless the fact that deficits in the 2001-2 downturn do not fall as far as their values in the previous two peaks in the 1975 to 1990 period shows there has been a major change in behavior. To some extent this may reflect the fact that by this time inflation has also been brought firmly under control. On the one hand inflation erodes the real value of debt and makes it easier to have negative real interest but on the other low inflation restricts the automatic creep in revenues through a progressive taxation.

We do not have enough data to determine all these possible break points in behavior econometrically but we can explore whether there is a change in behavior in 1995, when convergence began in earnest, as well as whether there was one in 1999 when

the euro area started (Table 1). From the first rows of this table it appears that the disciplining effect of debt on deficits is if anything a little lower after the start of Stage 3. This is surprising as not only is there the traditional constraint from the increased cost of servicing but the Maastricht convergence criteria, which continued into an ongoing commitment, also tried to keep debt ratios below 60% of GDP and encourage steady improvement in fiscal prudence, thus doubling up the incentives. However, the clearest change in behavior is in the period 1995-2001, when the member states needed to qualify and then before the performance of the euro area began to weaken.

Estimates of the disciplinary effect of debt vary a lot depending on the specification estimated and on the time period. The EMU period appears to be somewhat different from earlier periods e.g. in terms of cyclical sensitivity and the role of inflation but it appears that the disciplinary role of debt is not very significant. In fact, it is the late 1990s which appears to be somewhat different in this respect. The difference can be seen quite clearly by computing a time-varying coefficient for the lagged debt/GDP ratio (Figure 2). On the basis of the Figure one might say that it is 1995 or 1996 when fiscal behavior changed towards more disciplinary direction but already in 2002/2003 some deterioration took place. (It is also clear from the Figure that each of the oil crises, 1975, 1981 and 1995 caused a step up in impact of debt, only first of which was reversed.)

The nature of the change may be better understood by scrutinizing the behavior of expenditures and revenues (see the subsequent four rows in Table 1). As these rows show, the effect is not symmetric on expenditures and revenues. Expenditures fell quite strongly compared to GDP when growth rates rose before Stage 3 but the effect was clearly more limited thereafter. Before Stage 3 tax revenues were if anything pro-cyclical.

We can see the extent of the asymmetry if we allow the coefficient on the growth rate to be different in down and up phases of the cycle (the last two rows of the Table). In the period before Stage 3 there was indeed asymmetry with the response being less when output gaps were negative. In Stage 3 this effect has become stronger (the hypothesis of symmetry can be rejected more decisively). This does imply that

the expected effect has occurred and there has been a stronger attempt to contain deficits in downturns.

Figure 2   Changes in the Responsiveness to the Debt Ratio
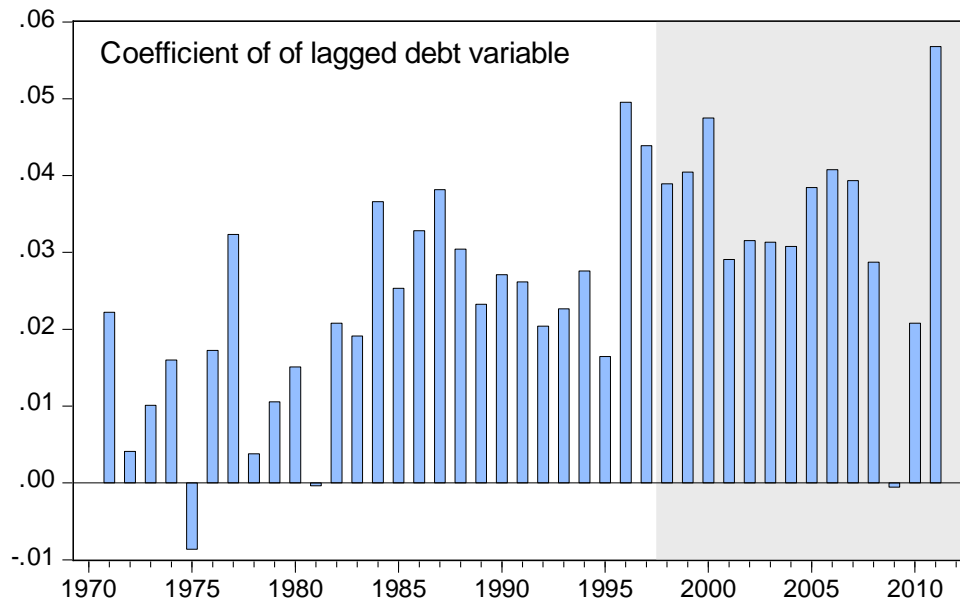
3   *Stabilisation and policy co-ordination*

Our second concern in this chapter is with the scope for improved outcomes that might stem from fiscal policy co-ordination under EMU and under the SGP in particular. If the ability to co-ordinate is increased then this may help offset some of the disadvantages from the inability to run an independent macroeconomic policy. (It is of course always debatable the extent to which there was scope for independent action by the smaller countries in the previous regime, as in the main they had to follow the German lead because their economies were so integrated.)

Here, we abstain from most theoretical issues of coordination (under which cases coordination may pay off, how coordination changes the modelling framework and so). See Branson et al (1990), Ganzoneri and Minford (1988), Gorden (1985) Kehoe (1987/1988) Oudiz and Sachs (1984) and Rogoff (1985) for some key references.

The EU does not attempt fiscal coordination in a strict sense of the word – there are no directives to the member states telling them how fiscal policy is to be set as part of

some annual 'plan' - but there is what the European Commission (2002) describes as 'weak co-ordination' through the Broad Economic Policy Guidelines (BEPG). Second there is a set of rules on how budgetary balances may be set, laid out in the SGP (described by the European Commission (2002) as 'strong co-ordination'). The formulation of the BEPG is a complex annual process, orchestrated by the Commission, aimed at trying to ensure that the macroeconomic policies of the member states contribute to the overall goal of sustainable non-inflationary growth that achieves full employment. Much of what is involved relates to structural policies, wage developments and labour market reform – the Cardiff, Cologne and Luxembourg 'processes' – but also involves the application of the SGP. While the BEPG have no legal force and rely on peer pressure for their achievement, the SGP does have some coercive powers, although despite breaches no penalties have as yet been imposed.

The SGP has two main sides to it. The first is to try to ensure that the member states all achieve a strong and sustainable budgetary position. This involves progress each year towards having a low debt ratio. While the end point has not been defined the process involves trying to remain in surplus or in balance through the course of the cycle. In order to qualify for monetary union the member states were supposed to have a debt ratio of less than 60% of GDP or be making sustainable progress to achieving that. While that state was somewhat liberally interpreted in 1998 when the original membership of the monetary union was decided it has nevertheless remained at the heart of the Commission's longer term predictions. The second side to the SGP is the Excessive Deficit Procedure (EDP), which is designed to prevent deficits in any particular year exceeding 3% GDP except in cases of severe economic difficulty, as applied to several member states in the present crisis.

