Session 4

PUBLIC EXPENDITURE CONTROL

DEBT RETRENCHMENT STRATEGIES
AND CONTROL OF PUBLIC SPENDING

Carine Bouthevillain, Laurent Paul and Jeanne Pavot[*]

Government debt in major developed countries has reached historically high levels relative to other peacetime periods. According to the Organisation for Economic Cooperation and Development (OECD), by end-2005 general government gross financial liabilities stood at 64.1 per cent of gross domestic product (GDP) in the United States, 77.5 per cent in the euro area and 175.2 per cent in Japan. Extensive use of fiscal policy to regulate economic activity is at the heart of the debt increase.

To prevent government debt dynamics from becoming unsustainable, debt retrenchment strategies must be deployed to boost economic growth potential and build sustainable primary budget surpluses. In many countries, especially in Europe, already-high tax and social security contributions and tax competition mean that fiscal adjustments must come from control of public spending.

A number of countries, including Canada, Spain, Sweden and Finland, have successfully engineered adjustments to deal with major imbalances in their public finances. Their example shows that the consolidation drive must be large in scope and must be based on a significant reduction in the GDP share of current primary expenditure if economic agents are to view it as credible. Also, these efforts must be backed up by structural reforms targeting goods and services markets and the operating procedures of government units.

The consolidation process may be usefully framed by national-level fiscal rules that are designed to control the actions of the public authorities. For example, the reform of the Stability and Growth Pact, which was agreed by the European Council in March 2005, urges Economic and Monetary Union Member States to implement mechanisms to control the growth of public spending. These mechanisms function in conjunction with a shared commitment to fiscal discipline aimed at ensuring compliance with the government deficit and debt thresholds set down in the

————————

Treaty. This framework, which could potentially be bolstered by a reform of governance mechanisms, also delivers greater transparency to economic stakeholders by ensuring that fiscal rules and stances remain stable regardless of changes in the political situation.

Ultimately, for a debt retrenchment strategy to be successful, there must be a national consensus on the need for such measures. As a result, it is crucial that governments tell their citizens about the challenges associated with fiscal policy. France's Pébereau Report, for example, which was published in December 2005, helped to raise awareness about the dangers of allowing debt to continue heading upwards on the path in place since 1980.

1   Public sector debt retrenchment strategies

While there is a sizeable body of literature on the issue of government debt, it is hard to find a clear empirical or theoretical indication as to the debt level or debt/GDP ratio that signals the onset of a problematic situation. In addition, the methods that many countries used in the past to quickly reduce their debt ratios – monetisation especially – are no longer available today. An analysis of how other countries have tackled the issue offers insight into possible government debt retrenchment strategies.

1.1   Government debt: the virtues of moderation and the risks of excess

There are several arguments in favour of government debt. First, debt acts like a deferred tax (Barro, 1974) and can be used to push back the financing of non-recurring public expenditures (notably those linked to an exogenous shock, such as in wartime). Debt may also be used to ensure that the tax burden associated with a particular spending item is coordinated more closely over time with the benefits that taxpayers will derive from it, potentially over several generations. According to this rationale, debt should finance only high-potential expenditures that are productive over the medium to long term, such as investment in infrastructure, education, research, new technologies and support for innovation. It should not be used to pay for current expenditure.

Under a Keynesian approach, and subject to the limits of this type of policy in an open economy, deficit financing can also be used to prop up the economy during a cyclical downturn, while paying for the stimulus financing after the recovery using the resultant surpluses. If households are non-Ricardian, this approach will have an impact on real economic activity through the standard effects of the Keynesian multiplier. However, this strategy works only if it can be ensured that debt is symmetrically reduced during upswings. In practice, the fiscal policies of highly indebted countries tend to be counter-cyclical during slowdowns but also become more pro-cyclical when the economy picks up again.

Government debt is also inherently a form of redistribution, in terms of the intergenerational transfers that it implies. This principle applies to pension expenditures, for example.

Furthermore, the ability to choose between government debt, which offers low risk and low returns, and private debt, which comes with specific growth- and profit-related risks, is necessary to the smooth functioning of markets. Public debt securities provide a benchmark for market operators because they offer low but set returns and the lowest risk. They are also a benchmark for safe assets and can be used to broaden investors' portfolio diversification options.

There are no economic grounds for eliminating government debt altogether, either from a macroeconomic perspective or from a financial point of view. Yet there is no consensus in the economic literature as to where the optimal level lies. Sustainability indicators, for example, can only be used to identify the conditions required to avoid the risks associated with excessive and growing debt. The sustainable level of debt for a given country depends, among other things, on growth prospects and decisions in terms of the welfare system. Moreover, there is nothing to prove that this level needs to be constant over time. A different or variable sustainable debt level might apply if the demographic structure changes, for example in the event of population ageing. Setting aside the difficulties associated with identifying the optimal level of government debt, the dangers of insufficient debt are counterbalanced by the risks of excessive, unsustainable debt (Wierts, 2005). Yet these have emerged as the main risks in many industrialised countries over recent years.

The most frequently talked-about risk is that of a snowball effect, which, when triggered, leads to self-sustaining growth of debt generated by successive deficits in the past and the cumulative momentum of interest expense that they create. In other words, when government debt is high, to satisfy the solvency constraint, GDP growth must be higher than the nominal interest rate (which may be a relatively demanding requirement if the debt burden itself is high), or the primary surplus must be large. If the tax burden is already high, precluding a further increase, the response must be focussed on public spending. But because most public expenditures, like social transfers, wages and pensions, are inherently inflexible, at least in the short term, there is a significant risk that the reduction drive could target spending that is most likely to promote growth. As a result, if not properly calibrated, the measures best suited to countering the snowball effect could crimp potential growth and actually amplify the initial effect.

Excessive debt also makes economic policy less flexible in the short term because the debt burden eats up a larger share of expenditures, hampering the government's ability to stabilise activity in the short term in the event of a recession.

Finally, a debt build-up creates uncertainty on the markets, which speculate as to which strategy the public authorities will ultimately use to pay off the debt. Uncertainty of this sort may prompt creditors to demand a higher risk premium before they will continue lending to general government. In extreme cases, the debt

spiral can lead to a risk of payment default, although this is of course a rare event in industrialised countries. In a less radical outcome, mounting uncertainty about certain government securities may translate into changes in the credit ratings assigned by global rating agencies. A downgrade can shrink the market of buyers of government securities (as in the case of Italian securities, for example, which were downgraded several times).

The question, then, is to find an exit strategy at the point at which the country is already grappling with excessive and growing debt. In theory, governments can call on an array of powerful tools to extricate themselves from such situations. In practice, however, few of these tools can actually be put to effective use under the circumstances.

In the past, the preferred method was monetary financing of the debt through inflation. *Ceteris paribus*, an increase in inflation erodes part of the debt over the medium term and increases seignorage. The real interest rate declines, or even becomes negative, enabling monetisation (monetary creation destined to finance public spending) to absorb a significant portion of the debt. This approach, which France used between the wars, is now ruled out, at least in Europe, where independent central banks are in charge of controlling inflation.

The practice of debt repudiation, which creates a major risk of loss of confidence and credibility, is no longer an option, at least in industrialised countries. Similarly, imposing a one-off tax on income or capital, or allocating non-recurring revenues to debt reduction, are not long-term solutions. Without structural changes in the nature and structure of revenues and expenditures, debt will begin to balloon again, requiring new adjustments.

Active debt management may also play a part in debt reduction by optimising the structure and nature of securities. However, the potential gains are limited and cannot by themselves reverse the cumulative momentum gathered by the debt burden.

The surest way to reduce the debt ratio is definitely to increase economic growth. The problem is that countries may find it extremely difficult to significantly increase their (potential) growth, even in the medium term. Reducing the debt ratio through structural reforms that cut public spending, potentially with transitional costs, appears to be a necessary and/or sufficient condition to stimulate activity. However, the statistical estimates of the link between growth and public finance variables are weak.

Accordingly, tackling primary deficits directly seems to be the method that is most commonly required to reduce government debt. To cut the primary deficit, taxes must be raised or collected more effectively and/or public spending must be reduced, if possible by making them more efficient. However, as mentioned above, this comes with political and economic costs. Public spending that is considered to be productive, like R&D, higher education, support for innovative or high-tech firms and investment in infrastructure, should be maintained. If we take the view that Ricardian effects do not dominate, the government and the population should be

ready to try out a J-type curve where the spending squeeze initially has no visible impact on the debt and may cause a temporary growth slowdown. It is necessary to wait until the deficit reduction generates favourable debt momentum that frees up the flexibility needed for positive growth effects to emerge.

