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DO THE OECD  
COUNTRIES  
FOLLOW THE  
SAME FISCAL  
POLICY RULE?

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**Abstract:** This paper tries to assess fiscal policy rules in the OECD countries. In particular, we examine whether the EU/EMU countries have had the same rule in terms of the cyclical situation. The analysis is based on a simple VAR model for output growth, inflation and a fiscal indicator. Empirical analysis with data from 21 OECD countries for 1960 - 1996 shows that fiscal policy rules differ considerably between OECD countries. In most EMU-11 countries the countercyclical nature of policy is very weak while in most other countries notably in the Anglo-Saxon countries the countercyclical nature is quite pronounced.

**Key words:** Fiscal policy, policy coordination, Monetary union

**JEL Classification code:** H62

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**Tiivistelmä:** Tämä tutkimus käsittelee finanssipolitiikan säännönmukaisuuksia OECD-maissa. Erityisesti tarkastellaan kysymystä, ovatko EU/OECD -maat noudattaneet samaa politiikkasääntöä suhdannevaihteluiden suhteen. Analyysit tukeutuvat yksinkertaiseen VAR-malliin, jossa muuttujina ovat tuotannon kasvu, inflaatio ja finanssipolitiikan tilan kuvaaja. Empiiriset analyysit perustuvat 21 OECD -maan aikasarja-aineistoon ajanjaksolta 1960 - 1996 ja ne osoittavat, että finanssipolitiikkasäännöt poikkeavat huomattavasti maiden välillä. Useimmissa EMU-11 -maissa politiikan suhdanteiden vastaisuus on hyvin heikkoa, kun taas useimmissa muissa maissa - erityisesti anglosaksisissa maissa - suhdanteiden vastaisuus on hyvin selvää.

**Asiasanat:** Finanssipolitiikka, politiikan koordinaatio, rahaliitto

**JEL:n luokittelunumero:** H62

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# 1. Introduction

This paper<sup>1</sup> deals with the differences in fiscal policy in OECD countries. More precisely, we analyse cyclical policy: to which extent have policies reacted to the cyclical situation and in which way have the reactions taken place. The analysis is motivated by the creation of EMU, which means that monetary policy cannot be used in accommodating country-specific shocks. Although fiscal policy still remains operative at the national level the Maastricht criteria effectively restrict the room for manouvering. This obviously means strong requirements for fiscal policy coordination and that in turn is possible only if we know how fiscal policy affects the economy. In addition, we have to know what kind of differences there are, or there have been, in fiscal policy rules between countries. If a set A of countries pursue a systematic “leaning to the wind” rule and a set B of countries do not react to the cyclical situation we might have problems in interpreting past data for fiscal policy performance and we might have even more serious problems in policy cooperation.

In order to get some idea of cross-country differences in the fiscal policy rules/fiscal policy reation functions we carry out an empirical analysis with a small VAR model.<sup>2</sup> The model that is estimated makes use of three variables: the GDP growth rate  $y$ , the rate of inflation  $p$  and the fiscal indicator  $def$ . In addition, a linear time trend is added in the model as an exogenous variable. For the fiscal indicator, we use three alternative measures: BFI which is the Blanchard Fiscal Impulse variable (cf. Blanchard (1990) and Alesina and Perotti (1997)),  $D/Y$  which is the actual deficit (net lending) divided by the full employment GDP and  $DIMF/Y$  which is the structural (non-cyclical) deficit used by the IMF (see Tanzi and Fanizza (1995)). The full employment GDP is obtained by regressing GDP against a linear and a quadratic time trend. The problem with  $D/Y$  is obviously that it reflects the cyclical movements in taxes and transfers and thus it only partially reflects genuine fiscal policy actions. In this respect, the results with the BFI are much easier to interpret. The data cover the period 1960 - 1996 for 21 OECD countries (only New Zealand is missing because of deficient deficit data).<sup>3</sup>

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<sup>1</sup> This is an abbreviated version of my presentation at the EEA Annual Congress in Berlin, September 2-5, 1998. All kind of help from Tuomo Mäki is gratefully acknowledged.