Like the BEPG the EDP is essentially forward looking. If a country looks, in the view of the Commission, that it is going to run an excess deficit, then it has to take steps to try to avoid it. If these steps are not taken and an excess deficit appears, ultimately the member state has to make a non-interest bearing deposit from which the remaining states benefit. This can ultimately be converted into a fine if action is not taken of a period of two years. The detail, as set out in European Commission (2002) as amended, need not concern us here. In Chapter 9 we look at the impact that this asymmetric EDP has in policy. In this chapter our concern is with co-ordination.

Co-ordination in the SGP framework is largely a matter of the appropriate design of the system (Viren, 2000*b*). It is not realistic to think of negotiated decisions that would lead to one country following an expansionary policy in order to help offset a deflationary shock to another. This does not of course involve fiscal federalism, as this is not part of the current EU arrangements except in rather indirect manner through the structural funds. This is an area where the EU differs clearly from other countries and federal arrangements. Others have found the substantial 'automatic' transfer of resources from the 'gainers' to the 'losers' when shocks hit, on a scale not contemplated by the EU, to be a necessary part of the attack on social exclusion. The absence of such mechanisms in the EU has been a persistent source of criticism (see, for example, Feldstein, 1997). Politically, it is pretty clear that a substantial system of inter-regional transfers similar to those that apply in the US, Germany, Canada or other mature fiscal federations is implausible for the foreseeable future. This in itself constrains what might be possible in social policy, because with a budget capped at just 1.27% of GNP, the EU level cannot aspire to engage in the forms of equalisation and redistribution that the economic theories of fiscal federalism would prescribe (see, notably, Oates, 1999). Yet it should not be overlooked that within member states, these mechanisms are, typically already well developed: Southern England, for example, manifestly transfers resources to the 'North', while in Italy the geographical transfer is North to South; Germany transfers from West to East, Ireland from East to West. Again, co-ordination can help to maximise the impact of such mechanisms.

The key element in this discussion will therefore be the 'automatic' stabilisers.[5] Automatic in inverted commas because this includes the normal response of governments, which as we have noted is often asymmetric, differing between upturns and downturns – we explore this asymmetry in detail in Chapter 9. We should not regard co-ordination through automatic stabilisation in this sense as being necessarily a favourable response (Blanchard, 1990) as this reaction is appropriate to demand shocks. Supply shocks can require quite the opposite response.

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[5] The normal definition of automatic stabilisation relates to the fact that the tax and benefit system, widely defined, is contracyclical in nature. As the economy slows, tax revenues slow more than proportionately and unemployment starts to rise generating increased welfare payments and activity measures to try to get people back into work. Thus the budgetary position worsens on both the revenue and expenditure sides of the account. The reverse happens in an expansion and a 'sustainable' fiscal system should be able to go through the cycle without the need to change tax rate or expenditure rules.

Fiscal policy coordination in the sense we are describing has certain requirements for it to take full effect:

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

2. Countries must have similar prerequisites for policy actions.

3. The tax and transfer systems and the budgetary process must be similar so as to provide reasonably 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 be much larger than un-coordinated actions.

7. Different countries must share the same policy view (in terms of the instruments and objectives of policy).

8. Policy commitments must be enforceable in different countries

These requirements are all straightforward in nature. If problems are uncorrelated then joint action is less likely to be valuable. If countries do not behave in a fairly similar manner then having relatively uniform prespecified responses is unlikely to constitute an optimal policy. If we do not know what the impact of policy is going to be on the economies then it is much more difficult to decide what to do. Perhaps the most important element that has to be sorted out is a reasonably accurate decomposition of the key variables into their 'cyclical' and structural components (Brandner *et al.* 1998). Lastly the incentive structures must be adequate. If there is little to be gained from co-ordination but substantial costs (both economic and political) in precommitting to do so then co-ordination is less likely. Similarly if there are no adequate penalties for reneging the incentive to free ride on the system will be substantial. Given that is known, again countries will not co-operate.

Figures 3-5 give some idea of the degree of homogeneity between EU/EMU countries. Thus, Figure 3 focuses on the magnitude of asymmetric shocks within the EU27 countries while Figure 4 compares the cross-section and time-series variance of GDP for these countries. Finally, Figure 5 compares the time series behaviour of deficits (and GDP) vis a vis Germany for the period 1971-2011.

**Figure 3 Measuring asymmetries in EU 27 countries**
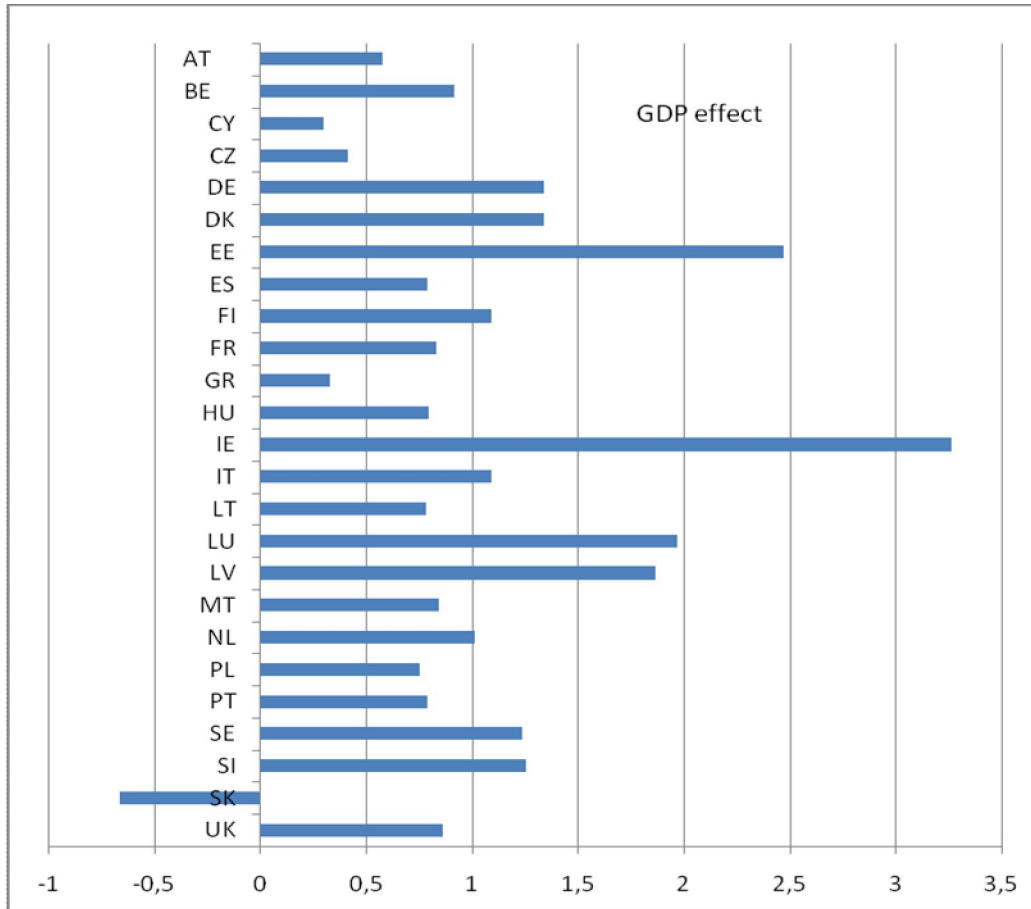
A test for asymmetric shocks for output is done by running a regression
$\Delta y_i = \alpha + \beta \Delta y_{EU}$ and displaying the estimated β coefficient

