THE COMPARATIVE EFFECTS OF FISCAL POLICY IN SMALL AND LARGE EUROPEAN COUNTRIES

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1. Introduction

Given the loss of national monetary policy in EMU, fiscal policy needs to play a more significant role in smoothing the impact of country-specific shocks. To this end, the norm for budgetary behaviour, as enshrined in the Stability and Growth Pact, is to let the automatic stabilisers operate freely. However, the need for discretionary fiscal stabilisation cannot be ruled out. Small open economies, more specifically, may need a pro-active fiscal policy, for at least two reasons: they exhibit greater variance of output as they are more vulnerable to fluctuations in world market growth and terms of trade; the monetary stance is unlikely to be tailored to their specific needs, as they represent only a small share of the euro area. In this context, the effectiveness of fiscal policy in small open economies deserves particular attention.

Most large-scale macroeconomic models assume that fiscal policy essentially operates through its direct impact on the current income of households. Under the assumptions of sticky prices and liquidity-constrained households, a deterioration in the public balance can stimulate aggregate demand. However, both theory and empirical evidence point to possible non-Keynesian effects. Evidence of Ricardian effects (i.e. a zero fiscal multiplier) have been found in some high debt countries such as Belgium and Italy (Nicoletti, 1988). Moreover, several highly publicised episodes of fiscal contraction, including Denmark (1983-87) and Ireland (1987-89), suggest that anti-Keynesian effects (i.e. a negative fiscal multiplier) are possible, as those countries registered both a decline in debt-to-GDP ratios and an improvement in economic performance.

The aim of this paper is to investigate these non-Keynesian effects using a panel data approach. When interpreting the results, we pay

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particular attention to the size of the country, as episodes of non-Keynesian fiscal policy have mainly been found in small open economies.

Although it is difficult to disentangle the complex relationships between fiscal developments and economic growth, a few lessons do seem to emerge from our empirical work :

-   the effects of fiscal policy seem to be non-linear. Unfavourable fiscal conditions initial, namely a rapidly growing debt/GDP ratio, affect the effectiveness of fiscal policy.;
-   non-Keynesian effects affect the size of the fiscal multiplier but do not change its sign. our findings are in line with the Keynesian thinking as regards to the sign of the fiscal multiplier. They contradict in this respect the results of Alesina and Perotti (1997) and Alesina and Ardagna (1998);
-   non-keynesian effects can be found between the mid-Eighties and the late Nineties in small open economies and Italy. However, non-linear effects seem to be the result of specific conditions and do not necessarily reflect the intrinsic impotency of fiscal policy in small open economies. We find no evidence that fiscal policy in small open economies should be less effective that in the main economies of the euro area. The sensitivity of the budget balance to the cycle, and thus the size of automatic stabilisers, seem to be higher in small open economies. A higher penetration ratio reflects a deeper trade integration, but not necessarily a higher propensity of local consumers to import foreign products.

Overall, while non-Keynesian effects may appear if the long-run sustainability of public finances is in doubt, traditional Keynesian effects can be expected in normal (non crisis) conditions. Thus, we remain confident that if the objectives of the SGP are met, fiscal policy remains an adequate instrument to accommodate cyclical divergences. Section II reviews the literature on non-Keynesian effects, highlighting the importance of initial fiscal conditions. Section III presents new evidence of non-linear effects of fiscal policy variables on national saving. Section IV concludes.

2.   The case for non-Keynesian effects

It is generally accepted that plans aiming to reduce government debt and deficit have positive supply-side effects in the long term, since they are

associated with lower interest rates and, possibly, a lower tax burden According to the standard Keynesian view, however, a fiscal contraction creates a downturn in the short run. This standard view has been challenged by various economists providing evidence of Ricardian effects, or, more surprisingly, of successful fiscal adjustments, with positive GDP effects occurring almost immediately after the implementation of fiscal consolidation programs. These episodes question the effectiveness of fiscal policy in small open economies.