1.2 Root causes of excessive government debt and national debt retrenchment strategies

Since the early 1970s, government debt levels have been on a sustained uptrend that has nothing to do with military conflict or a major economic shock. There are many reasons why the public finances have deteriorated since 1973. First of all, the structure of government spending has undergone radical change, spurred notably by increased demand for interventionism aimed at delivering Keynesian regulation of the economy and organising redistribution between agents. Social spending (transfers linked to healthcare, pensions, low-income support) has gone up far more than spending on state services, like police, defence and justice, has gone down. Moreover, as the scope of the public sector has widened, so current expenditures (public sector employment, wages) have risen (Schuknecht and Tanzi, 2003). Only spending on investment, subsidies and capital transfers has fallen, even as new needs have emerged that might have caused them to increase, e.g. subsidies for innovative companies, environmental protection, research and development, education and infrastructure. Initially, periods of unexpected high inflation meant that these structural imbalances were painless from a fiscal perspective. Low or even negative real interest rates helped to contain the increase in debt. From the early 1980s onwards, however, the latent imbalances were revealed as inflation was brought under control (leading to more accurate expectations) and reduced, as welfare systems were expanded and extended to achieve universal coverage, and as growth slowed markedly. These expenditures are often viewed as social «acquis» that exist independently of economic conditions, which means that cutting them comes with high political and social costs. In addition, even though the tax burden has become heavier (an increase that has nonetheless been limited by tax competition), government revenues have suffered owing to the slow increase in tax bases and have been insufficient to offset these changes. So while industrialised countries may have started out from fairly similar situations in the 1970s, today they find themselves in sharply contrasting budget positions.

1.2.1 Lessons learned from the experiences of other countries

Faced with repeated and growing government deficits, several countries, including Canada, Spain, Sweden and Belgium, responded by implementing large-scale reforms to increase or re-establish sustainable primary surpluses. Some began this process in the mid-1980s, while others started in the early 1990s. A number of other countries, including France, Germany and Greece, have not (so far) undertaken a major fiscal consolidation drive (see Figure 1, Table 1). A few representative

Table 1

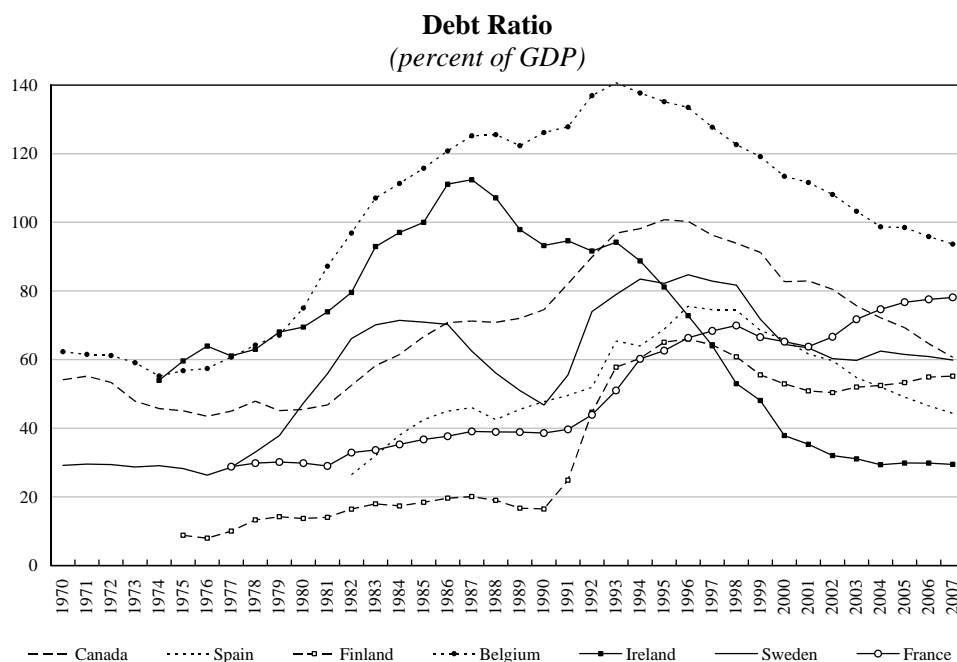**Comparing France against Examples of Successful Fiscal Consolidation**

Country	Debt Ratio Peaked in	Peak Debt Ratio (a)	Difference between Peak Debt Ratio and 2005 Peak	Spending Ratio Peaked in	Peak Spending Ratio	Difference between Peak Spending Ratio and 2005 Peak	Largest Deficit Recorded in	Level of Maximum Deficit	General Government Balance in 2005	Adjustment Began in	Potential Output after Adjustment
Belgium	1993	140.7	42.4	1983	62.0	11.9	1981	–15.3	–0.1	1983	=
Canada	1995	100.8	31.5	1992	53.3	14	1992	–9.1	1.7	1993	>
Spain	1996	75.6	25.2	1993	48.6	10.4	1993	–6.9	1.1	1994	=
Sweden	1996	84.4	25.1	1993	72.4	16.0	1993	–11.3	2.7	1994	>
Finland	1996	66.0	17.4	1993	63.6	12.8	1993	–7.2	2.4	1993	>
France	2005	76.5	0	1996	54.5	0.1	1993	–5.8	–2.9	?	n.a.

n.a.: not available.
(a) As indicated in the footnote on the first page, this refers to debt not within the meaning of the Maastricht Treaty, but according to national accounting rules.
Source: OECD, Economic Outlook, No. 79, June 2006, for statistical data.

Figure 1

Debt Ratio
(percent of GDP)

Canada ---   Spain ······   Finland –□–   Belgium ····•····   Ireland –■–   Sweden ——   France –○–

examples will help to illustrate the essential ingredients for successful fiscal consolidation.

*Canada: an exhaustive audit of public spending*

As it entered the 1990s, Canada had to contend with a major crisis that threw the country's fiscal imbalances – which had remained hidden until then – into sharp relief.

Total debt exceeded 100 per cent of GDP in 1995, with federal finances accounting for three-quarters of this amount. The structure and level of public spending proved unsustainable in a setting of flaccid growth and high interest rates. Canadians and provincial governments could see the link between persistently high deficits, the level of interest rates and an inevitable increase in the tax burden in the near future. Accordingly, extensive reforms were introduced starting in 1993, with the enforcement of the 1992 Fiscal Spending Control Act. The reforms were centred on three main strategic priorities. First, to set a reasonable but firm medium-term target for the government deficit. This was deemed a more effective approach than aiming for a zero deficit further out. Second, to slash public spending and keep nominal growth within the set limits. A huge audit was carried out to pinpoint efficient spending and identify sectors where productivity gains were possible as well as those where spending was unwarranted. This exhaustive analysis took six months. Spending was subsequently reduced by some 20 per cent from 1994 levels over three years. Six criteria were used to select authorised public spending: the public interest of the spending programme, the programme's effectiveness, the programme's contribution to the government's state duties, the ability of the provinces to take the place of the federal government, the ability of taxpayers to provide financing, and the availability of alternative private services. Finally, the third priority was to get economic stakeholders behind the reforms. This was achieved through large-scale pre-budget consultations in the public sector.

The budget cuts, which amounted to around 4 points of GDP between 1993 and 1995, affected all spending categories, particularly provincial transfers and social benefits, especially unemployment and health insurance. The public sector workforce was reduced by 15 per cent, *i.e.* 60,000 workers, and public sector wages were frozen for three years. Some business subsidies were cut by 60 per cent, which, in the case of some ministries, including industry and transport, resulted in a reduction in spending in absolute terms and not just a slower rate of increase (see Figure 2).

Labour market reforms were pushed through to create added flexibility and improve training opportunities. The unemployment insurance system was modified to encourage people to take jobs. In addition, the Canadian dollar lost ground against its US counterpart, and this, coupled with the strong American economy, also proved beneficial. The increase in external trade initially offset the adjustment's impact on GDP growth. It then simulated growth, which remained extremely high until the end of the 1990s.

Figure 2

Canada: Social Benefits, Subsidies and Government Consumption
(percent of GDP)
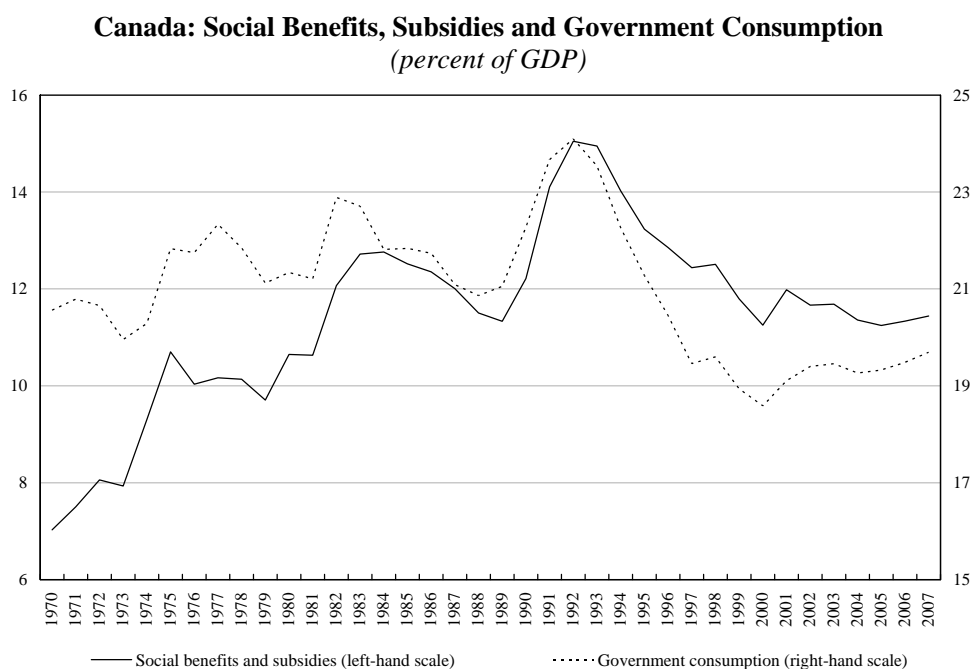
Aside from the public spending measures, a key factor in Canada's success seems to have been strong support for the strategy among private agents. This was possible only because the steps taken were seen as relatively justified and fair (thanks to the audit) and consistent with efforts to restore growth and employment in the medium term. If primary spending had not been adjusted, Canada's debt ratio would have reached, *ceteris paribus*, around 140 per cent today (see Figure 3).