Figure 4 Comparison of time-series and cross-section variances of GDP growth
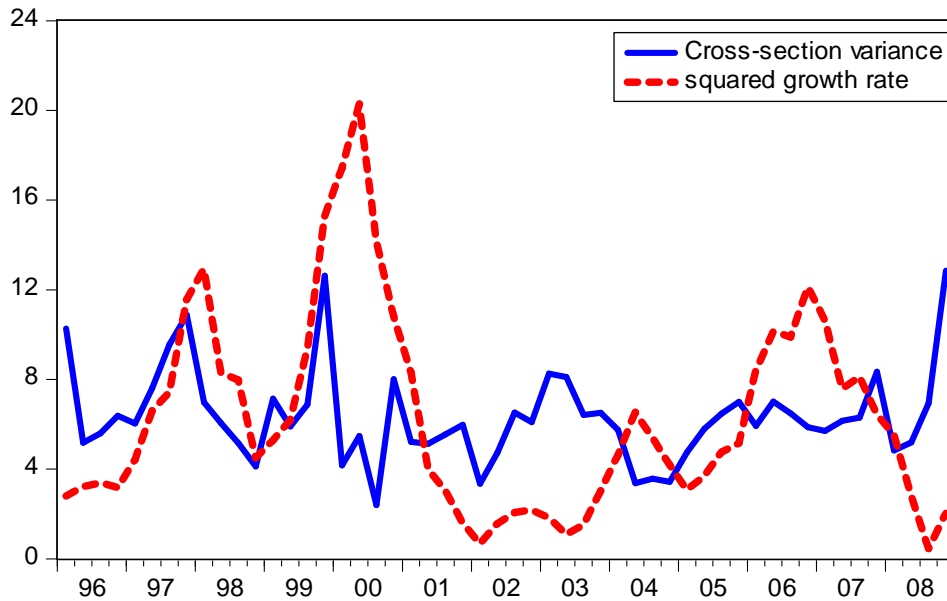
The data are from 27 EU countries. The sample period is 1976.1-2008.4, the number of countries is 25 (for data reasons, Romania and Bulgaria are not included).

Figure 5 Common features of deficits and output growth
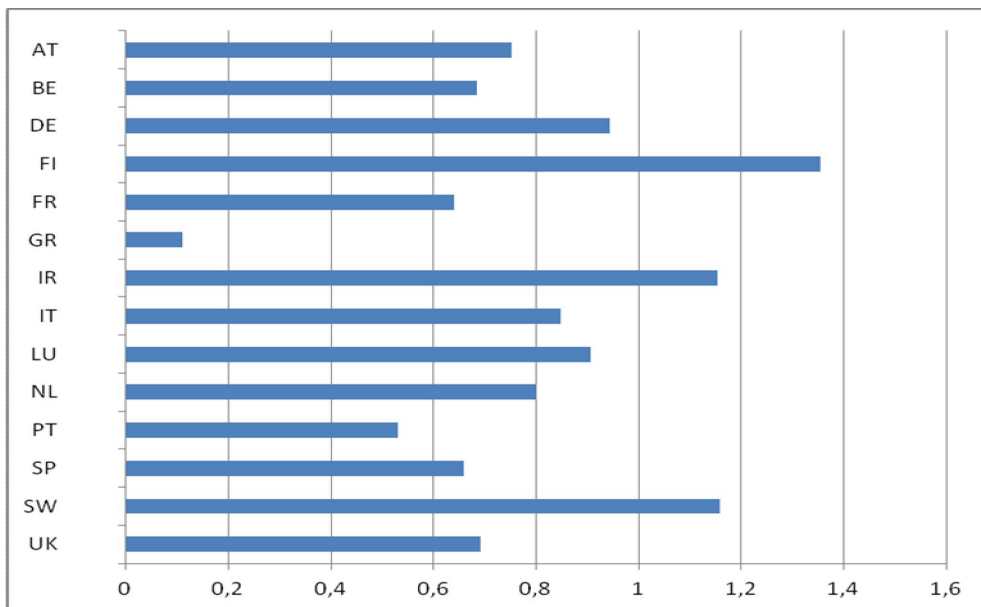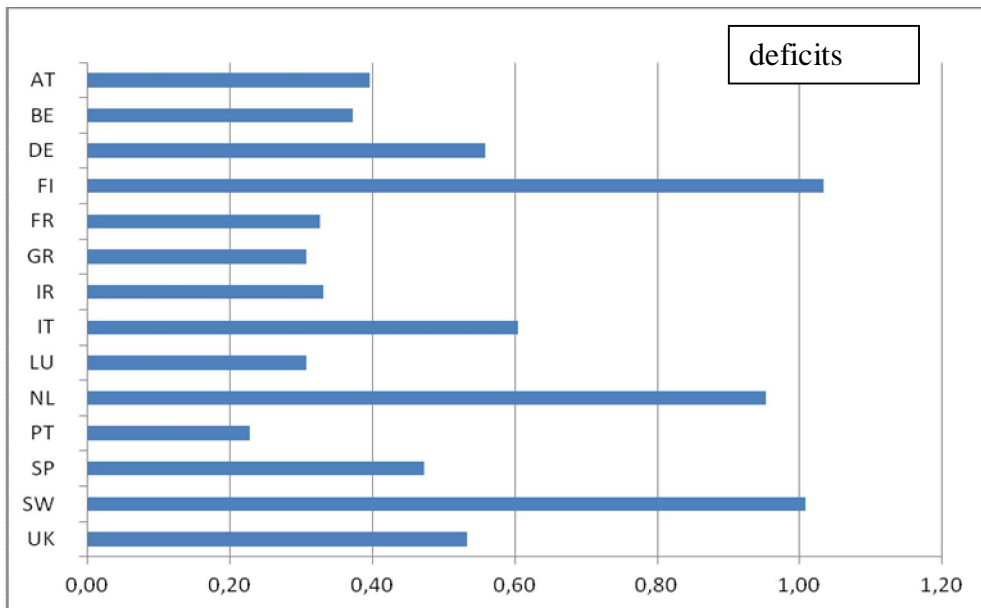
Both measures have been computed in terms of Germany using the same procedure as in Figure 3

One simple way of making comparisons between countries is to estimate a simple VAR model and comepare the impulse response functions. For purpose, we estimated a three-variable VAR with output growth, the real interest rate and the deficit/GDP ratio. Impuse responses were computed by the Cholseky decomposition (using the above-emtioned variable ordering). The average IRF values for 10 periods are presented in Figure 6 below (estimates are based on EU15 data for 1971-2011)