2.1   Review of previous work on non-Keynesian effects

Over the past three decades, the Keynesian view of fiscal policy, still incorporated in most macro-econometric models, has been challenged by the revival of the so-called "Ricardian equivalence" theorem (Barro, 1974). According to this theorem, private agents fully discount the reduction (increase) in future tax rates that will result from a permanent reduction (increase) in government spending. Ricardian equivalence rests on a number of strong assumptions, including full certainty about future taxation and government spending, identical planning horizons in the private and the public sector, and full access of households to capital markets. Empirical estimates of consumption functions, taking into account the government deficit as an explanatory variable, suggest that full Ricardian equivalence is generally not relevant, i.e. general private consumption responds negatively to fiscal tightening. However, Ricardian equivalence holds as a close approximation in countries with extremely high public debt/GDP ratios, such as Belgium and Italy in the Eighties (Nicoletti, 1988).

Going one step further, three non-mutually exclusive views explain why fiscal policy can have non-linear effects:
- the first one emphasises the role of expectations of future tax liabilities. In the model of Bertola and Drazen (1993), households are rational and Ricardian equivalence holds, but government expenditures are effected by a positive drift. As long as the expenditure to GDP ratio remains low, a rise in government spending is almost completely offset by a decrease in household consumption, since private agents are Ricardian. But when government expenditures reach a higher level, any further increase in government spending raises the probability that an adjustment will occur (in Bertola and Drazen terminology, expenditures approach a "trigger point" at which an adjustment has some probability

of occurring). An interesting implication of their model is that consumption behaviour exhibits a Keynesian pattern before a stabilisation occurs, and a Ricardian when it occurs, as seems to have been the case in the Danish and Irish experiences. The model proposed by Sutherland (1997) exhibit Keynesian behaviour in "normal times" and anti-Keynesian behaviour in "bad times". When the public debt-to-GDP ratio approaches a critical point, agents realise that they will not be able to shift the tax burden onto the next generation. Therefore, they behave in a Keynesian way as long as public debt is low, and become increasingly anti-Keynesian as the probability of their being taxed increases. As in the model of Bertola and Drazen, non-linearities are related to the initial level of debt as a percentage of GDP;

- the second source of expansionary effects is the credibility argument on interest rates. At high (or rapidly increasing) levels, public debt may face an interest rate premium due to the inflation or default risks. A vigorous fiscal adjustment can reduce risk premia and improve investors' expectations. Investment may be stimulated immediately if firms expect an increase in the net return of their capital stock associated with a decline in the rate of return for financial assets that would offset, or even more than offset, the fall in aggregate demand due to the reduction in government spending and the increase in taxation;

- the third view, developed by Alesina and Perotti (1997) and Giavazzi and Pagano (1990), emphasises the composition effect of the adjustment on labour market institutions and labour costs. The analysis of the stabilization role of fiscal policy traditionally focuses on its demand-side effects, while supply-side effects are seen as more important over the longer term. However, supply-side effects of fiscal policy can have short-term demand-side consequences because of expectations that longer-term growth will be affected. Alesina and Perotti identify two main ingredients of successful fiscal adjustments: the adjustment must be expenditure based and should be accompanied by agreements with the unions (guaranteeing wage moderation) and/or currency devaluation. By contrast, tax increases (particularly labour and social security taxes) lead to a rise in the cost of labour and a fall in competitiveness, as wage demands increase. Giavazzi and Pagano argue that a large adjustment, by inducing a permanent change of fiscal regime, can be expansionary because expectations are less likely to be affected by smaller adjustments.

2.2 *Does the size of the country matter?*

Two cases which are often quoted as clear demonstrations of non-Keynesian effects of fiscal consolidation are Denmark and Ireland in the 1980s (Alesina and Ardagna, 1998; Giavazzi and Pagano, 1990). This finding questions the role and effectiveness of fiscal policy in small open economies. Do the anti-Keynesian effects stem from temporary unfavourable initial fiscal conditions or from some specific features of small open countries?

The effectiveness of fiscal policy as a stabilisation tool depends on two main elements: the size of the automatic stabilisers (defined as the semi-elasticity of the public balance *vis-à-vis* GDP fluctuations) and the sign and size of the fiscal multiplier. Small open economies display some specific characteristics as regards these two elements: on the one hand, they have some of the world's largest automatic stabilisers; on the other hand the fiscal multiplier is presumed to be lower as a large proportion of a fiscal stimulus leaks abroad *via* higher imports.