<sup>2</sup> This kind of model has been used on various occasions, although mainly in analysing monetary policy. For instance, Ramaswamy and Sloek (1997) use a similar model in analysing monetary policy effects in the EU countries. Obviously, this does not mean that a VAR model is completely suitable for an analysis of policy reactions (see eg Rudebusch (1998) for criticism). One may argue that the residuals of the deficit equation do not represent fiscal policies but just fiscal policy shocks. Moreover, the residuals may not well correspond to actual policy actions (e.g. changes in tax rates).

<sup>3</sup> The BFI series were computed in the same way as in Alesina and Perotti (1997). We did, however, use the GDP growth rate as the cyclical indicator instead of the unemployment rate because the unemployment rate turned out to be clearly nonstationary and there were several structural breaks in the series. In

## 2. Empirical results

The lag structure of the VAR model was determined on the basis of the Schwartz Bayesian Information Criterion (SIC). Given those values we concluded that the proper lag length is just 1 and this 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, however). As for the empirical results, we display here only the deficit equation results and those only in terms of the GDP growth rate effects<sup>4</sup>

The impulse responses of fiscal policy to (a one standard deviation disturbance of) GDP growth are reported in Table 1. For space reasons, we report only the results for the first, second, third and tenth lag of GDP growth. Identification is based on the traditional Choleski decomposition where it is assumed that a shock to the fiscal policy has no contemporaneous effect on output and prices (and prices have no contemporaneous effect on output). Given annual data, these restrictions are obviously quite strong but they are quite standard in the VAR framework when analysing policy responses. The results apply for the three alternative fiscal policy indicators. In impulse responses for different countries in the case of the BFI measure are also reported in Figure 1. In addition, we report a summary of these effects in Figure 2. This figure only includes the impulse responses for the first five lags of GDP growth.<sup>5</sup>

The interpretation of the results is a bit tedious just because we use annual data thus it is difficult to say what is the exact pattern of the dynamic response in terms of the cyclical situation.<sup>6</sup> Generally, policy seems to be countercyclical but the lag length is quite long, ie two years, which means that policy reactions are quite late in affecting the cyclical situation (see last row in Table 1). Anyway, the impulse responses suggest that there are considerable differences between countries in terms of fiscal policy. In some countries, fiscal policy is very much cyclically oriented while in some other countries, fiscal policy is only very weakly related to the cyclical situation. The Nordic countries and the Anglo-

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addition, some elasticity estimates with the unemployment rate turned out to be quite hazardous. The problem is that the two BFI series differed considerably. Thus, the average cross-country correlation between the unemployment rate and GDP growth rate conditional BFI's was 0.74. A detailed presentation of computation results with respect to the BFI are reported in Mäki and Virén (1998). We also used the unemployment rate as the cyclical indicator in the whole VAR model but it performed quite poorly.

<sup>4</sup> For space reasons, the standard deviations and diagnostic statistics are not displayed. The values are available upon request from the author.

<sup>5</sup> As for the price (inflation) variable, it turned out to be positive in most cases but its role was not very important. Thus, the corresponding variance decomposition share turned out to less than 10 per cent for all countries.

<sup>6</sup> We have, however, computed some simple reaction functions which may better illustrate the results. See the end this section for details.

Saxon countries represent the active counter-cyclical policy countries. By contrast, the core EMU countries show very weak cyclical orientation in fiscal policy. In some countries like Belgium, Greece, Ireland, and Switzerland the policy rule is even weakly procyclical. The country differences do not come as a surprise because if one compares (simple) the output (growth) elasticities of BFI and the primary deficit (Figure 3) striking differences can be immediately discerned. In fact, the elasticities of some expenditure and revenue categories vary even more (see Mäki and Virén (1998) for further details). The most important differences seem to result from differences in the progressivity of income taxes.