Figure 6 Average impulse responses from a 3-variable VAR model
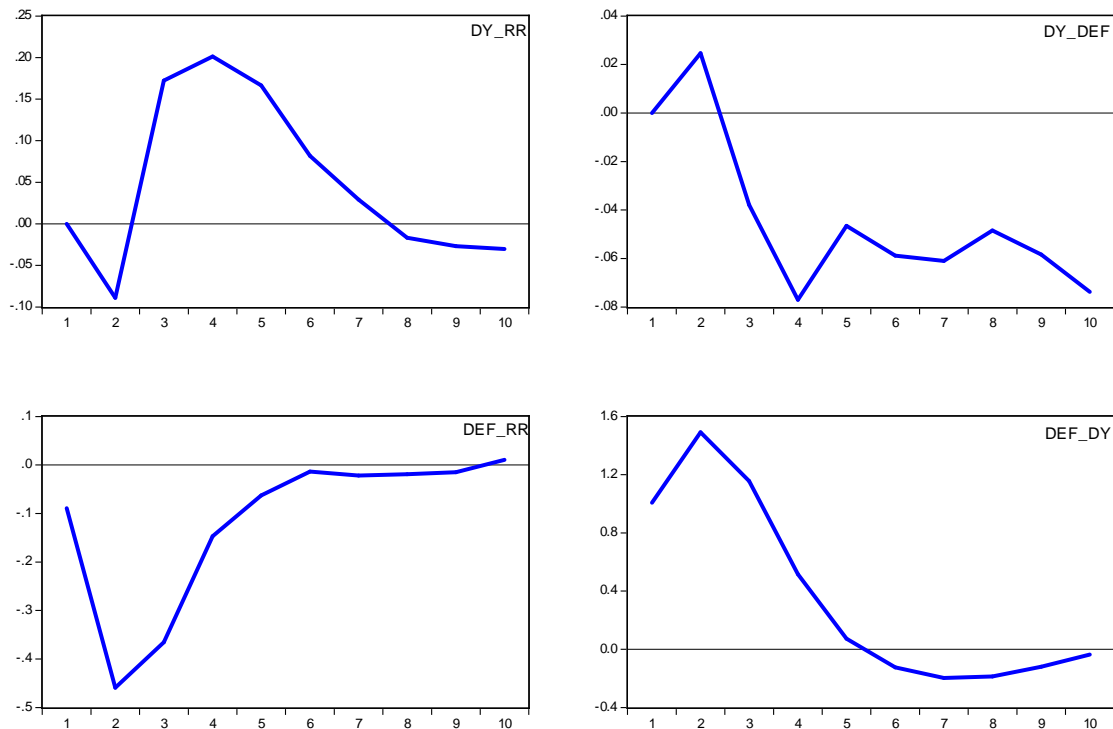
It is interesting to compare the IRF's over countries especially because they are appear to enormously different for certain variables. This is especially true for the effect of government surplus/deficit on GDP growth. The average value of correlation coefficients is practically zero (more precisely, 0.011). A bit more higher values are obtained with the correlations in terms of output growth vs. real interest rate (0.144) and government deficit (ratio) vs. real interest rate (0.268) but only with the impulse responses of government deficit in terms of output growth threes appears to be a reasonable amount of similarity (average value of IRF correlations is 0.779). Needless to say, but the results indicate that the transmission mechanisms of fiscal policy are indeed enormously different reflecting deeper differences in fiscal institution, fiscal rules and the structure of economy.

4   *Assessing the Pros and Cons of Policy Co-ordination*

To assess the importance of policy coordination for policy effectiveness we use the NiGEM multicountry model to compare the effects of different fiscal policy actions in the single country setting and in the case of collective policy action.[6] In the simulations (see Table 3) public consumption was first increased in all EU countries in an un-coordinated way (i.e. country-by-country). Then it was increased in all EMU countries at the same time and by the same amount (1 per cent).[7]

Table 3 A summary of the public consumption simulation

	y4	y8	yc4	yc8	ymax	ycmax	def	defc	ym	ymc
Austria	0.059	0.042	0.162	0.143	0.107	0.279	–0.154	–0.075	0.574	1.489
Belgium	0.099	0.074	0.233	0.208	0.113	0.239	–0.220	–0.107	0.536	1.131
Finland	0.124	0.151	0.175	0.228	0.159	0.268	–0.117	–0.050	0.741	1.251
France	0.273	0.261	0.333	0.332	0.274	0.339	–0.168	–0.144	1.130	1.398
Germany	0.224	0.156	0.304	0.224	0.299	0.374	–0.167	–0.130	1.574	1.967
Ireland	0.065	0.054	0.232	0.189	0.066	0.233	–0.127	–0.079	0.488	1.740
Italy	0.147	0.128	0.208	0.189	0.156	0.212	–0.146	–0.102	0.829	1.128
Netherlands	0.107	0.090	0.211	0.195	0.121	0.219	–0.230	–0.144	0.891	1.612
Portugal	0.092	0.076	0.156	0.157	0.116	0.241	–0.185	–0.144	0.574	1.193
Spain	0.166	0.159	0.246	0.274	0.175	0.274	–0.157	–0.109	1.109	1.732
Average	0.136	0.119	0.226	0.214	0.159	0.268	–0.167	–0.108	0.845	1.464

y4 (y8) denotes the output effect of an uncoordinated increase in public consumption (by 1 per cent) after four (eight) quarters, y4c and y8c denote the corresponding values in a case where all countries increase public consumption by the same amount, ymax and ycmax denote the maximum values of y over 20 quarters and ym and ymc the corresponding multiplier values for an increase in public consumption by one per cent of GDP. Def and defc denote the deficit effects of an increase in public consumption computed after 20 quarters.

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[6] In evaluating the effects of fiscal policy, an obvious analytical framework is provided by (structural) VAR models (see Blanchard and Perotti (1999), Dalsgaard and De Serres (1999) and Virén (2000a)). Because we concentrate here on the policy coordination problem, structural multicountry models are, however, more convenient. The model vintage used was 2002.

[7] The share of public consumption in GDP differs somewhat across EU countries, and so the corresponding GDP effects also differ. The differences in the public consumption/GDP ratio are after all not so large as the following 1998 values indicate: Austria 18.7 %, Belgium 21.1 %, Denmark 25.5 %, Finland 21.4 %, France 24.2 %, Germany 19.0 %, Greece 14.8 %, Ireland 13.4 %, Italy 18.8 %, Luxembourg 14.0 %, Netherlands 13.6 %, Portugal 20.2 %, Spain 15.8 %, Sweden 25.9 % and UK 18.2 %.

In all cases the coordinated fiscal expansion produces almost twice as much an increase in output as an uncoordinated fiscal expansion. (In Table 3 the insertion of the letter *c* in the variable name shows the results of the co-ordinated action, with the exact definitions of the variables shown in the footnote to the Table.) As expected we have the result that in uncoordinated actions small countries are able to achieve relatively little (mainly because of import leakage).