In fact, by getting the public finances back on an even keel, against a backdrop of falling interest rates, Canada was able to bring the total debt ratio down from about 100 per cent in 1993 to around 70 per cent in 2005. Canada is often held up as the best example of a successful fiscal adjustment, achieved by combining a complete overhaul of public spending, a profound reform of fiscal institutions, plus other structural reforms. That said, with its federal government, open competition-focussed economy, and independent monetary and foreign exchange policies, Canada has specific qualities that set it apart from European countries.

Spain: taking advantage of favourable conditions

Spain's public spending has risen markedly since the 1970s, mainly reflecting the increased size of the country's welfare systems. Large deficits built up despite an

Figure 3

Canada: Debt Dynamics under Different Assumptions
(percent of GDP)
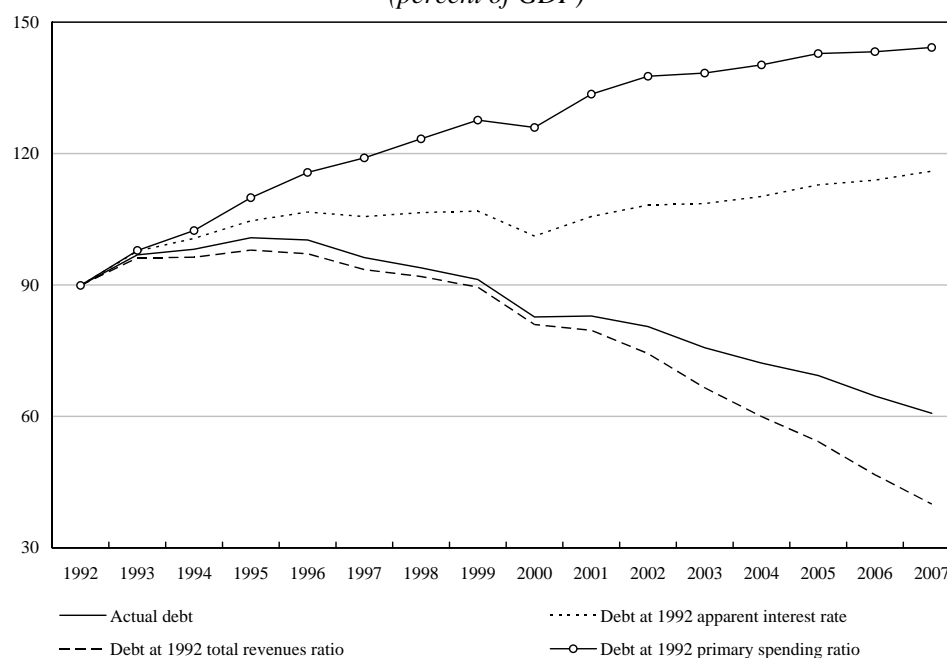
Each curve is computed by locking one of the parameters and inputting the others at their actual values. For example, when the primary spending ratio is locked at its 1992 value, the values for interest payments, the total revenues/GDP ratio and the GDP growth rate are the actual values for these parameters.

increase in the tax burden, which was accentuated by initial efforts at fiscal consolidation in the 1980s. However, monetisation successfully prevented debt from exploding until the deep recession in the early 1990s. Spain was then once again confronted with an unsustainable deterioration in its public finances.

Spain decided to implement large-scale fiscal consolidation, both to create a virtuous circle of high growth and moderate inflation, and to meet the Maastricht criteria in 1997. The measures included in the 1994 reform were designed to maximise the adjustment's credibility (composition of spending, return to fiscal discipline based on a solid institutional framework, steps to combat tax fraud) and quickly reap the benefits in terms of growth and jobs. The actual fiscal adjustments were sizeable, at 3 points of GDP over two years, and got support from the outset from robust economic growth (far outpacing the expansion recorded by the euro area, even though the zone was in a cyclical upswing) and the decline in nominal interest rates. This made it possible to quickly slash current expenditures (social transfers, especially unemployment benefits, the public sector wage bill and subsidies) without an overly pronounced short-term impact on growth.

At the same time, Spain implemented other structural reforms, to pensions, company tax (1995) and individual income tax (1998), in a bid to simplify the tax system and increase incentives while augmenting budgetary elasticities. It also pushed through labour market reforms that introduced added liberalisation and flexibility, particularly from 1997 onwards. Finally, Spain benefited at the beginning of the fiscal consolidation process from non-recurring revenues linked to public sector reforms (privatisations in the energy and telecommunications sectors) and large European structural fund payments.

If Spain had not adjusted its primary spending from 1994 onwards, its debt ratio would now be close to 110 per cent of GDP. However, the actual reduction in the debt ratio, which was cut from 65 per cent in 1993 to around 50 per cent in 2005, would have been greater if a portion of the gains had not been directed towards the decline in tax revenues after 1997, which was linked, among other things, to sweeping decentralisation of tax and fiscal responsibilities. The Budget Stability Act voted in 2003 is intended to provide an institutional guarantee that consolidation efforts will continue and to prevent local public finances from slipping as they have in Canada.

Sweden: vast institutional reform and streamlined fiscal procedures

In the early 1990s, Sweden was confronted with a deep-seated banking crisis combined with a serious economic recession. This situation coincided with growth in government deficits, the debt ratio and unemployment. In 1994, the government reacted by undertaking a massive consolidation drive, which it backed up with reforms to fiscal procedures and institutions. As elsewhere, the fiscal adjustment was focussed on cutting spending (by 16 points of GDP since 1994), chiefly social transfers, subsidies and government consumption (decline in public sector employment) (see Figure 4). The tax burden remained heavy over the same period, even increasing temporarily with the introduction of solidarity surtax, while a privatisation programme in the telecommunications sector helped to reduce the debt. However, it was the transformation of fiscal institutions and procedures that ensured that these measures had a lasting effect.

The aim was to reduce the size of the public sector, while raising efficiency and oversight. Accordingly, the public sector was reformed to form fewer ministries (13) and three hundred public or public-private agencies that account for 99 per cent of civil servants.

The reforms to fiscal procedures included caps for nominal primary spending. Spending is set top-down, meaning that the Riksdag establishes an overall budget that is then divided between different programmes, with no allowance for exceeding the set limits. Any additional spending programmes must be funded through cuts in other areas. Priority is placed on productive spending, like education, some healthcare services and child-related services, rather than on corrective spending, such as social transfers. The budget preparation process, which culminates in a vote

Figure 4

Sweden: General Government Spending
(percent of GDP)
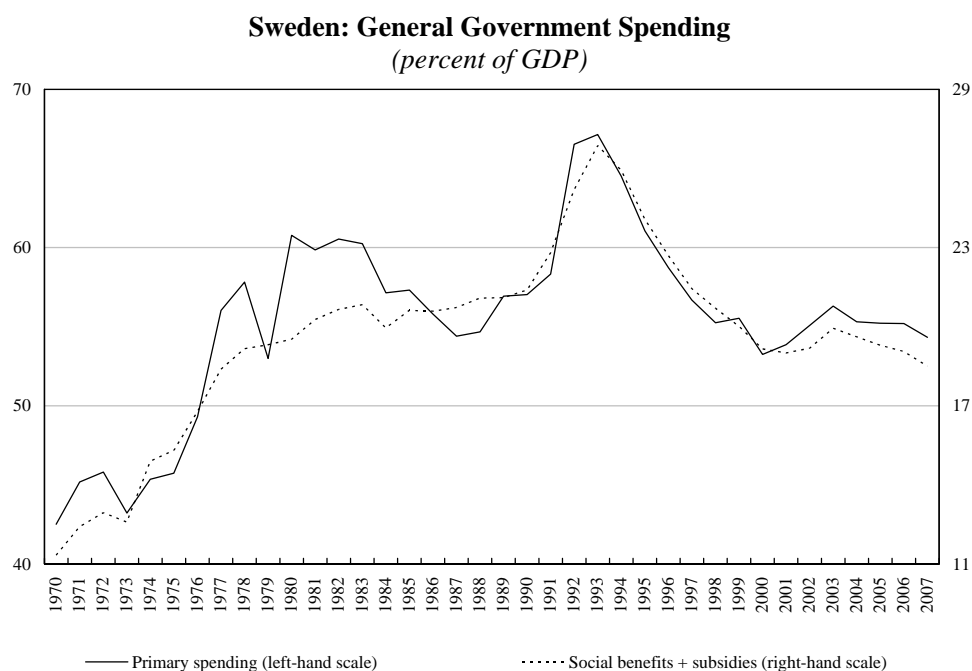
on the Budget Act, has been simplified and gives Parliament a greater role, including in setting three-year targets. Finally, fiscal discipline is anchored within the framework of a medium-term objective of a budget surplus of 2 per cent of GDP. All in all, the Swedish strategy, which got a lift when GDP swiftly began expanding again at a robust pace on the back of soaring exports, reduced the debt ratio from around 85 per cent of GDP in 1996 to around 60 per cent in 2005. Furthermore, the budget's sensitivity to economic activity, which used to be highly pronounced, was reduced, thus limiting forecasting errors and helping the public finances to stabilise.