Although the results are qualitatively similar for all fiscal policy indicators, there are some important differences. As one might expect, the DEF/Y measure is strongly related to GDP growth reflecting the cyclical behaviour of taxes and expenditures (ie automatic stabilisers). Clearly, these automatic stabilisers represent the main ingredient in fiscal policy in many countries and the rest of fiscal policy is either unimportant or related to other variables. In the case of highly indebted countries like Belgium, debt and the debt service costs obviously absorb entirely the policy makers' attention.<sup>7</sup>

Although taxes and expenditures are highly related to cyclical movements in GDP in the Nordic countries and the automatic stabilisers have been very effective in smoothing the income growth, these countries have not relied on their stabilisers only but they have also pursued active (counter)cyclical fiscal policy. In the case of the Anglo-Saxon countries, the role of automatic stabilisers is much more limited and fiscal policy has relied much more on systematic policy rules. One way of interpreting these results is to say that in the Nordic and Anglo-Saxon countries there has been a tradition for (counter)cyclical fiscal policy. In continental Europe, the tradition for economic policy has been quite different emphasizing either the virtues of a balanced budget or emphasizing other political or structural aspects.

To gain more insight into the dynamics of policy reaction we estimated a simple policy reaction function for all countries. The function took the following form:

$$d_t = a_0 + a_1 y_t + a_2 y_{t-1} + a_3 p_t + a_4 p_{t-1} + u_t,$$

where  $d$  denotes the deficit,  $y$  the output growth,  $p$  the rate of inflation and  $u$  the error term. The OLS estimation results of this function for the BFI measure of deficits is reported in Table 2.

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<sup>7</sup> In such a case, the fiscal policy effects may also be quite different from the standard case. See e.g. Sutherland (1997).

Clearly, the results follow the same pattern as with the VAR model. Thus, with most of the EMU-11 countries the cyclical reactions are very small or even perverse in sign. Only in the case of Austria and Finland is the reaction of a clear countercyclical nature. In the Anglo-Saxon countries (Australia, Canada, UK and USA) the countercyclical nature of fiscal policy is even more pronounced.

As for inflation effects, the results are very mixed. Although it seems that in most countries an acceleration of inflation leads to tighter fiscal policy, this may only reflect the automatic inflation effects on revenues and expenditures. Earlier, at least, it used to be that tax rates increased in inflationary periods because of progressive income taxation with no or only partial inflation adjustment. The different inflation responses do suggest, however, that the OECD countries have indeed behaved quite differently (or their institutions are quite different), which does not make future policy cooperation easier.



### **3. Concluding remarks**

The fact the OECD countries seem to follow quite different fiscal policy rules in terms of the cyclical behaviour of the economy represents a genuine problem for policy coordination. Countries which have not actively used fiscal policy measures in smoothing output growth may find it difficult to start operating according to a completely new policy rule. Thus far, these countries may have solved the problems with monetary policy, in practice by adjusting the exchange rate. This has probably been much easier than adjustments of taxes and expenditures, which must be used much more heavily in the future. Another problem arises because of the new low-inflation regime. In a high inflation regime - which has been quite typical for the Nordic countries and Italy and the UK at least, an adjustment of government revenues and expenditures is much easier than in the low-inflation regime. Thus, there may well be more difficult times for (counter)cyclical fiscal policy in the future even if the need for such policies may considerably increase, at least in Europe.

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*Table 1 Fiscal policy impulse responses with respect to GDP growth*