The multiplier values (the last two columns in Table 3) reveal that in an uncoordinated case fiscal policy effects for the small countries are mainly only around 0.5. For large countries, the values exceed unity but not by very much. The average value for all countries is 0.72 (with four lags) and 0.63 (with eight lags), 0.85 being the average maximum value. In the case of coordinated policies, there is not much difference between small and large countries. Thus, the average value is 1.25 (with four lags) and 1.17 (with eight lags), 1.46 being again the average maximum value. This represents an improvement for all countries but a major one for the smaller countries. The multiplier values (in the coordination case) are, in fact, quite close to the values obtained by Cohen and Follette (1999) with the US FRB/US macroeconomic model.[8] On the other hand, they are a bit higher than the SVAR values obtained by Blanchard and Perotti (1999), which are about one. The multiplier values in the uncoordinated case are, of course very low (suggesting that the marginal propensity to spend out of income is very low and the income elasticity of imports is very high) but also in the case of coordinated fiscal policies the multipliers are not terribly high although they obviously still facilitate fiscal policies. Note also that the in the case of uncoordinated policies, the output effect diminishes more rapidly than in the case of coordinated policies.

The effect of an increase in public consumption on government deficits is almost equally clear (see Figure 7). Deficits increase but because output also increases the effect on the deficit/GDP ratio differs from the pure deficit effect. The values for various countries are surprisingly different, reflecting the differences in the output effects. In other respects, it is rather difficult to say why the country results are so

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[8] The Cohen and Follette (1999) value with US data (with four lags) was 1.23 which may be compared with our average EMU10 value of 1.25. When the tax rates were set to zero in the FRB/US model the multiplier increased to 1.35 which indicates how much (or, in fact, little) automatic stabilisers will affect on the multiplier. An interesting thing is that the multiplier value of 1.25 implies a relatively low value of the marginal propensity to consume. Assuming the average tax rate to be 0.4 we end up with a marginal propensity to consume to be about 0.3 only (or, 0.4 if we account for imports).

different (the size of the country and the size of the public sector do not seem to explain the size of the output and deficit effects).

In these short run simulations it is perhaps reasonable to ignore the long term solvency constraint but, not surprisingly, imposing the solvency condition makes a lot of difference, particularly in the long run (when the additional taxes start to have an effect). Thus, the GDP effect almost completely vanishes and the effect on deficits is also quite marginal. If countries increase public consumption and balance the budget in the long run by raising taxes, the long-run output effect is simply zero or even negative.[9] Gains from coordination seem to be much larger for small countries while the impact of the solvency requirement depends mainly on the size and nature of the fiscal policy effect.

So far, we have considered public consumption only but the picture for direct taxes is very similar. Coordination makes a lot of difference in terms of output effects but the results are less clear for the deficit/GDP ratio. The problem stems from the output effects. When taxes are increased, output and income decrease, which eliminates part of tax revenues and – ceteris paribus – increases the deficit/GDP ratio because of lower output. If taxes are increased (by one per cent) in all EMU member countries at the same time, Finland's GDP would fall by almost half a per cent and that would also lead to a smaller surplus/GDP ratio (Figure 8).

The long-run effect of direct taxes (on output) is noticeably larger than the effect of public consumption. This mainly reflects the larger GDP share of taxes compared with public consumption.[10] The dynamics of the effects are, however, quite different, as can be seen from Figure 9, which illustrates the effects for the whole EMU area. The effect of public consumption diminishes over time while the tax effect shows no signs of a diminished impact.

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[9] The importance of the solvency condition obviously depends on the level of debt in the country concerned. Given the fact that indebtedness still varies a great deal among the EU countries, we again face an aggregation problem in pursuing EU fiscal policies (see Mayes and Virén (2011) for more about this problem in terms of monetary policy).