Finland: the fiscal adjustment did not destroy the foundations of the social security system, but reduced the system's scope

Finland was in the same crisis situation as Sweden in the early 1990s. The government responded by seeking to use structural reforms to tackle problems that were seen as chiefly structural in nature, in an effort to provide lasting protection against fiscal slippage and to prepare for the impact of a greying population. Finland introduced fiscal rules for public spending and, like Sweden, radically overhauled its fiscal institutions. The fiscal adjustment was accompanied by other measures, including pension, labour market and banking sector reforms. Finland also accelerated the pace of consolidation by beginning tax reforms in 1993. The

founding principles of the welfare system were not altered in the reform process: efforts to build social consensus and centralised collective bargaining remain core components. However, to maintain the standard of social services while reducing costs, steps were taken to reorganise programmes and make them more efficient. Even so, Finland has not solved the problem posed by the transfer of fiscal slippage at the central government level to local authorities, which have the freedom to raise income tax if faced with new charges or obligations. Moreover, the scope of welfare services that the government will continue to finance as the population ages has yet to be determined. To ensure fiscal sustainability, some programmes will probably be run by the private sector. However, the overall outcome of consolidation has been positive, because in 2005, Finland's debt ratio stood at around 50 per cent, compared with 66 per cent in 1996.

1.2.2 Necessary (though insufficient) conditions for successful fiscal adjustment

Although the specifics of national situations are complex, an analysis of the main features of fiscal reforms that have enabled countries to scale back their debt ratios reveals several shared factors that look to be necessary to the success of such undertakings.

Broader context of the adjustment

- Long-term fiscal imbalances are generally structural in origin and essentially stem from an inability to easily curb rising, uncontrolled growth in public spending. The solution lies with structural responses and with permanent improvements to public finances, rather than with cyclical measures.

- A fiscal adjustment will be less costly from a social and political viewpoint if undertaken when macroeconomic conditions are favourable. In other words, countries must take advantage of good times and low interest rates to carry out the necessary structural reforms.

Adjustment measures and implementation

- Successful adjustments are rooted in long-term control of public spending rather than an increase in statutory charges.

- In most cases, spending cuts are concentrated on social transfers, subsidies and the public sector wage bill. The government has to identify priority spending, which is allowed to increase, while curbing other expenditures. Reforms are accompanied by efforts to identify productivity gains in the public sector and organise institutions more effectively, for example by setting up specialised agencies, transferring staff, introducing performance-linked pay, enhancing oversight to make sure that targets are met, deploying new recruiting techniques, and shifting the line between public and private spending. Most consolidation

programmes are geared towards sharing the cost of the adjustment across all private agents to build broad-based support.

- The fiscal adjustment typically forms part of a strategy aimed at making break with the past. Global, large-scale reforms are introduced in a single stroke to demonstrate the consistency of the overall project, build credibility and encourage private agents to prepare for a future decline in the tax burden.

- Successful attempts at consolidation feature a detailed programme and firm political commitments, including short and/or medium-term fiscal objectives, spending targets or caps, and strict rules of conduct, particularly for the allocation of non-recurring or unexpected revenues, greater input from Parliament and increased accountability for public sector management.

- These adjustments seek to bring the automatic stabilisers into play in a symmetrical way. In other words, they prevent tax and social security contributions from being reduced or new unfunded expenses from being incurred during a cyclical upswing until such time as the public finances are back on a sustainable trajectory.

Support for and communication about the fiscal adjustment

- The government endeavours to make the adjustment processes as transparent and understandable as possible to avoid undesirable market responses and lack of support from the public and opinion leaders.

- The reforms are set within a legal framework, making them better able to stand up to changes of government, political disputes, and pressure from social groups that refuse to give up their advantages or benefits.

- Fiscal adjustments are accompanied by other structural reforms, mainly aimed at making the labour market more flexible, reducing distortions and complexity in the tax system and modifying the pension system. Structural reforms provide support for one another, making the case for a raft of large-scale reforms rather than scattered measures over a long period (Bassanini and Duval, 2006).

Most countries that have successfully consolidated their public finances do not seem to have suffered in terms of their medium-term macroeconomic balance and growth. On the contrary, though structural difficulties may persist and fiscal imbalances may re-emerge, Ireland, Canada, Sweden, Finland and, to a lesser extent, Spain, have, through structural reforms, raised potential output and sharply reduced their unemployment rate.

In France, debt within the meaning of the Maastricht Treaty reached almost 67 per cent of GDP in 2005 and on its current path could exceed 100 per cent in 2015 according to the most reasonable projections. The trajectory of the debt ratio is therefore a concern – one that was recently highlighted by the Pébereau Report. In France today, monetary policy is centralised at the European level, interest rates are historically low, the economy is growing at a moderate pace, tax and social security contributions are high, and public spending, which already stands at sustained levels, is under strong upward pressure from population ageing. Since it is harder to make

adjustments when big changes are needed, France should learn from the successes of other countries and begin swiftly taking steps to reduce government debt and implement the necessary reforms.

2   Control of public spending and fiscal rules

To avoid the risk of a trend increase in the government debt burden, the new approach used today in most developed countries is based on curbing the use of fiscal policy and especially public spending. Instead, the public finances should be managed from a medium-term perspective to ensure that fiscal balance is maintained over the entire economic cycle. In several European countries, there is a clear link between an uncontrolled increase in public spending and persistent large structural government deficits.

2.1   Patterns in public spending in Europe since 1972

In Europe, the GDP share of public spending is historically far higher than in other developed countries, which essentially reflects the fact that general government has a broader scope of activities than in the United States and Japan.

2.1.1 Analysing approaches to public spending

Until the early 1980s, the GDP share of total expenditures rose sharply in all European countries except the UK, with the increase being more rapid in catch-up countries like Spain.

The trend then stalled in the 1980s in Germany, Belgium and the Netherlands and after 1993 in most other countries (see Figure 5). Some countries, including Spain, Ireland and the Scandinavian countries, actually managed to significantly reduce the GDP share of their public spending.

The trend break seen from the early 1980s in all developed countries except Japan primarily reflects lessened use of discretionary fiscal policies. Several other factors also played a part, including the impact of lower interest rates on debt servicing, reduced corporate subsidies and military budget cuts. European countries were also affected by efforts to get ready for Monetary Union, which forced Member States to conduct fiscal consolidation policies from the start of the 1990s, typically in the shape of reduced public spending.

The way that European countries approach public spending can be analysed by looking at the cumulative change in the nominal primary public spending ratio since 1972. This date is used as the reference point because it marks a time when growth was high and general government deficits were small or even inexistent in all the countries under examination. Primary spending is considered rather than total

Figure 5

Total Spending Ratios in Several European Countries
(annual data, percent of GDP)
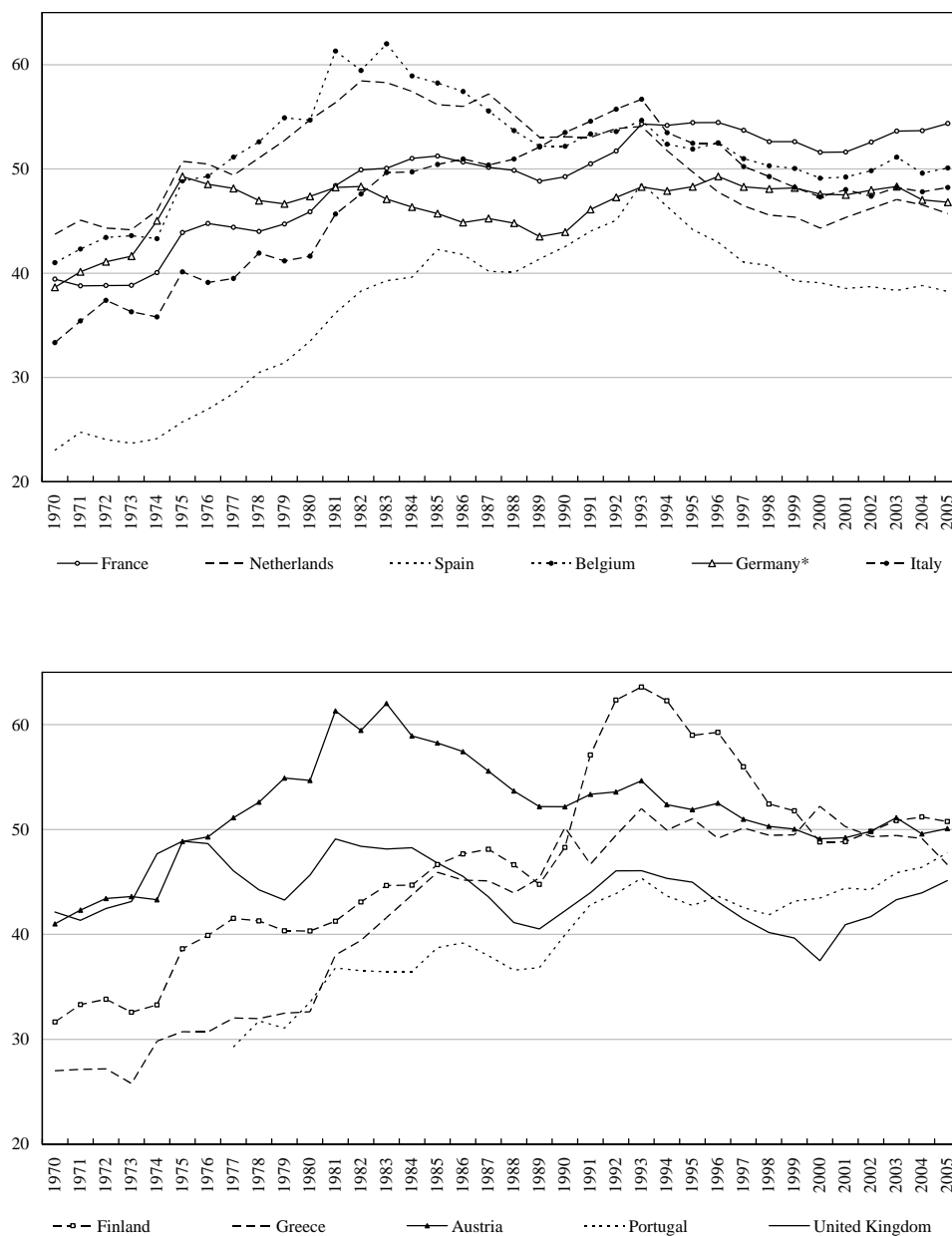
* Series backcast based on the former FRG series.
Source: OECD.