	B1	B2	B3	B10	D1	D2	D3	D10	F1	F2	F3	F10
Aus	-.06	1.18	-.03	-.01	.22	.65	.34	-.01	..	..	..	..
Aut	-.06	.87	-.01	-.00	.50	.74	.26	-.01	-.09	.31	.10	-.00
Bel	-.11	.07	-.03	-.00	.52	.19	.14	.01	-.31	-.33	-.23	-.08
Can	.03	1.06	.11	-.05	.81	.85	.49	-.10	-.06	-.07	-.15	-.05
Den	.51	1.67	.10	-.00	.73	1.35	.81	-.04	.22	1.30	1.14	.07
Fin	-.03	1.63	.45	-.00	.65	1.46	1.39	-.07	-.04	.26	.17	.07
Fra	.17	.36	-.07	-.00	.60	.58	.30	-.00	.22	.15	.05	-.00
Ger	-.18	.25	-.03	.00	.40	.29	-.08	-.01	-.24	-.38	-.37	-.01
Gre	.04	-.05	-.09	-.01	.13	-.02	-.10	-.09	-.36	-.05	-.05	-.00
Ice	.37	.12	.03	.00	1.21	.73	2.16	.98	..	..	..	..
Irl	.14	-.16	-.16	.00	1.42	.14	-.07	.06	.29	-.57	-.29	-.00
Ita	-.08	.94	-.39	-.00	.40	.18	-.15	-.15	.01	-.18	-.14	-.02
Jap	-.24	.55	.16	-.00	.20	.74	.62	.16	-.11	.45	.35	.05
Net	.26	.10	.01	-.00	.53	.56	.43	.06	-.07	.13	.14	.04
Nor	-.07	1.03	.40	-.00	.66	.85	.69	.00	.17	.65	.75	.01
Por	.14	.30	.05	-.00	.35	.37	.14	-.08	.70	.73	-.08	-.00
Spa	.26	.34	.05	-.01	.34	.51	.37	-.02	.02	.14	.12	-.02
Swe	.18	1.22	.33	-.03	1.08	1.86	1.62	-.02	.51	1.09	.91	.08
Swi	.08	-.20	-.25	.00	.22	.29	.18	-.00	..	..	..	..
UK	.12	.85	.47	.01	.09	.62	.62	.07	-.41	-.37	-.27	-.01
USA	-.13	1.12	-.14	-.01	.52	.49	.06	-.02	.25	.27	.03	-.00
Avg	.06	.63	.05	-.01	.55	.64	.49	.03	.03	.17	.10	.01

B1 denotes the impulse response for the first lag in the case of BFI measure of deficits. Accordingly, D1 refers to the D/Y measure and F1 to the DIMF/Y measure. All impulses are related to GDP growth rate shocks.

Table 2 *Estimation results of the reaction function (1)*

Country	c	$y_t$	$y_{t-1}$	$p_t$	$p_{t-1}$	DW	SEE	R2
Australia	-1.470 (1.50)	-.118 (0.82)	.503 (3.70)	.033 (0.21)	-.025 (0.15)	2.00	1.50	0.37
Austria	-.448 (0.63)	-.113 (1.04)	.351 (2.87)	.386 (2.04)	-.448 (2.46)	2.12	1.08	0.47
Belgium	.915 (1.55)	-.060 (0.69)	-.184 (1.75)	.371 (2.59)	-.381 (2.65)	1.97	1.05	0.23
Canada	0.62 (0.11)	-.213 (2.36)	.398 (4.14)	.309 (2.43)	-.449 (3.60)	1.42	1.11	0.62
Denmark	-1.782 (1.95)	-.055 (0.41)	.813 (5.34)	-.654 (2.56)	.637 (2.42)	1.81	1.72	0.52
Finland	-1.127 (1.62)	-.003 (0.03)	.431 (3.69)	.145 (1.23)	-.187 (1.66)	1.91	1.74	0.49
France	-.737 (1.43)	-.023 (0.22)	.200 (1.83)	-.155 (1.16)	.174 (1.25)	2.29	0.92	0.14
Germany	.284 (0.32)	-.086 (0.68)	.050 (0.33)	.144 (0.48)	-.236 (0.83)	2.23	1.51	0.04
Greece	1.160 (0.57)	-.089 (0.59)	-.039 (0.26)	-.058 (0.53)	-.034 (0.24)	1.32	1.90	0.04
Iceland	-2.223 (2.03)	.199 (1.46)	.205 (1.35)	-.119 (2.92)	.136 (3.16)	2.41	1.72	0.29
Ireland	-.014 (0.02)	-.013 (0.15)	-.038 (0.43)	-.128 (1.46)	.158 (1.73)	1.44	1.84	0.10
Italy	.803 (0.78)	-.353 (2.01)	.113 (0.80)	.359 (2.51)	-.357 (2.32)	2.16	1.74	0.22
Japan	-.077 (0.20)	-.077 (0.99)	.153 (1.79)	.123 (1.57)	-.220 (3.12)	1.34	1.01	0.40
Netherlands	.131 (0.27)	.019 (0.18)	.023 (0.21)	-.090 (0.67)	.013 (0.10)	2.22	1.15	0.04
Norway	-1.692 (1.59)	.069 (0.34)	.325 (1.57)	.281 (2.43)	-.225 (1.98)	1.33	1.75	0.34
Portugal	-.551 (0.47)	.092 (0.75)	-.049 (0.36)	.246 (2.17)	-.219 (1.83)	1.53	1.93	0.15
Spain	-.265 (0.38)	.016 (0.15)	.075 (0.76)	-.088 (0.93)	.071 (0.85)	2.17	1.08	0.07
Sweden	-.066 (0.04)	-.106 (0.34)	.310 (1.03)	.308 (1.12)	-.349 (1.21)	1.81	1.72	0.52
Switzerland	.411 (1.13)	.059 (0.82)	-.162 (1.75)	.049 (0.40)	-.115 (1.19)	1.32	0.76	0.21
UK	-.974 (1.24)	-.077 (0.52)	.450 (2.88)	-.068 (0.71)	.063 (0.64)	1.30	1.50	0.29
USA	-1.499 (1.95)	-.080 (0.59)	.524 (4.91)	-.092 (0.47)	.109 (0.53)	2.36	1.10	0.53