Small, highly open economies have some of the world's largest governments (Figure 1). Two reasons may explain this robust association between an economy's exposure to foreign trade and the size of the tax burden. First, government expenditures are used to provide social insurance against external risk (Cameron, 1978 and Rodrick, 1988). This in turn results in larger demand for government transfers in small open economies. Second, Alesina and Wacziarg (1997) underscore the country size effect on government consumption. To the extent that there are fixed costs and economies of scale linked to the supply of public goods, the cost of public goods can be spread over a larger pool of taxpayers in larger countries. By contrast, *per capita* expenditures should be higher in smaller countries, leading to a larger share of government in GDP.

The sensitivity of the public balance to GDP variations and hence the size of automatic stabilisers is strongly correlated with the size of the tax ratio. It also depends on the sensitivity of budget items to fluctuations in output. There is evidence that, across countries, government size and cyclical sensitivities of taxes and transfers are correlated. For example, van den Noord (2000) documents that, in a sample of OECD countries, larger governments are associated to larger elasticities, especially on the expenditure side. Overall, the size of automatic stabilisers is comparatively larger in small open economies, with the exception of Ireland.

Figure 1

Openness and the size of automatic stabilisers
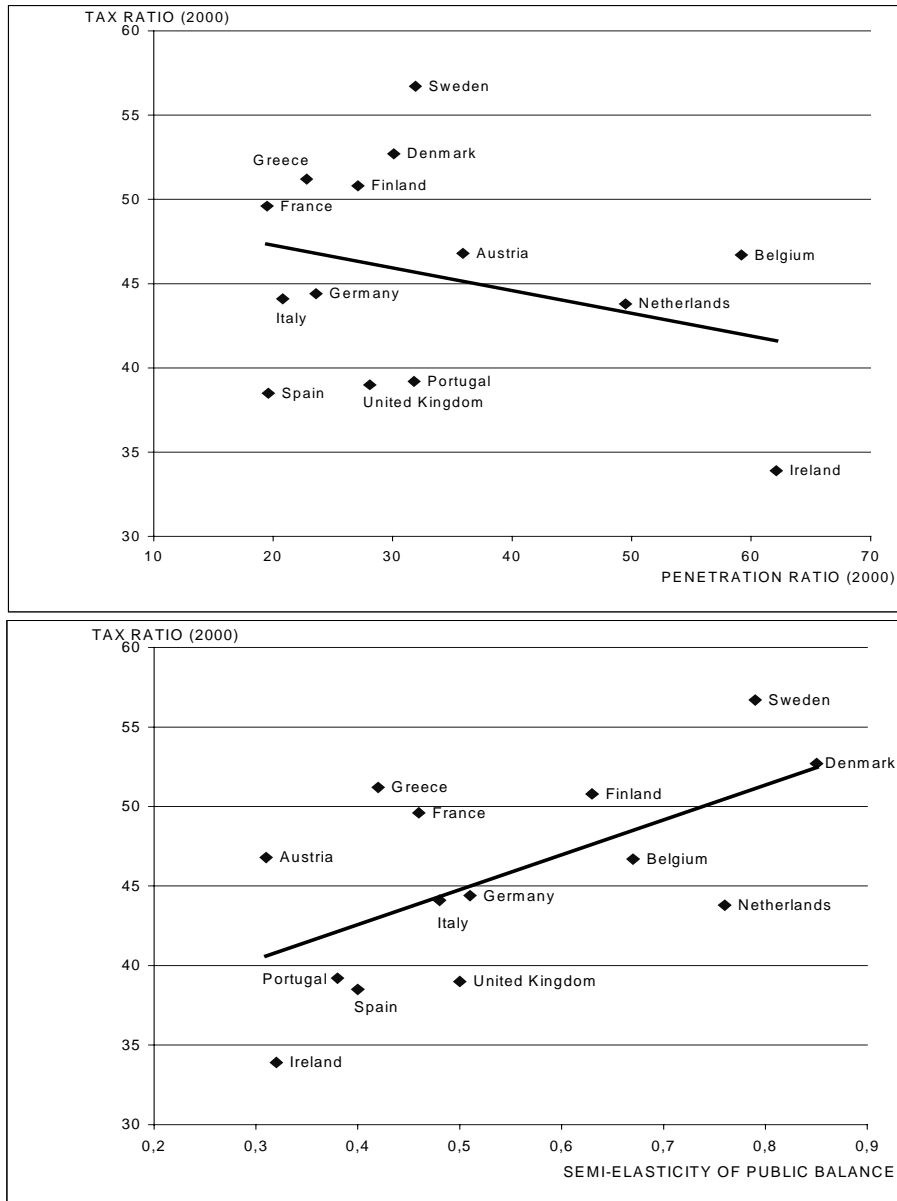
Source: van den Noord (2000); OECD (2001).