Figure 6

Cumulative Change in the UK Primary Spending Ratio
(annual data, percent of GDP)
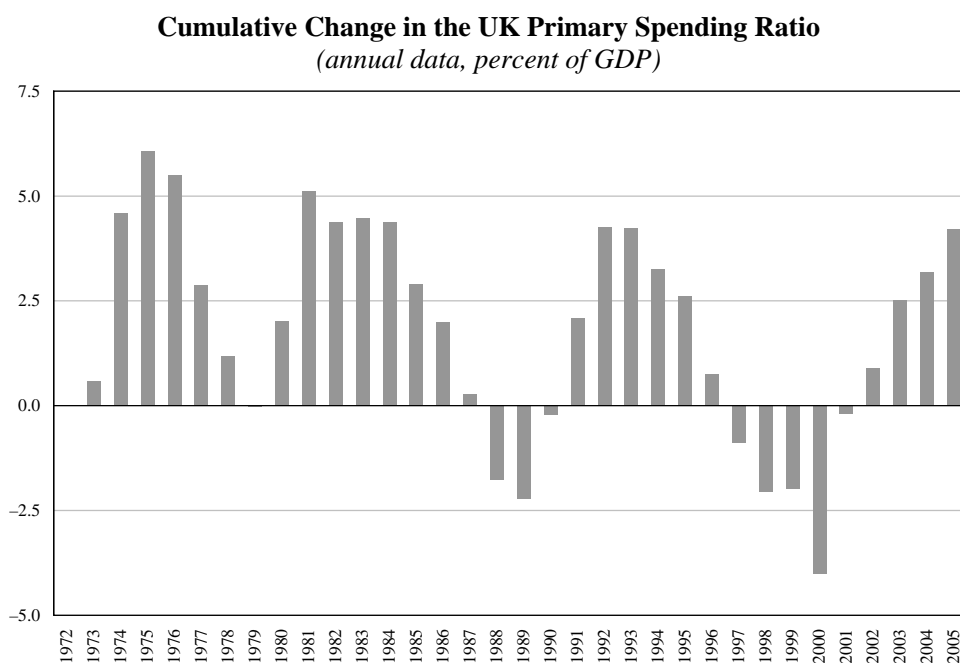
Example: in 1982, the UK primary spending ratio was four points higher than its 1972 level.
Source: OECD

expenditures because governments have little control over changes in the debt burden, which depends on the stock of debt and the level of interest rates.

UK: the odd one out

UK primary spending increased from 38.8 per cent to 43 per cent of GDP between 1972 and 2005. Spending averaged 40.6 per cent and thus reflected relative long-run stability. Figure 6 reveals that the UK managed to increase primary public spending on average at the same pace as GDP, while making small short-run adjustments to keep pace with the economic cycle, with increased spending during cyclical troughs and cuts during peaks.

The UK thus deployed public spending counter-cyclically, going beyond the effects of the automatic stabilisers (OECD, 2003). This discretionary policy, though, did not cause a trend increase in the GDP share of public spending because the UK made spending cuts that matched earlier increases. However, the UK's case clearly differs from that of other European countries, where the flexibility of public spending is limited by the features of the welfare system and rules protecting the public sector.

A far more linear progression in other European countries

At least until the beginning of the 1980s, the GDP share of primary spending increased steadily in all other European Union (EU) countries, albeit to varying degrees. The ratio increased by more than 20 points in Spain, Sweden and Finland between 1972 and the early 1990s. Over the same period, the ratio increased by around 10 points in France and Italy, by 7 points in the Netherlands and by less than 5 points in Germany.

Patterns became more diverse from the mid-1980s onwards. Several countries managed to trim their primary spending ratios by at least five points of GDP over several years, starting with Ireland, Belgium, the Netherlands and Denmark, followed at the beginning of the 1990s by Sweden, Finland, Italy, Spain and Austria. Ireland and the Netherlands then achieved further reductions. Germany was also part of this group. However, after radically cutting its primary spending in the 1980s, Germany saw the trend subsequently reverse as a result of reunification.

After this adjustment phase, there were fairly large cross-country differences in primary spending performance: in Denmark and Italy, spending resumed its uptrend, completely cancelling out the previous consolidation drive; expenditures stabilised in Spain, and continued falling in other countries, including Ireland, the only EU country whose 2005 primary spending ratio was lower than the 1972 ratio.

The other countries have not experienced a sharp decline in primary spending. Over the long run, their ratios have steadily increased by stages owing to counter-cyclical fiscal policies that are more pronounced during cyclical troughs than during more clement periods, making it impossible to reabsorb the additional spending incurred during the downswing. The trend is especially marked in Greece and Portugal. France (see Figure 7) can also be included in this group, although primary spending seems to have more or less stabilised since 1993.

2.1.2 The link between spending growth and excessive deficits

Primary spending trends have differed sharply across countries since 1993, the year that marked the start of preparations for entry into Monetary Union. The overall downtrend masks the fact that some countries have either maintained or increased spending levels (see Table 2).

Under the Monetary Union rules, convergence is not required in primary spending levels provided Member States maintain sustainable fiscal policies. Aside from the fact that the scope of government activities varies from country to country, the continued existence of sizeable divergences can be traced back to a number of factors:

• different budgetary positions when preparations for Monetary Union got underway, which dictated the scale of the necessary deficit reduction programmes;

Figure 7

Cumulative Change in Primary Spending Ratio
(annual data, percent of GDP)

Spain

France
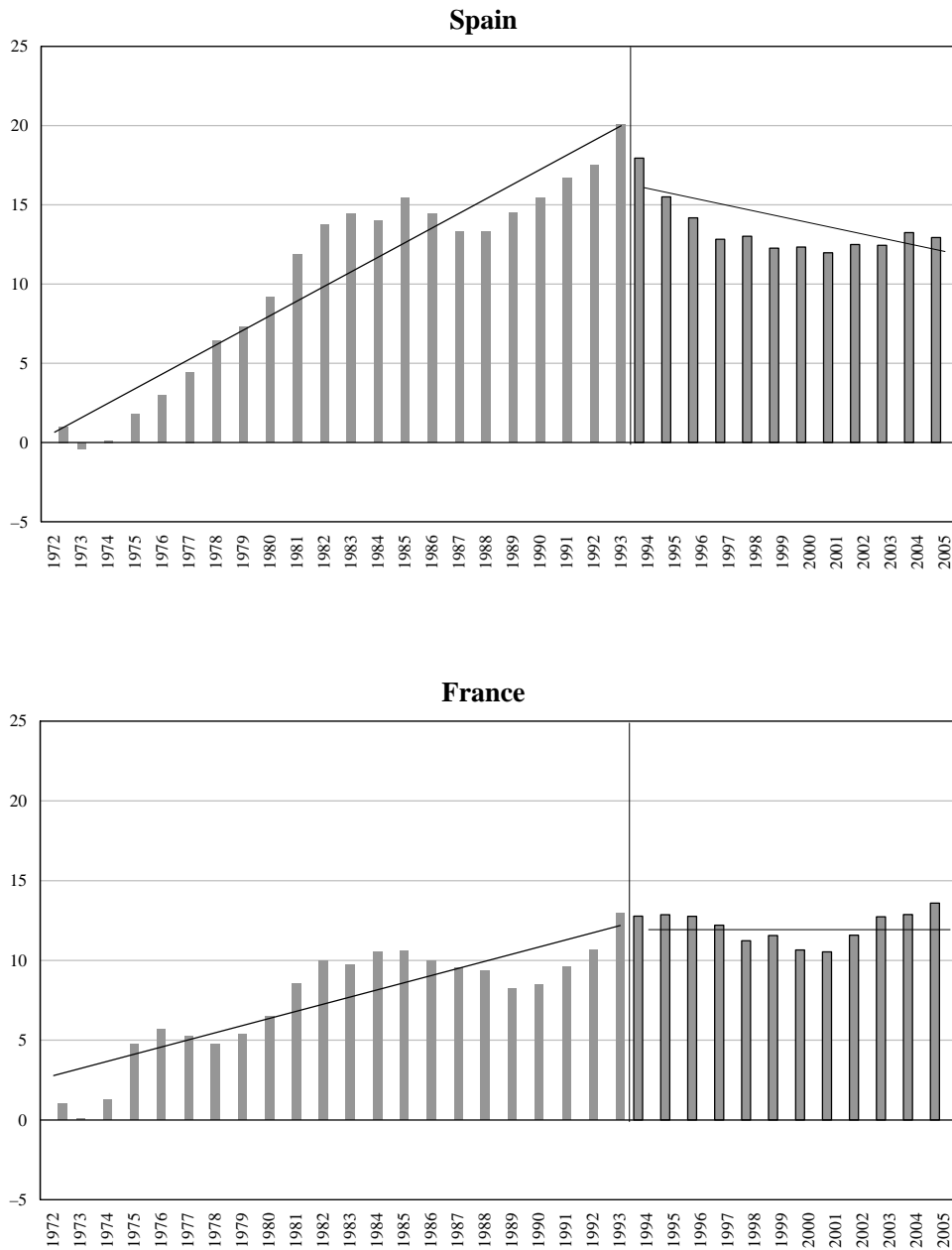
Source: OECD.