Numbers inside parentheses are (unadjusted) t-ratios. The dependent variable is the BFI measure of deficits.

Figure 1 *Impulse responses of fiscal policy to a GDP shock*

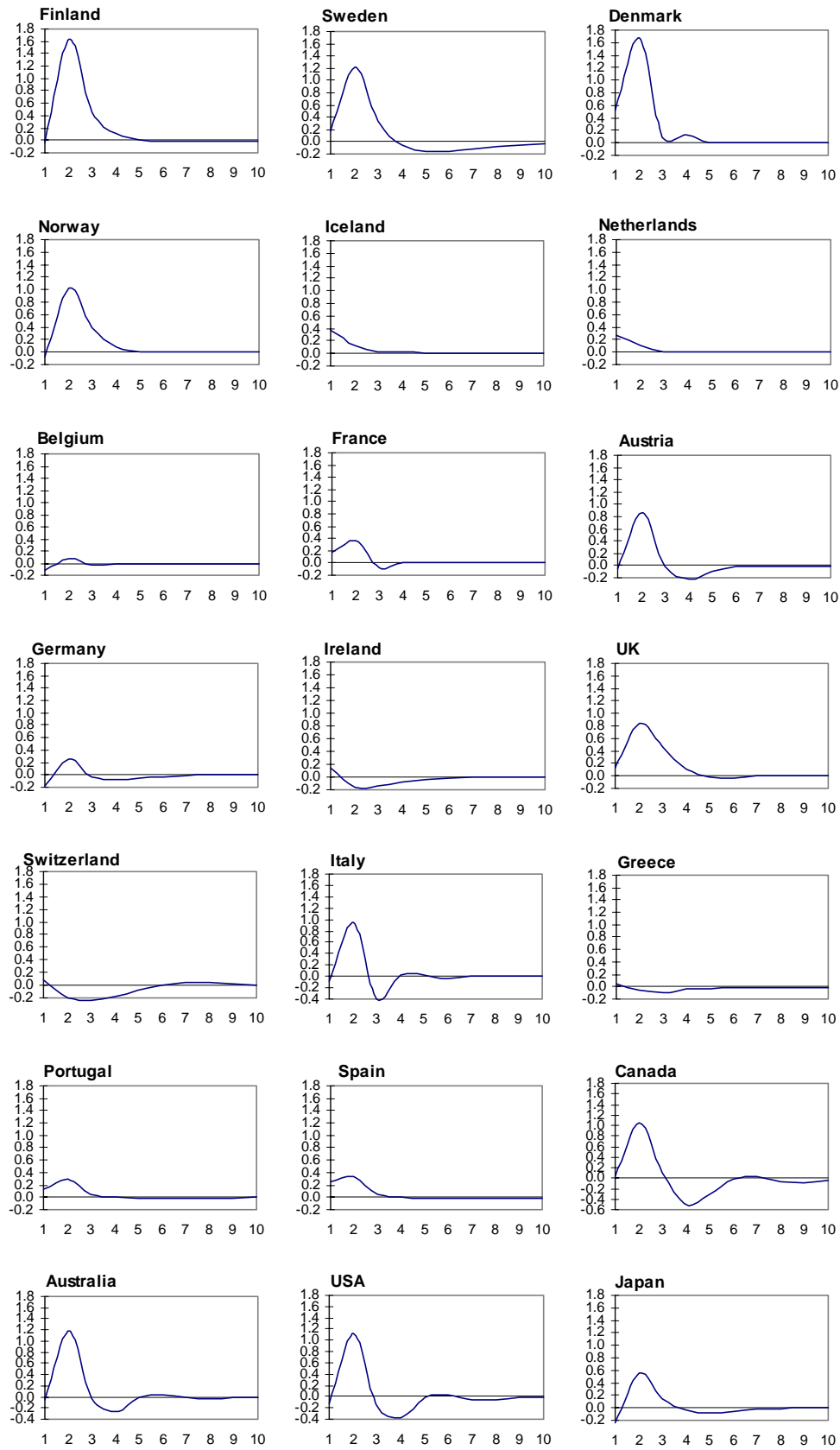