Although small open economies have larger automatic stabilisers, the fiscal multiplier is presumed to be lower. According to the literature, fiscal multipliers are more likely to be positive and large when the economy is close or when the exchange rate is fixed. By contrast, it is widely presumed that the effectiveness of government intervention is lower in economies that are highly integrated in the world economy, for two reasons. First, their propensity to import should be higher, as they are more open to foreign trade. Second, when capital mobility is high, a flexible exchange rate acts as a brake on the multiplier: the exchange rate appreciates in response to fiscal expansion, especially if expectations are rational and if the expansion is perceived to be permanent. The smaller the country, the higher the crowding out effect.

3. An empirical analysis of fiscal adjustment in European countries

The economic impact of a fiscal contraction depends on a number of factors, some of which are mutually offsetting. The question of whether deficit reduction will raise or lower output, and especially how long it will take before positive effects materialise, is in the end an empirical question. A large variety of empirical strategies have been carried out to test the existence of non-Keynesian effects. Three main lessons can be drawn from available studies : the size of the fiscal multipliers tends to be smaller than traditionally estimated in standard Keynesian macroeconomic models (Cour *et al.*, 1996); they seem to have decreased over time as a consequence of more forward-looking behaviours assumed for economic agents in the most recent macro-models (Hemming *et al.,* 2000); there is little evidence of non-linear effects of fiscal policy. This can be explained, among other things, by the very limited variance of fiscal variables such as debt and tax burden over time. By contrast, the panel data methodology seems more promising as it uses the variance of fiscal variables across countries.

3.1 Searching for non-linear effects of fiscal policy

To investigate the interplay between fiscal changes and economic performance, we study the economic effects of fiscal variables across 15 European Union countries over the 1970-2001 period. The panel data methodology we use seems well suited to assess the impact of fiscal

variables (such as the debt and the tax burden) which exhibit a high degree of inertia over time at the country level.

Among the array of variables highlighted in the empirical literature on the determinants of the gross national saving rate, this paper takes into account the cyclical position of the economy – as measured by the output gap – the real interest rate, the ratios of government revenues and expenditures to potential GDP, the interest payments on public debt (as a share of GDP) and the variation in the debt-to-GDP ratio. Assuming that automatic stabilisers are perfectly reversible, cyclical balance components of government balance sum up to 0 over the business cycle and private agents should only react to structural deterioration in general government balance. Following Giavazzi *et al.* (2000), we try to detect the occurrence of non-Keynesian effects trough the national saving channel stemming from the expenditure side, the revenue side or a fast growing debt when the primary cyclically-adjusted balance varies significantly (in table 3, we display different fiscal episodes where primary cyclically-adjusted balance changes by more than one percentage point of GDP).

According to these criteria, two groups of countries can be considered. A group of low performer countries includes countries that display large fiscal deficits and high debt to GDP ratios on average across the period under review: this group includes small open economies (Belgium, Denmark, Greece, Ireland, Sweden) and Italy. The other group covers countries that did better on average even if they may have faced some substantial deterioration of their public finances in some circumstances (Austria, France, Germany, the Netherlands, Portugal, Spain, United Kingdom).[1]

To test the existence of non-linear effects, a set of dummies variables has been attached to different explanatory variables, namely public spending, taxes and debt as a share of GDP (Table 4). The main challenge of this type of estimation is to correct for the endogeneity bias of fiscal variables. This endogeneity bias essentially stems from the existence of automatic stabilisers built into tax revenues and expenditure variables, which tend to fluctuate with the business cycle and are affected by the same shocks as the national saving ratio. To address this issue, we instrument the net taxes by the primary cyclically-adjusted budget balance, the real interest rate by its lagged value, and public spending by public

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[1]   Because data lack for Luxemburg and Greece, only 13 countries are covered in the estimates.