Table 2

**Primary Spending (excluding Universal Mobile Telecommunications Systems –
UMTS) in EU-15 Countries**
(percent of GDP)

Country	1993	2005	Change
Germany	45.1	44.0	–1.1
Austria	52.1	46.7	–5.4
Belgium	43.9	45.6	1.7
Denmark	53.5	50.2	–3.3
Spain	43.6	36.4	–7.2
Finland	59.2	49.1	–10.1
France	51.0	51.7	0.7
Greece	39.4	41.8	2.4
Ireland	38.2	33.4	–4.8
Italy	43.6	43.5	–0.1
Luxembourg	39.3	43.1	3.8
The Netherlands	48.3	43.3	–5.0
Portugal	38.0	45.1	7.1
UK	43.0	43.0	0.0
Sweden	66.6	54.5	–12.1
Euro area	46.1	44.6	–1.5

Source: OECD.

- different fiscal policy choices from 1993. While some countries consolidated their public finances entirely by cutting spending, other countries concentrated on increasing revenues.

However, stabilising the primary spending ratio appears to be a decisive factor in preventing permanent deficits from taking shape.

This link is illustrated in Figure 8, which compares average growth in primary public spending in each of the EU-15 countries over the 1993-2004 period, measured in terms of the difference relative to GDP growth, with the average general government balance. The presence of a high general government deficit is correlated with "excessive" growth in public spending, in the sense that these expenditures increased more quickly than GDP on average over the period.

**Deficits, Spending Growth and GDP Growth in EU-15 Countries
between 1993 and 2005**

(percent)

difference between the primary spending growth rate and the GDP growth rate, 1993-2005

———— regression line
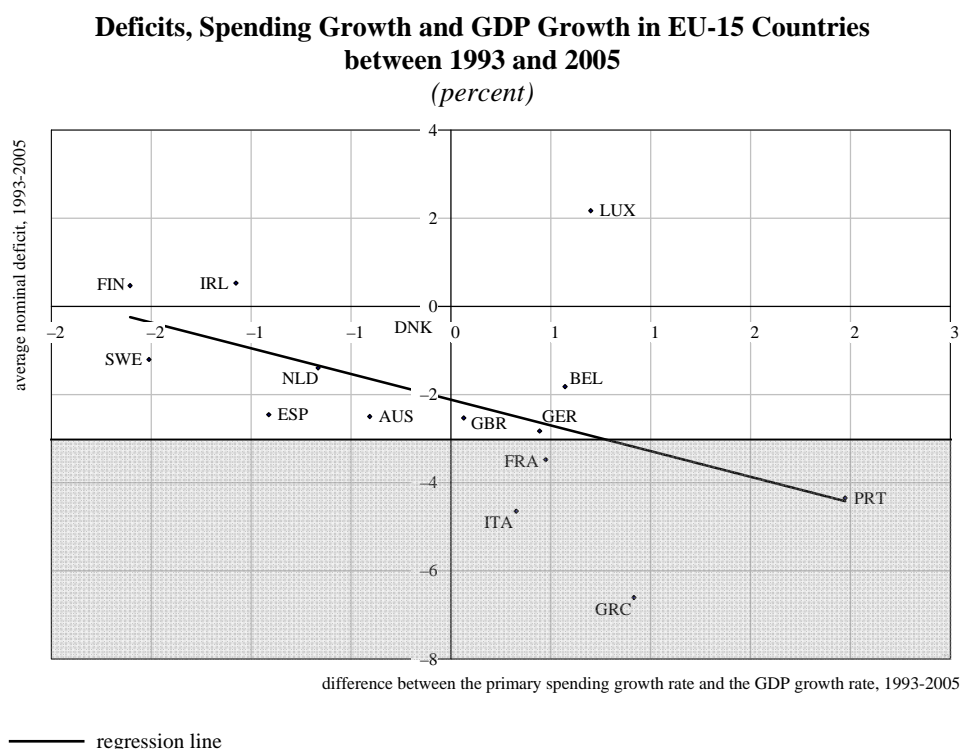
NB: Countries in the shaded zone recorded an average deficit of more than 3 per cent of GDP between 1993 and 2005.
Source: OECD.

There may be justification for allowing public spending to temporarily grow more rapidly than national wealth in certain instances, e.g. if the country is playing economic catch-up, if new investments are being financed or if welfare services are being enhanced. But a long-lasting faster rate is a sign that the excess public spending is insufficiently productive because it has failed to trigger a corresponding increase in GDP. In the absence of corrective measures, countries must choose between letting the deficit widen or increasing statutory charges, two options that both have an adverse impact on longer-term growth.

2.1.3 *Which spending items are responsible?*

An examination of the make-up of primary spending reveals that two key items are responsible for the long-run uptrend:

- in 2005, social benefits in cash (pensions, unemployment) accounted for around 18 per cent of GDP in France and Italy and 13 per cent in the UK. In 1972, the

same item accounted for around 12 per cent in France and Italy and 9 per cent in the UK. The trend growth in these benefits is attributable in particular to extended welfare coverage and the structural impact of population ageing;

- government consumption is an even bigger public spending item, amounting to 24 per cent of GDP in France and around 21 per cent in the UK and Italy in 2005. This item has increased considerably in all three countries since 1972, when it accounted for around 18 per cent of GDP. The main components of government consumption are intermediate consumption, social benefits in kind (essentially healthcare spending) and the public sector wage bill. This last component has grown considerably, reflecting the broadened scope of general government activities, as well as the effects of 30 years of policies to fight unemployment, which in some countries have included increased public sector employment.

These two spending items are hard to reduce in the short term and account for four-fifths of primary spending in the three countries. Their share of total spending has grown from 3 to 5 points since 1972. Conversely, subsidies and public investment, which are usually more productive but can be fairly easily adjusted from one year to the next, have contracted sharply since the 1970s to the point that they now account for a small share of total primary spending: 9 per cent in France, 7.6 per cent in Italy and 6 per cent in the UK in 2005, compared with around 15 per cent of spending in 1972. While the decline primarily reflects the overall trend towards deregulation and privatisation, many countries have focussed on consolidating spending on government programmes instead of cutting current spending. The risk with this short-term strategy, however, is that the quality of public infrastructure could deteriorate, adversely affecting the economy's growth potential.

An analysis of the countries that managed to significantly reduce their primary spending ratios (*i.e.* by at least five points of GDP) reveals that, for the most part, they concentrated on current spending. Table 3 compares 2005 primary spending ratio with the maximum reached over the 1972-2005 period and decomposes the adjustment into different spending items.

In six of the seven countries, spending on government consumption and social benefits accounted for at least 50 per cent of the adjustment in primary spending, with the proportion rising to almost 100 per cent in the Netherlands. Only in Belgium and Austria did cutting public investment account for a significant share of consolidation efforts. The Other Spending item, which includes subsidies and capital transfers paid by general government, played a major role in Ireland and Sweden only.

2.2   Public spending rules: why they are useful, and putting them into practice

After discussing the theoretical value of fiscal rules for public spending and the various parameters needed for such systems to function properly, we will briefly review the development of this type of mechanism within the European setting.

<div align="right">**Table 3**</div>

**Decomposition of the Reduction in the Primary Spending Ratio
in Selected EU-15 Countries**
(percent of GDP)

Country	Peak Year Maximum	Change/2005	Government Consumption	Benefits in Cash	GFCF	Other Spending
Ireland	1982	15.4	3.9	3.8	1.0	6.7
Sweden	1993	12.2	1.9	4.7	0.8	4.8
Finland	1992	10.7	2.7	5.5	0.7	1.8
Netherlands	1982	10.4	0.9	8.2	0.4	0.9
Belgium	1981	7.6	0.5	2.0	2.8	2.3
Spain	1993	7.1	0.9	3.1	0.7	2.4
Austria	1995	5.4	2.0	0.8	1.9	0.7

Source: OECD.

2.2.1 Why use fiscal rules to formalise control of spending?

Making a long-term promise of fiscal discipline to economic agents

Governments are supposed to control public spending much more effectively than public revenues because the former are dependent only to a small degree on the economic cycle. Yet the deficit-bias of governments manifests itself most commonly in an extra-spending bias. This type of approach can be chiefly attributed to a fiscal illusion: individuals underestimate the future tax burden associated with a deficit-financed spending programme and at the same time overestimate the benefits that they derive from the programme. Even without such an illusion, an uneven distribution of costs and benefits may explain the extra-spending bias. Some groups may enjoy special benefits, such as spendthrift general government units or groups that will play a key role in securing an election victory.