[10] In Finland, for instance, the share of public consumption in GDP was 20.7 per cent in the first quarter of 2000 while the share of direct taxes was 27.1 per cent.
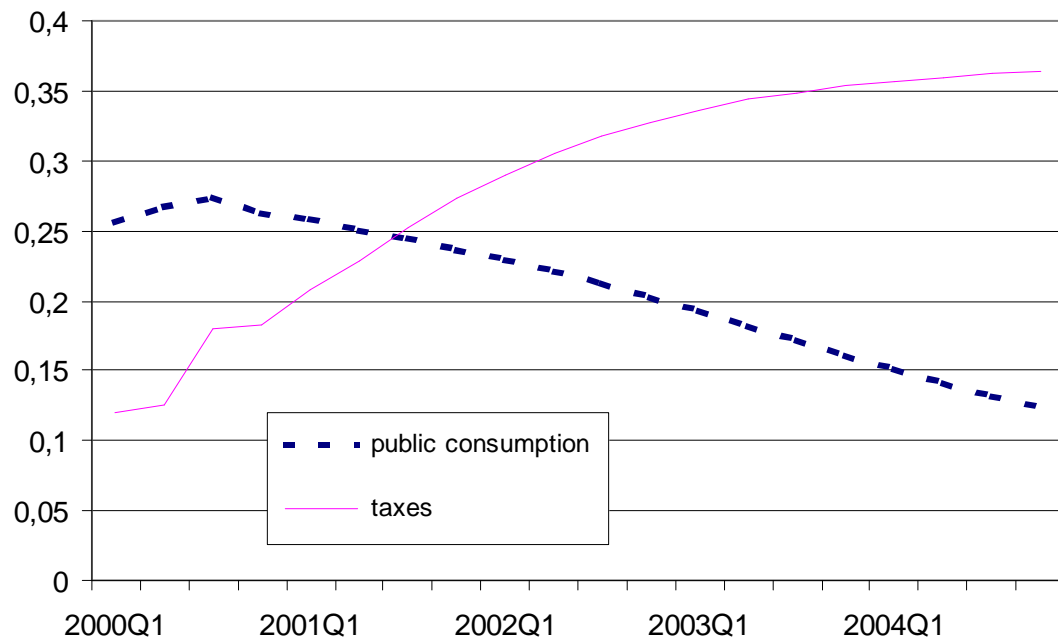
Figure. 7 Long-run effect of a one per cent increase in public consumption on government surplus/GDP with and without policy coordination
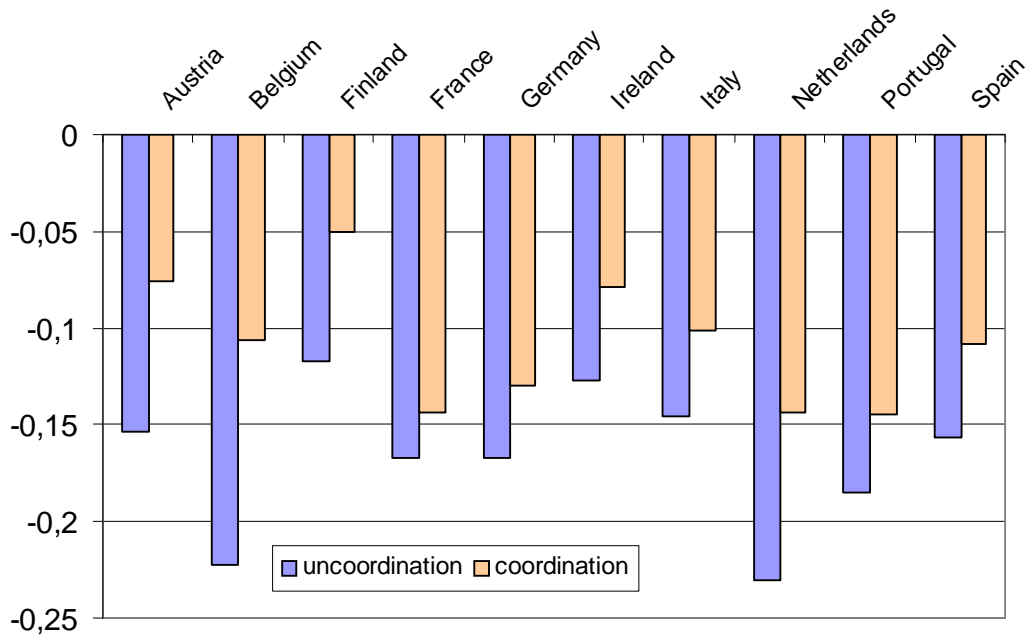
Figure 8   Effect of an increase in direct taxes on GDP and government surplus/GDP with and without policy coordination
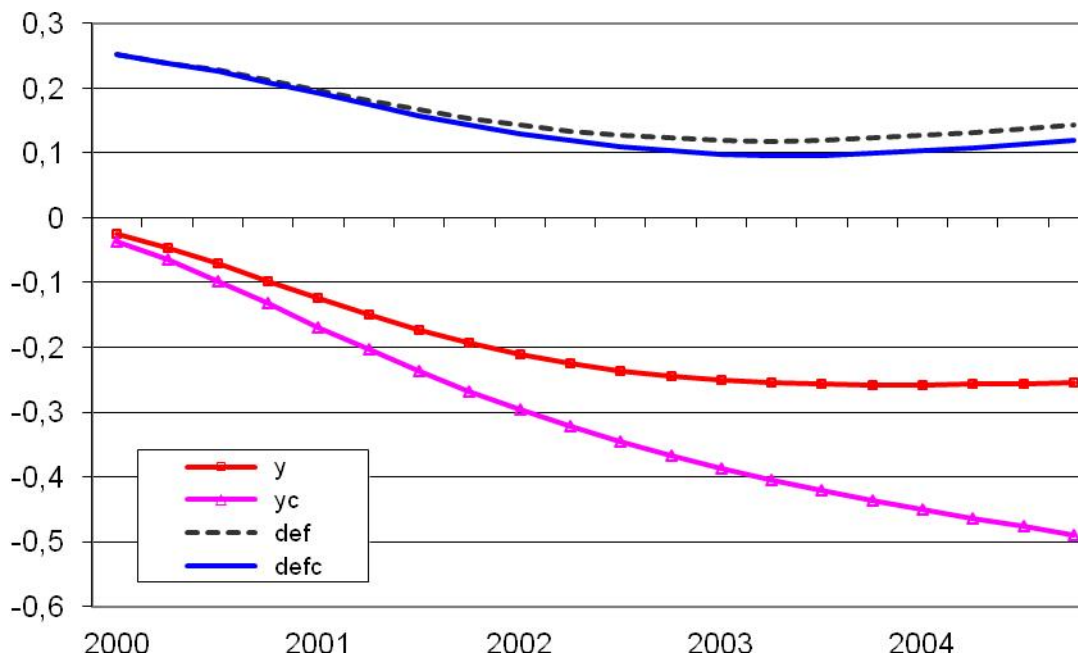
Figure 9 Comparison of expansive fiscal policy effects in the euro area

When dealing with fiscal policy simulation, an obvious question is what happens to interest rates. The answer provided by the NiGEM model is 'not very much'. Thus, imposing the inflation targeting assumption for monetary policy produces only a five basis point increase in long rates in the case of coordinated policies. In the case of uncoordinated policies, the result is practically zero (for instance, in the case of Finland, just one tenth of a basis point). The NiGEM model, like most other models, generates the somewhat odd result that interest rates have a strong impact on deficits while deficits have only a very marginal effect on interest rates.[11] This latter result is obviously in sharp contrast with all theorizing on credibility and peso effects (but not necessarily with empirical evidence; see eg Alesina *et al*. (1992)). The model result only reflects the direct crowding out effect and does not account for direct expectations and portfolio effects. That is clearly a weakness of the model (and of all similar models). The weakness may also be quite crucial with regard to the assessment of policy coordination effects within EU.

The implication of these results is interesting. On the one hand it shows that it is the small countries that have most to gain from policy coordination. However, one can reverse the argument and point out that the others have the least to lose if it is small

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[11] As with all such models they are regularly updated, often changing their characteristics markedly. Using earlier or later vintages of the model would no doubt change all the magnitudes but our concern here is with the generalized outcome. The benefits of 'coordination' mainly accrue to the smaller countries.

countries that do not coordinate well. Historically coordination among the EU countries has been fairly weak (Viren, 2000b) except among the countries tracking the deutschemark. There will therefore have to be quite a considerable change in behaviour if this is to occur in future. The SGP has only a limited effect on this as limiting the size of deficits is only part of the problem. Indeed it is only when fiscal policy is not coordinated that this is likely to be a problem as such anomalies occur mainly when small countries experience asymmetric shocks. However, in the early steps of fiscal coordination through ECOFIN under the SGP the member states, particularly those involved in the euro group, have sought to go a little further and recommend general stances for fiscal policy compared with the cycle (relating to the timing of tax cuts, for example).

The BEPG are readily criticised for having no compulsion but in many respects this misses the point. It is simply that on the one hand the member states are becoming steadily more concerned with each other's policy while on the other they are becoming more closely linked. Thus, even if overt reasoned policy coordination is in short supply, there is likely to be increasing coordination simply by result. Even though many of the processes for co-ordination in areas such employment are through the even looser Open Method of Coordination (Hodson and Maher, 2001) nevertheless there has been considerable policy borrowing and a convergence of some areas, particularly in active labour market polices for example (Bienkowski et al., 2008; Sapir, 2006).

5   *Concluding remarks*

The sources of asymmetry within the euro economy set some clear challenges for fiscal policy. Policy needs to be asymmetric itself in order to counteract them. Downward pressures on the economy create greater problems for unemployment and participation rates than subsequent upturns of the same size unwind. Downside threats however permit and indeed require much stronger policy reactions and here the apparent asymmetry in the behavior of the monetary authorities suggests that their actions will be very much in tune with the fiscal authorities in that phase of the cycle.