consumption, excluding, by definition, interest payments, capital expenditures and public transfers. For a similar purpose, potential GDP was substituted for actual GDP as a denominator, except for interest payments and changes in debt to GDP ratios.

$$\frac{S_t}{Y_t^*}=\alpha_0+\alpha_1\frac{S_{t-1}}{Y_{t-1}^*}+\alpha_2\frac{Y_t-Y_t^*}{Y_t^*}+\alpha_3 r_t+\alpha_4\frac{T_t}{Y_t^*}+\alpha_5 d_t\frac{T_t}{Y_t^*}+\alpha_6\frac{G_t}{Y_t^*}+\alpha_7 d_t\frac{G_t}{Y_t^*}+\beta_1\frac{I_t}{Y_t}+\gamma_1 d_t\Delta\frac{D_t}{Y_t}$$

Long-run parameters from pooled country regressions are presented in table 6 annex 2, where significant results are bold-faced written. The main findings are the following:

- our results are in line with the Keynesian thinking as regards to the sign of the multiplier. Non-Keynesian effects can be found between the mid-Eighties and the late Nineties in small open economies and in Italy. However, these non-linear effects affect the magnitude of the fiscal multiplier but do not change its sign;

- the response of national saving to fiscal policy may indeed be non-linear for countries experiencing a deterioration in their fiscal position. Those countries are typically small open economies, with the exception of Italy;

- in particular, these non-linearities may be characterised as anti-Keynesian effects in two cases: in the case of a substantial deterioration in the primary cyclically-adjusted budget balance, a decrease in cyclically adjusted tax receipts leads to a rise in national saving, meaning that the private saving ratio more than offsets a fall in public saving (i.e. pools 3 and 6); in the case of a substantial increase in debt to GDP ratio, an increase in public spending results in an increase in national saving for the same reason (i.e. pool 6);

- this result holds when we introduce a precautionary motive in the saving ratio (i.e. the impact of the unemployment rate on saving behaviour) and when we correct for the cyclical position (proxied by the output gap);

- some non-Keynesian effects can also be found in several European countries, irrespective of their size or their past performance in public finances, during the run-up to EMU. These effects can be labelled as 'policy-induced' Ricardian equivalence (Cotis *et al.*, 1998). Rather than supporting the tax-discounting hypothesis *per se* this evidence suggests

that consumers could easily anticipate coming fiscal retrenchments in the mid-Nineties.

In order to corroborate these conclusions, we have run a regression to explain private consumption for both sets of countries (results are reported in Table 7 annex 3). Besides traditional explanatory variables such as lagged dependent variables, real disposable income, private consumption deflator, we include public finance variables (the ratio of general government balance to disposable income) and future debt-to-GDP ratio.[2] Public finance variables improve the estimate. But the future debt ratio is a statistically significant explanatory variable for "low performer" countries only.

3.2   Is fiscal policy intrinsically less effective in small open economies?

It is difficult to argue from our results that fiscal policy should be intrinsically less effective in small open economies. The non-linear effects are found only from the mid-Eighties, at a time of rapidly deteriorating fiscal positions. In normal times (i.e. before the mid-Eighties) no "non-Keynesian" effects can be found. To investigate this issue further, we look at both international macro-econometric models and foreign trade equations.

The size of fiscal multipliers is model dependant. However, the important point to make here, is that in each international macro-model, the fiscal multipliers are of comparable size across European countries. In the Quest model used by the European commission, for example, the value of the public expenditure multiplier does not seem to be inversely correlated with the size of the country (see Table 1 below). When exchange rate are fixed, as it is the case now in EMU, fiscal policy is not hindered by interest rate rise and exchange rate movements as long as monetary policy can accommodate the new fiscal stance. Interest rate and exchange rate remain stable and the crowding out effect tend to be small or even null whereas spill over effects are important.

The small discrepancy between the multipliers stems from the fact that a fiscal impulse given by a same country will trigger a much smaller

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[2]   This variable may be interpreted as follows: assuming that the effective debt level at period t+1 is the forecast made at period t, a perceived deterioration of government solvency leads households to anticipate a fiscal policy adjustment trough tax increases at some point.

reaction from the central bank than a fiscal impulse coming from a larger size country. In a fixed exchange rate framework and obviously so in a currency union such as the euro zone, this leads to rather similar public expenditure multipliers across Euro area countries, as the higher expected impact for large countries is offset by interest rate hike. It brings a rather different picture from other macro models that display a much wider range of estimates when no monetary policy reaction is assumed.