Meeting the main criteria for an effective fiscal rule

The economic literature has highlighted the usefulness of formal rules backed up by a credible institutional framework to manage fiscal-policy adjustments and prevent structural imbalances from emerging. To play its role, a fiscal rule must be clearly defined, transparent, straightforward, flexible, suited to its ultimate objective and consistent (Buti *et al.*, 2003).

A spending cap rule scores favourably according to these criteria. It is based on an aggregate that is easy to measure and it is relatively simple to operate, which simplifies the task of verifying enforcement. Furthermore, to the extent that rising spending is the main reason for persistent budget deficits, a cap is suited to its end objective. Satisfying these criteria lends added credibility to the government's commitment to comply with a fiscal rule. However, as with any fiscal rule, the effectiveness of a spending cap will depend to a large extent on building a political consensus around the new constraint on fiscal policy and on having the institutional mechanisms in place to make sure the rule is enforced.

2.2.2 Defining the rule

It must be borne in mind that a spending rule is merely a tool to make fiscal policy more credible. The measures actually deployed to control spending growth in the long run will play a crucial role in determining whether the rule's targets are met. Subject to this requirement, a number of points must be clarified if a fiscal rule to cap spending is to be properly effective.

Coverage must extend across the whole of general government

Partial coverage not only limits the effects of the rule but also creates the risk that some expenditures will be transferred to government units outside the scope of application. Central government budget spending in France has complied with a zero real growth rule since 2003, but expenditures by other general government units are not subject to a cap, so they have tended to increase fastest.

Which spending items should be covered?

While the cap should apply to the whole of general government, some types of spending may be excluded without making the rule less effective.

- In the short term, changes in the debt burden depend mainly on interest rates, which are outside government control. Including this category in the cap could create windfalls (other spending may potentially be raised if rates go down) or unnecessarily restrictive effects (other spending may have to be cut to offset the impact of higher rates).
- Public investment expenditures may also qualify for special treatment, because they are ultimately self-financing owing to the increase in potential output. If these expenditures were included within the cap, governments might be tempted to reduce them excessively, because lowering this type of spending often carries a lower political price tag than cutting current expenditures. At the same time, saying which spending is productive may be tricky, because this category extends beyond government investment expenditures to include items like higher

education spending, for example, which is a prominent component of government consumption.

- Cyclical spending (unemployment insurance benefits and other transfers that vary according to economic conditions) should also be excluded because these expenditures acts like automatic stabilisers. Setting an arbitrary cap that applied regardless of economic conditions would force governments to make up for the increase in benefits at the bottom of the cycle by squeezing other spending, while conversely leaving room to raise other spending at the top of the cycle.

However, the government must be prevented from circumventing the spending cap via tax expenditures, which amount to a discretionary reduction in revenues from an accounting perspective, but produce the same economic effects as spending.

Nominal or real spending?

A nominal target is easier to track, but makes it impossible to react if prices move in an unforeseen direction.

The most common approach is to adopt a real target, which neutralises inflation-forecasting errors and setting spending objectives that are based on real growth. France opted for this solution when it adopted a growth rule for central government budget spending.

What is the appropriate horizon?

A cap may be set each year, which would have the advantage of coinciding with the annual Budget Act. However, a horizon this short offers little visibility to economic agents, making the government's long-term commitment to control spending seem less credible. By contrast, a multi-year cap, say over a parliamentary term, would alleviate some uncertainty among economic agents over the direction of fiscal policy. There is also the question of whether the cap should be adjusted to reflect outcomes following its introduction. A pre-set rate at the beginning of the period may strengthen the faith of economic agents in the long-term nature of the commitment to rein in the deficit. Such an approach may be advantageous if the outstanding imbalances are particularly large. If they are not, it is better to retain some flexibility to respond to cyclical fluctuations.

What level should the cap be set at?

The spending growth target depends on two factors: expected revenues over the period, which, excluding discretionary measures, are linked to nominal GDP growth; and the need to reduce the actual ex ante government deficit and/or government debt.

The future path of revenues must take in account both the economy's potential growth and also its position in the cycle at the beginning of the period. Factoring in a growth lag or surplus, as measured by the output gap,[1] avoids setting overly generous spending caps at the peak of the cycle and overly strict caps when times are harder. However, the concept of the output gap is itself based on the notion of potential output, which is tricky to measure.

A rule backed up by credible institutional mechanisms

As with any fiscal rule, the effectiveness of a spending cap depends to a large extent on the mechanisms that are introduced to ensure compliance. If the cap is adopted at a senior institutional level (e.g. by parliamentary vote rather than a mere commitment by the government), then breaking the rule will be more costly in political terms. Furthermore, the rule should provide for swift correction of breaches that are discovered after the fact, which requires timely management of changes in public spending by the competent authorities.

2.2.3 Introducing spending caps within the European fiscal surveillance framework

The institutional framework introduced at the EU level to supervise national fiscal policies is centred on compliance with the two reference values established in Article 104 of the Treaty for the general government deficit (3 per cent of GDP) and general government debt (60 per cent of GDP). There is no single standard for the growth rate of public spending or revenues, or their level relative to GDP.

This situation primarily reflects the continued existence of national fiscal sovereignty. Subject to the deficit and debt limits set down in the Treaty, Member States remain free to determine which fiscal measures they should take to ensure sound public finances.

A second reason is that there is considerably diversity in the budgetary positions of EU countries. Public spending ratios are still relatively varied and there are some considerable differences in average growth rates for public spending. This non-uniformity increased when the EU welcomed its new members on 1 May 2004. Table 4 shows that while broadening did not lead to an increase in the dispersion of public spending ratios or general government balances, the same was not true for spending growth.

The Stability and Growth Pact (SGP) places added focus on public spending

The reform of the SGP, adopted by the European Council on 22 and 23 March 2005, deals with several aspects of controlling public spending:

_____

[1] The output gap is the difference between potential and actual output.

Table 4

Standard Deviation in the Euro Area, EU-15 and EU-25
(ratio and balance as a percent of GDP, growth rate as a percent)

	Euro Area	EU-15	EU-25
Government spending ratio	5.4	5.9	6.2
General government balance	2.4	2.4	2.3
Real growth rate of public spending	2.2	2.2	4.9

- the target of cutting 0.5 point of GDP a year from the cyclically-adjusted budget balance may be adjusted depending on economic conditions (greater consolidation during good times, less during hard times). This adjustment supports the adoption of a flexible spending cap that can be adjusted based on economic conditions;

- a distinction is drawn between different spending categories. Some of these (public investment, research and development, expenditures related to structural reforms, financial contributions aimed at supporting European unification or fostering international solidarity) may be used to justify a temporary overshoot of the reference value of 3 per cent of GDP or a temporary deviation from the target of reducing the cyclically-adjusted budget balance by 0.5 point of GDP;

- as part of measures to enhance governance, Member States are encouraged to introduce fiscal rules (spending caps being cited as one of the possible rules) as an additional instrument to help ensure compliance with SGP targets. Implementation of these national rules may be discussed during the examination of stability and convergence programmes.

Public spending controls in the EU: enforcement varies to a relatively large extent

All EU-15 countries have gradually introduced mechanisms to cap public spending. However, some arrangements are stricter than others (European Commission, 2003). The Netherlands and Scandinavian countries have been most successful.

- In 1994, the Netherlands adopted a cap that applies for an entire parliamentary term (four years in theory). At the beginning of its term, the Dutch Parliament votes on limits for spending growth, which are set for each year in real terms for each of the general government sub-sectors. The caps are set in such a way that the automatic stabilisers can function on the revenues side without creating the risk that the deficit might breach the 3 per cent of GDP threshold. Enforcing this rule led to a marked slowdown in the growth of current primary spending until

2000. Although help may have come from the reduction in the twin burdens of debt and unemployment benefits as a result of robust economic growth, the European Commission noted in its 2003 annual report on public finances that the cap made it possible to scale back discretionary use of public spending to cope with unforeseen shocks. Some slippage was noted starting in 2001, owing to a greater-than-expected spontaneous increase in healthcare and unemployment spending. However, structural reforms were implemented that quickly corrected the overshoot from 2004 onwards (see Figure 9).

- Sweden adopted a slightly different mechanism in 1997. Each year, Parliament votes on a three-year cap on public spending growth. The cap excludes the debt burden and is broken down for each government unit. The public spending growth rate is determined such that the ratio of public spending to potential output remains stable. As in the Netherlands, the mechanism worked perfectly in the initial years before giving way to some drift in 2002 and 2003 as healthcare and unemployment insurance spending grew too swiftly. However, the Swedish government introduced measures that corrected the slippage from 2004. In all, Sweden has met its target of keeping a stable primary spending/GDP ratio since the mechanism was introduced. The ratio stood at 54.5 per cent of GDP in 2005, compared with 55.2 per cent in 1998 (see Figure 9). In both countries, the main reasons for success seem to be the political consensus surrounding implementation of the cap and the rapid correction of slippage that was observed ex post. However, the spending category that is apparently hardest to control is social benefits in cash and in kind. These benefits are highly sensitive to changes in economic conditions.

There is now a broad-based consensus in Europe that growth in public spending must be controlled before sustainable public finances can be achieved. The need for consolidation is especially pressing because population ageing is going to put added strain on the public finances in the years ahead. The European Commission (2006) believes that spending on pensions, healthcare and long-term care could increase by an average of 3 per cent of GDP in the euro area by 2030.