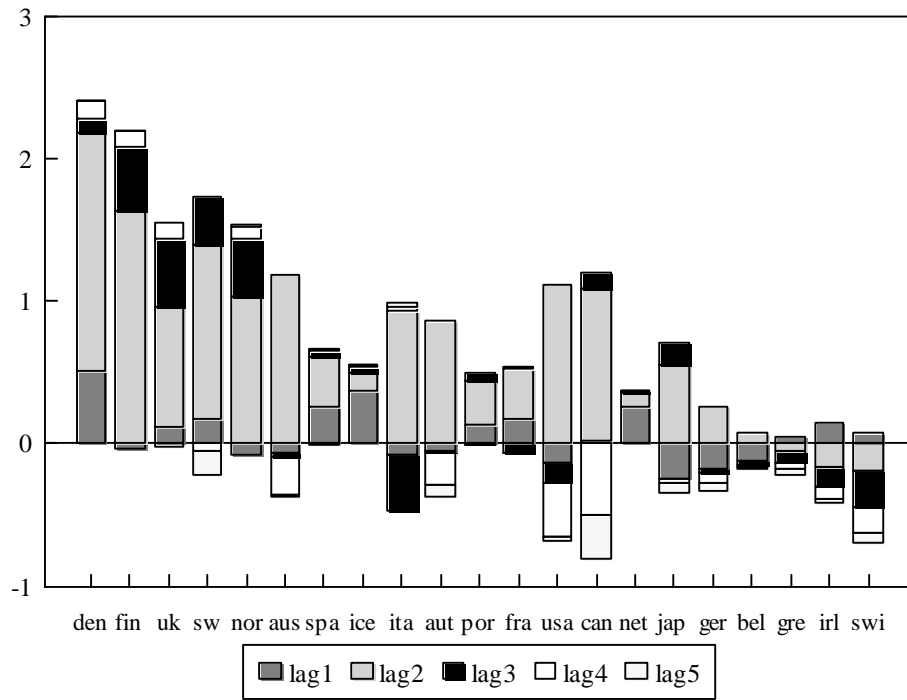
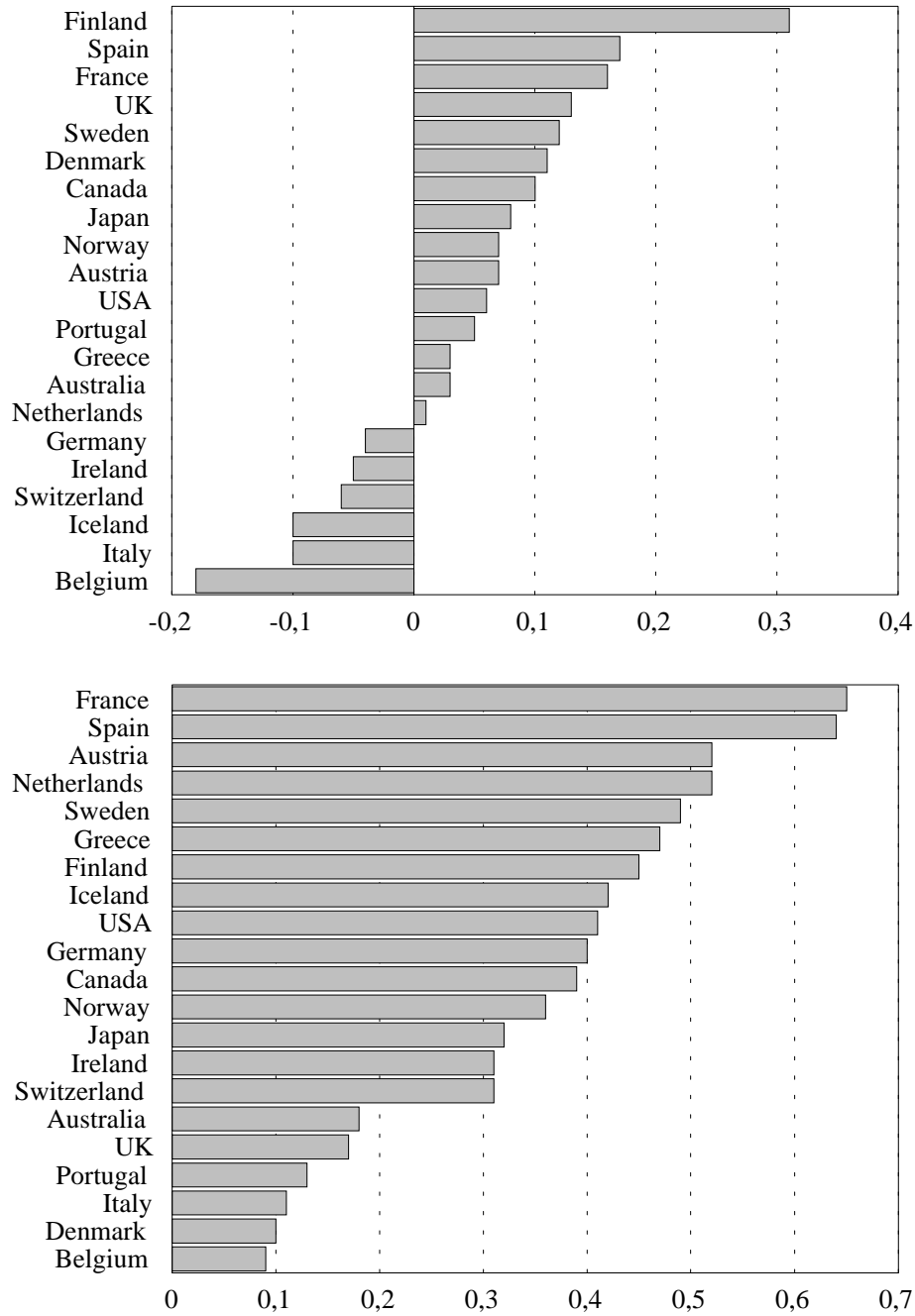


Figure 2 Summary of impulse responses



Numbers are impulse responses of fiscal policy (BFI) to a GDP shock for lags 1 - 5.

Figure 3 *Output elasticities of BFI and primary deficit*



The upper part shows the elasticities of BFI and the lower part the elasticities the primary deficit (with respect to the GDP growth rate). All elasticities have been computed from the 1961 - 1996 data.