Table 1

Short-term public expenditure multipliers
(assuming fixed exchange rate)

AUSTRIA	0.5
BELGIUM	0.5
FINLAND	0.4
FRANCE	0.5
GERMANY	0.4
GREECE	0.5
IRELAND	0.4
ITALY	0.5
NETHERLANDS	0.4
PORTUGAL	0.7
SPAIN	0.5

Source: EC (2001).

We also run some simple regressions on foreign trade to investigate whether a higher penetration ratio in small open economies reflects a deeper integration in world trade or a higher propensity of local consumers to import foreign products. Since the time-horizon to assess the impact of fiscal policy on the economy is commonly acknowledged to be between

one or two years, we only take the short term elasticities into consideration. Our results (Table 2)[3] are the following:

- the short-run elasticity of imports to domestic demand is similar across countries;

- the responsiveness of imports to exports is higher in small open economies (with Portugal being an iutlier). This suggests that the higher penetration ratio is associated with the higher import content of export rather than the higher marginal propensity to import of final domestic demand.

Some interesting policy implications emerge from our findings as regards the effectiveness of fiscal policy in EMU:

- the small open economies are well equiped as the size of automatic stabilisers is large. Ireland stands as an outlier as the tax burden is significantly below EU average;

- moreover, monetary Union should reinforce the role of fiscal policy in small open economies, as the effects of a fiscal stimulus (contraction) on aggregate demand is not reduced by a endogenous decline (increase) in interest rate or exchange rate. Moreover, a smaller economy will have a smaller effect on the average variables of the euro area and thus on the decision making of the ECB;

- the effectiveness of discretionary fiscal policy is not hampered by a higher propensity to import. However, even non-altruistic households may interiorise a policy reaction function of the fiscal authorities if if a government is bound by a fiscal rule. For example, if the public deficit approaches the 3 per cent of GDP benchmark in a future recession, then even individuals who do not have very long time horizons may adjust their saving behaviour to at least partially prepare for higher future taxes.

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[3] The results given in Table 4 are derived from an error correction model. We work on annual data for the period 1978-1999 and follow a standard Engle and Granger two-stage strategy:

Long-term equation:
Log(imports) = $c(1) \times$ Log(Domestic Demand) $+c(2) \times$ Log(Exports) $+ c(3) \times$ Log (Competitiveness)$+c(4)$

Short term equation:
dlog (Imports) = $c(5) \times$ dlog(Domestic Demand) $+c(6) \times$ dlog(Exports) $+c(7) \times$ Residual(-1) $+c(8)$

We present in Table 4 the value of $c(6)$ – column 1 – and $c(5)$ – column 2 – for a number of European countries.

Table 2

Foreign trade (1978-2001)

(t-stat values are reported below coefficient estimates)

	SHORT-TERM ELASTICITY OF IMPORTS TO EXPORTS	SHORT-TERM INCOME ELASTICITY OF IMPORTS
GERMANY	0.57 (9.9)	0.95 (10.9)
FRANCE	0.48 (7.6)	1.91 (10.6)
ITALY	0.56 (7.6)	2.11 (10.0)
SPAIN	0.20 (1.2)	2.47 (9.2)
UNITED KINGDOM	0.39 (2.8)	1.35 (7.7)
AUSTRIA	0.97 (9.5)	0.52 (1.9)
BELGIUM	0.86 (13.5)	0.78 (7.1)
DENMARK	0.59 (5,1)	1.40 (10.0)
IRELAND	0.58 (5.9)	1.24 (8.3)
NETHERLANDS	0.80 (9.7)	0.88 (8.5)
FINLAND	0,55 (5.1)	1,43 (6.3)
PORTUGAL	0.25 (3.8)	1.82 (14.1)
SWEDEN	0.64 (7.2)	1.38 (9.4)

(1) Source: OECD data base.

4.   Conclusion

The adoption of a common monetary policy in Europe has eliminated the possibility of using monetary policy for the stabilisation of country-specific shocks. The main remaining instrument in the hands of national authorities to stabilise local macroeconomic conditions, is fiscal policy.