It is however here that the SGP should cut in as the permitted extent of deficits is

limited. This does not appear to be problem for automatic stabilization but with discretionary actions. Even with extensive buffers, normal fluctuations round a sustainable trend do not seem to generate excessive deficits. Abnormal shocks like the global financial crisis in any case generate exceptions to the excessive deficit procedure because of the decline in GDP (even before the 2005 changes). The problem with discretionary actions is that in good time taxes appear to be cut more than sustainable but are not raised again when the deficit promises to become too large. Correspondingly governments do not cut back on expenditure in good times well enough to balance out the tax cuts and are rather too ready to raise expenditure in the downturn compared to their reluctance to raise taxes. There is therefore a deficit bias across the cycle, a feature the SGP seems designed to help counter.

The emphasis of the SGP and wider EU level macroeconomic policy on reducing the general level of debt also seems appropriate as the member states appear to have reached the point where the share of public spending is sufficiently great that it may impair the overall growth rate of the economy. There may therefore be tension between policies designed to offset the impact of downturns and those aimed at faster growth. Matching up the two would require a different balance to the pattern of tax cutting and expenditure increases over the course of the cycle. The SGP pushes in that direction in the downphase but some other pressure is needed to increase the pressure/incentives in the up phase. The present crisis has now made the problem much worse. Some countries that had reached a sustainable position now face politically difficult budgetary consolidation to return to that path. In some cases this can be achieved over the course of the cycle but in others it returns them to the difficulties that prevailed before the lure of being able to join monetary union led them the change markedly. There is no matching lure now and the pressure will come simply from the difficulties themselves. For some countries, such as Greece, this appears to be insufficient.

This leads naturally to one issue that remains - the appropriateness of the 'penalty'. Imposing financial penalties on those in difficulty makes their short-run position even worse, whether or not the penalty has to be levied. The chances are that the excessive deficits will only be triggered when a country is a downswing. Thus avoiding the excessive deficit would involve a fiscal tightening exactly when the inclination would if anything be to do the exact opposite. Thus the economy would be pushed into more

of a difficulty than it would otherwise. This problem is a good incentive structure for the time consistency problem. If a member state organizes itself prudently under normal times then the chance of it being faced by unfortunate pressure to tighten in a downturn will be small. It is thus well motivated not to get into that sort of position. The problem then comes if a country has deliberately or through bad luck got to the point where it will have to apply unfortunate policy or face the fine. The temptation then must be to defy the rules.

Thus if anything the problem is that the SGP does not threaten effective enough sanctions, especially if the actual behavior is going to be that the Council of Ministers will shy away from harsh implementation of the Pact once important member states get into difficulty. The softening of the Pact in 2005 would be credible if member states had shown more willingness in the past to adjust without the sanctions. In the longer-term, however, when there is no particular call for consolidation one might very well want to move a system that had a rather more sophisticated way of judging whether policy was prudent.

Clearly the SGP would have to become much more complex if its rules for each individual country were to be contingent on the general position of the EU. Since all countries could be trying to improve their own position compared to the others this would result in a very complex game to determine the overall outcome. It would be very understandable if the EU were to stick with rules that apply to each individual country and were contingent purely on that countries actions and prospects. The more opaque or complex the rule and the more it is open to discussion before it is applied then the more contentious will be the political debate on each occasion. Simple, hard and fast (but fair) rules seem a more likely prospect.