In this paper we have searched systematically for the circumstances in which national saving responds non-linearly to fiscal policy impulses. Given the complexity of the interactions among economic growth, interest rate movements, and reductions in debt ratios, no study can definitively establish clear lines of causality. However, the evidence confirms some previous findings and supplements them with a few new ones. There is no reason to believe that fiscal policy should be less effective in small open economies. First the automatic stabilisers seem to be more important in those countries, as highlighted by a higher semi-elasticity of the public balance *vis-à-vis* GDP. Second, the effectiveness of discretionary fiscal policy can be hampered by a high level of public debt, not by a higher propensity to import.

One way of reconciling the correlation between country size and the fragility of public finances over the past decades is to argue that small open economies are more subject to external shocks. When an external shock occurs, the automatic stabilisers are powerful, as small open economies exhibit a high sensitivity of the public balance to GDP swings. Moreover, fiscal stimulus may be needed if the shock is substantial or country-specific. Consequently, the position of the budget balance may deteriorate rapidly, making small open economies more prone to episodes of fiscal crises.

ANNEX 1

Table 3

Fiscal episodes
(1970-2001 period)

Fiscal contraction or expansion respectively corresponds to a positive /
negative variation of the primary cyclically-adjusted budget balance
superior to 1 percentage point in absolute value

COUNTRIES	FISCAL CONTRACTION	FISCAL EXPANSION
FRANCE	1979, 1983, 1996, 2001	1978, 1981, 1988, 1992
GERMANY	1982-83, 1989, 1992-93, 1997	1975, 1979, 1990-91
AUSTRIA	1977, 1984, 1992, 1996-97, 2001	1973, 1975-76, 1982, 1986, 1993-94
BELGIUM	1977, 1982, 1984-85, 1987, 1990, 1993	1972, 1976, 1979-81, 1988, 1991
UNITED KINGDOM	1980-82, 1995-98, 2001	1983, 1990, 1992-93
GREECE	1982, 1986-87, 1991-94, 1996, 1998	1981, 1985, 1988-89, 1995
IRELAND	1982-84, 1987-89, 1996, 2000	1978, 1979, 1990, 1995
ITALY	1970-77, 1980, 1982-83, 1986, 1989, 1991-93, 1995, 1997	1972, 1975, 1978-79, 1981, 1985, 1994, 1998
SPAIN	1975, 1979, 1983, 1986-87, 1992, 1996	1974, 1982, 1988
PORTUGAL	1977, 1982, 1984, 1992, 1995	1972, 1974, 1976, 1978, 1981, 1987, 1990, 1993
THE NETHERLANDS	1977, 1981-83, 1985, 1988, 1991, 1993, 1996, 1999	1974, 1976, 1978, 1986, 1989, 1990, 1994, 2000
SWEDEN	1971, 1976, 1983, 1987, 1995, 1998	1973, 1974, 1978, 1979, 1988, 1990-92, 1999
FINLAND	1971, 1975, 1976, 1981, 1984, 1993, 1998, 2000	1971, 1974, 1978-80, 1982, 1987, 1991
DENMARK	1983, 1984, 1986, 1993-99	1972, 1975, 1976, 1979, 1982, 1994

Table 4

Dummies variables showing anti-keynesian effects
Fast growing debt ratio interacting with expenditure ratio
in case of fiscal expansion (d6)

Countries	Years during which d6 = 1
France	1982, 1984 and 1985, 1992 to 1998
Germany	1975, 1982, 1983, 1990 to 1993, 1995, 1996, 1998
Austria	1975, 1982 to 1988, 1990, 1991, 1993 to 1995, 1999
Belgium	1975 to 1994, 1996
United Kingdom	1980, 1984, 1990, 1992, 1993, 1995 to 1998
Ireland	1975, 1976, 1978 to 1988, 1993
Italy	1981 to 1998
Spain	1982 to 1986, 1989 to 1998
Portugal	1995, 1999, 2000
The Netherlands	1979 to 1986, 1988 to 1993, 1995
Sweden	1979 to 1984, 1986, 1991 to 1995
Finland	1991 to 1995
Denmark	1981 to 1984, 1990 to 1993

Table 5

Tax receipts to GDP ratio interacting with a fiscal expansion

Countries	Years during which d33 = 1
France	1978, 1981, 1988, 1992
Germany	1975, 1979, 1990, 1991
Austria	1973, 1975, 1976, 1982, 1986, 1993, 1994
Belgium	1972, 1976, 1979 to 1981, 1988, 1991
United Kingdom	1983, 1990, 1992, 1993, 2000
Ireland	1978, 1979, 1990, 1995
Italy	1972, 1975, 1978, 1979, 1981, 1985, 1994, 1998
Spain	1974, 1982, 1988
Portugal	1972 to 1974, 1976, 1978, 1981, 1987, 1990, 1993
The Netherlands	1974, 1976, 1978, 1986, 1989, 1990, 1994, 2000
Sweden	1973, 1974, 1978, 1979, 1988, 1990 to 1992, 1999
Finland	1972, 1974, 1978 to 1980, 1982, 1987, 1991
Denmark	1972, 1975, 1976, 1979, 1982, 1994

ANNEX 2

Table 6

«Low performer» countries (1970-2002)
Panel data estimation with fixed effect
Dependent variable: National Saving to GDP Ratio[4]

1970-2002	Pool 1	Pool 2	Pool 3	Pool 4	Pool 5	Pool 6
National saving ratio (–1)	0.745 (0)	0.734 (0)	0.764 (0)	0.636 (0)	0.755 (0)	0.657 (0)
Output gap	0.217 (0)	0.221 (0)	0.219 (0)	0.254 (0)	0.167 (0)	0.247 (0)
Real interest rate	–0.076 (0)	–0.067 (0.001)	–0.061 (0.002)	–0.037 (0.074)	–0.089 (0)	–0.058 (0.027)
Tax receipts	0.225 (0)	0.252 (0)	0.236 (0)	0.262 (0)	0.266 (0)	0.379 (0)
-and large change in primary CAB (d1)		–0.036 (0.281)				
-and large increase in primary CAB (d3)			–0.007 (0.849)			–0.028 (0.525)
-and large decrease in primary CAB (d33)			**–0.076** (0.037)			**–0.083** (0.052)
-and rapid debt growth (d5)					–0.021 (0.646)	–0.076 (0.121)
Government consumption	0.014 (0.043)	0.012 (0.101)	0.001 (0.148)	0.037 (0)	0 (0.976)	0.008 (0.476)
-and large change in primary CAB (d2)		–0.002 (0.561)				
-and large decrease in primary CAB (d4)			0.002 (0.625)			0.005 (0.344)
-and large increase in primary CAB (d44)			–0.012 (0.018)			–0.009 (0.102)
-and rapid debt growth (d6)					–0.002 (0.72)	**0.018** (0.041)
Interest payment on public debt				–0.201 (0)		–0.218 (0)

(The p-values are reported between parentheses).
Adjusted R2: 0.95   SE: 0.896   DW: 2.06   SSR: 100.46

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[4]   In OECD database we used, national saving figures are not reported. We proxied this variable by adding up public saving and household saving.

ANNEX 3

Table 7

«Low performer» countries (1970-2002 period)
Panel data estimation with fixed effect
Dependent variable: Private Consumption

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Included observations: 32 after adjusting endpoints Number of cross-sections used: 6 Total panel (unbalanced) observations: 156				
Consumption (-1)	1.152380	0.075	15.3	0.0000
Consumption (-2)	–0.209576	0.069	–3.0	0.0030
Real disposable Income	0.382682	0.055	7.0	0.0000
Real disposable Inc. (-1)	–0.317822	0.061	–5.2	0.0000
Deflator (-1)	–0.226356	0.046	–4.9	0.0000
GG balance to Disposable income ratio (-1)	–0.001456	0.000	–4.5	0.0000
Public debt to GDP ratio ($+1$)	–0.030251	0.007	–4.3	0.0000
Fixed Effects ITA--C BEL--C DNK--C FIN--C SWE--C IRE--C	–0.285524 –0.245466 –0.225918 –0.237534 –0.231757 –0.194602			
R-squared	0.999977	Mean dependent var		10
Adjusted R-squared	0.999976	S.D. dependent var		3.43
S.E. of regression	0.016956	Sum squared resid		0.04
Durbin-Watson stat	1.959224			

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