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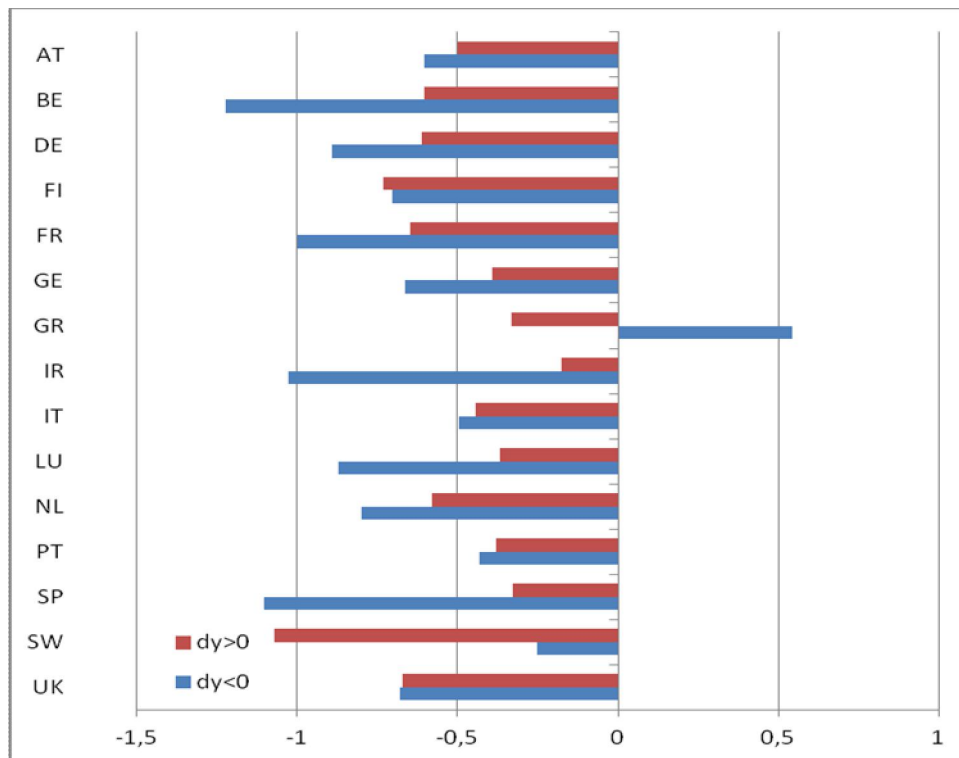
Figure A1 Country-specific nonlinear coefficients of the output growth variable in the deficit equation
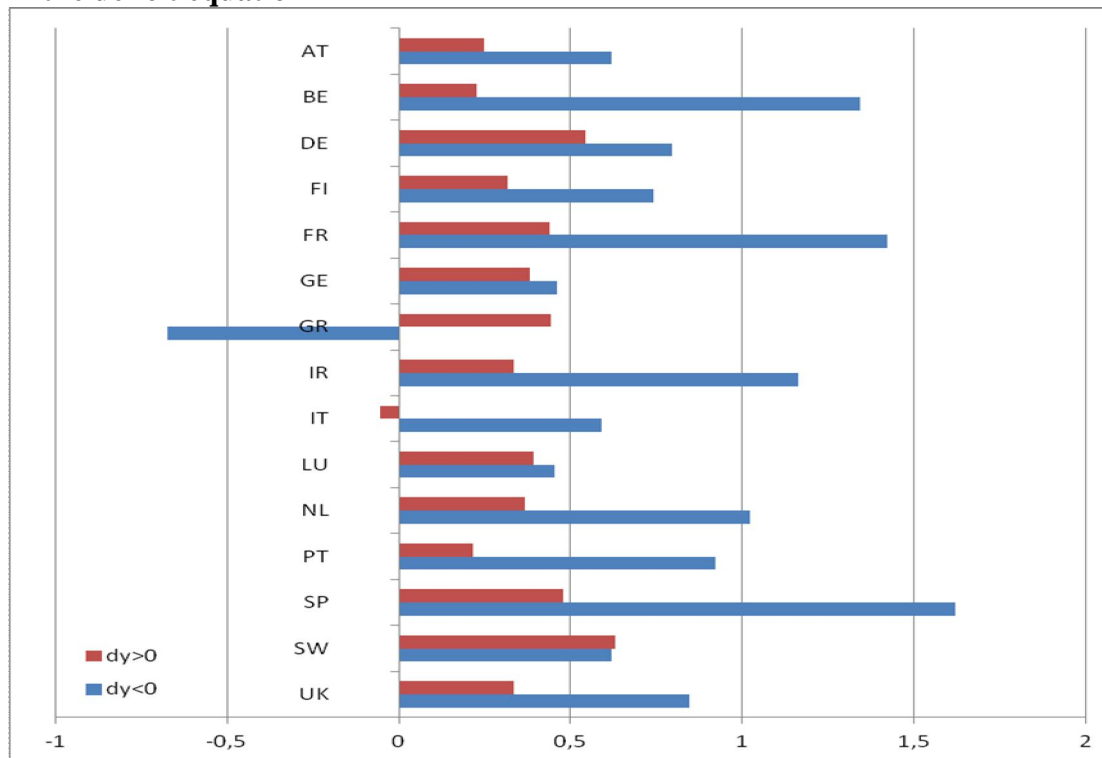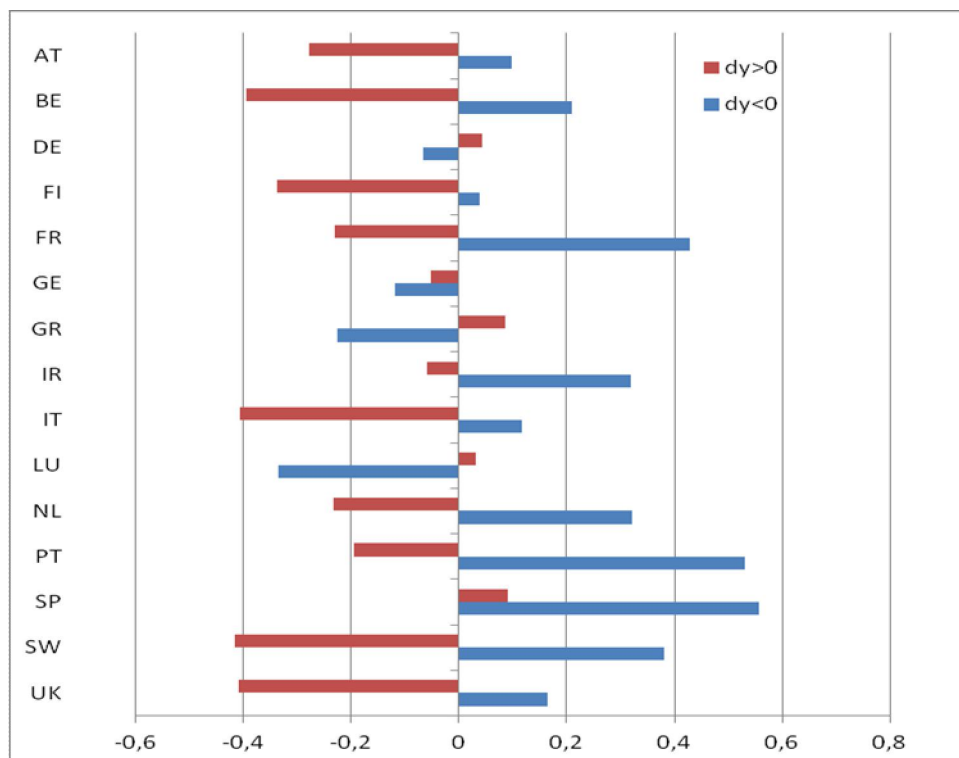
Figure A2 Country-specific nonlinear coefficients of the output growth variable in the expenditure equation

Figure A3 Country-specific nonlinear coefficients of the output growth variable in the revenue equation

Table A1   Selected country-specific estimates of equation (1) with different deficit measures

	Δy < 0	Δy > 0	Δy < 0	Δy > 0	Δy < 0	Δy > 0
Austria	2.115	.140	1.166	.279	.864	-.032
	(1.04)	(1.21)	(0.60)	(3.10)	(0.40)	(0.33)
Belgium	1.115	.212	.816	.090	-.238	-.105
	(2.34)	(1.78)	(1.79)	(0.98)	(0.47)	(1.01)
Denmark	2.084	.381	2.006	.494	1.726	-.229
	(2.01)	(2.51)	(1.78)	(2.92)	(1.79)	(1.56)
Finland	1.158	.168	.897	.177	.554	-.359
	(6.01)	(1.55)	(5.66)	(2.33)	(3.17)	(4.31)
France	1.092	.368	1.329	.246	.628	-.060
	(2.17)	(3.62)	(3.07)	(2.97)	(1.33)	(0.62)
Germany	-	-	1.344	.106	1.168	-.321
			(1.86)	(1.05)	(1.52)	(3.02)
Greece	.021	.306	.168	.145	-.338	.061
	(0.09)	(2.51)	(0.79)	(1.90)	(1.47)	(0.75)
Ireland	-8.362	.048	-7.130	.041	-7.086	-.155
	(1.44)	(0.54)	(1.26)	(0.49)	(0.96)	(1.33)
Italy	.718	.149	.861	-.051	.258	-.179
	(1.82)	(1.69)	(1.80)	(0.41)	(0.66)	(1.75)
Netherlands	.134	.241	.404	.187	-.293	-.301
	(0.15)	(1.54)	(0.48)	(1.38)	(0.32)	(2.05)
Portugal	.155	.298	.510	.210	-.143	.079
	(0.43)	(2.39)	(1.59)	(2.12)	(0.41)	(0.75)
Spain	1.757	.182	1.217	.206	1.013	-.216
	(2.67)	(2.67)	(1.94)	(3.12)	(1.45)	(2.88)
Sweden	3.112	.128	2.852	.059	2.314	-.634
	(5.36)	(0.49)	(4.74)	(0.22)	(3.84)	(2.29)
UK	-	-	-.424	.309	-.615	-.269
			(0.93)	(2.10)	(1.44)	(1.96)
Data	def	def	defex	defex	defca	defca

def denotes net lending, defex net lending excluding interest expenses and defca the structural deficit. All of these are related to trend GDP. All estimates are SUR estimates. Source: Mayes and Viren (2011).

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Contact information: Aboa Centre for Economics, Turku School of Economics, Rehtorinpellonkatu 3, 20500 Turku, Finland.

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Yhteystiedot: Aboa Centre for Economics, Taloustieteen laitos, Turun kauppakorkeakoulu, Rehtorinpellonkatu 3, 20500 Turku.

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