Efforts to control the quantity of spending must be accompanied by a strategy to improve the quality of public spending so as to maximise its impact on growth.

Caps on the growth of public spending have proven themselves to be effective at achieving these goals. The European institutions recommend implementing these mechanisms at the national level and many countries have done so with success.

Finally, a policy to achieve long-term control over growth in public spending should form part of an overall strategy aimed at increasing potential output and employment.

<div align="right">**Figure 9**</div>

Decomposition of the Change in the Primary Spending Ratio
(percent of GDP)

Netherlands

Sweden
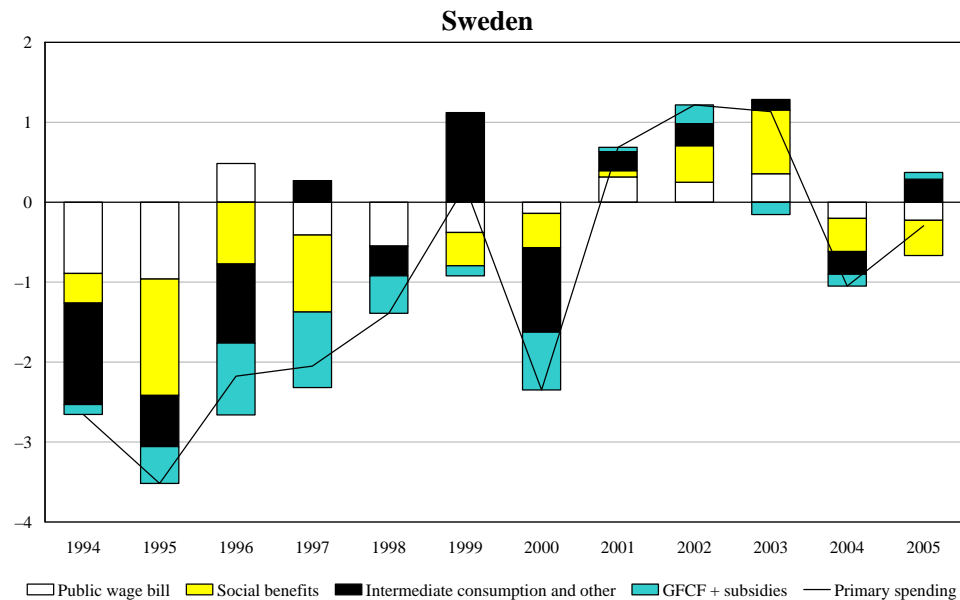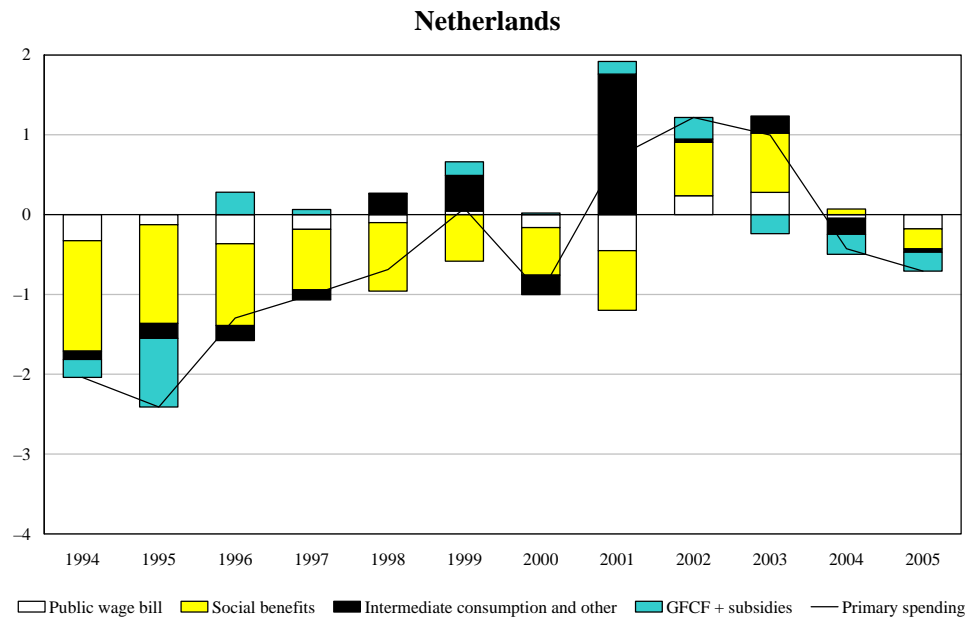
Source: European Commission Calculations: Banque de France.

3 Conclusions

Excessive and growing government debt has negative longer-term consequences for economic fundamentals. For this reason, every country must consider whether its government debt is on a sustainable trajectory path and introduce a debt-retrenchment strategy if necessary. In this respect, the revised SGP assigns added importance to the sustainability of fiscal policy, but stops short of giving the debt criterion a more operational role. Within the framework of a debt retrenchment strategy, an increase in potential growth, which has a beneficial effect on public finances and macroeconomic conditions alike, is always desirable. However, the reforms required to achieve this outcome are complex and their impact is not only uncertain but also unclear in the short term. Accordingly, the best debt retrenchment strategy appears to be to build up sustainable primary budget surpluses. While previous slippage in public spending caused the excess deficits, getting spending under control is, judging by the experiences of a range of countries, a reliable way to consolidate the public finances and reduce debt. An effective way for governments to achieve this is by implementing fiscal rules to control spending growth. However, broad-based public support is vital if these objectives are to be attained.

APPENDIX
The Hair-raising State of France's Public Finances

All the indicators and studies show that France's public finances are in a worrying state, even through the wider population is not yet fully aware of this. Over the last three decades, successive governments have failed to make balancing the public books a central economic policy priority. Given the risk that the increase in debt could become self-sustaining and in view of the considerable inertia of public spending, a long-term consolidation strategy must be deployed now, since any deferment will result in extra costs.

In 2005, the level of debt in France was not yet at a critical point, but the growth rate was already a source of concern. The debt/GDP ratio has tripled since 1980 (Figure 10) and all the projections indicate that if reforms are not undertaken, the ratio will reach unsustainable levels within a few years. Under reasonable macroeconomic assumptions, the debt ratio would on its current path reach around 100 per cent of GDP by 2015.

France cannot blame these developments on a war or a major economic shock. Initially, the increase was painless from a fiscal perspective as long as the structural imbalances were financed by spells of unexpected high inflation. Low or even negative real interest rates helped to contain the increase in debt. But from the early 1980s onwards, the latent imbalances were revealed as inflation was brought under control (leading to more accurate expectations) and reduced and as growth slowed markedly. The increase in the debt ratio is the result of structural and unsustainable slippage in public spending. Corrective action must be taken as soon as possible, bearing in mind that it is harder to make adjustments when big changes are needed.

If the GDP share of primary spending had been kept at its 1991 level, the debt ratio would now be stable at around 50 per cent of GDP. If the same adjustment had been implemented in 2000, when the public finances were benefiting from a cyclical upswing, the debt ratio would again be in the region of 50 per cent (see Figure 11). Today, however, a much bigger adjustment is needed because the level of public spending is higher and is under strong upward pressure from population ageing. Further, in France today, monetary policy is centralised at the European level, interest rates are historically low, the economy is growing at a moderate pace and tax and social security contributions are high. The public finances need to be consolidated by reforming transfers to private agents and/or by conducting an overall analysis of the choices, effectiveness and oversight of public spending as a whole.

Like most of the EU-15 countries, France saw the GDP share of its public spending grow sharply after the second world war, from around 35 per cent of GDP in 1960 to 54.4 in 1993. Since then, and in contrast with most EU countries, the spending ratio has not fallen but has stabilised at a high level. The sustained growth in French public spending since the early 1970s is the result of a combination of factors.

Figure 10

France: Public Debt Ratio

(percent of GDP)

Maastricht reference value
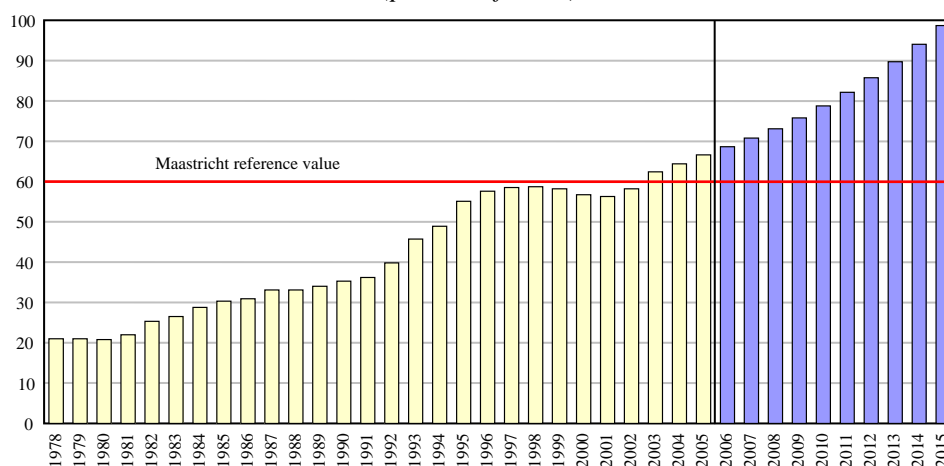
The base year for the period 1978-94 is 1995; in the future it could be revised.
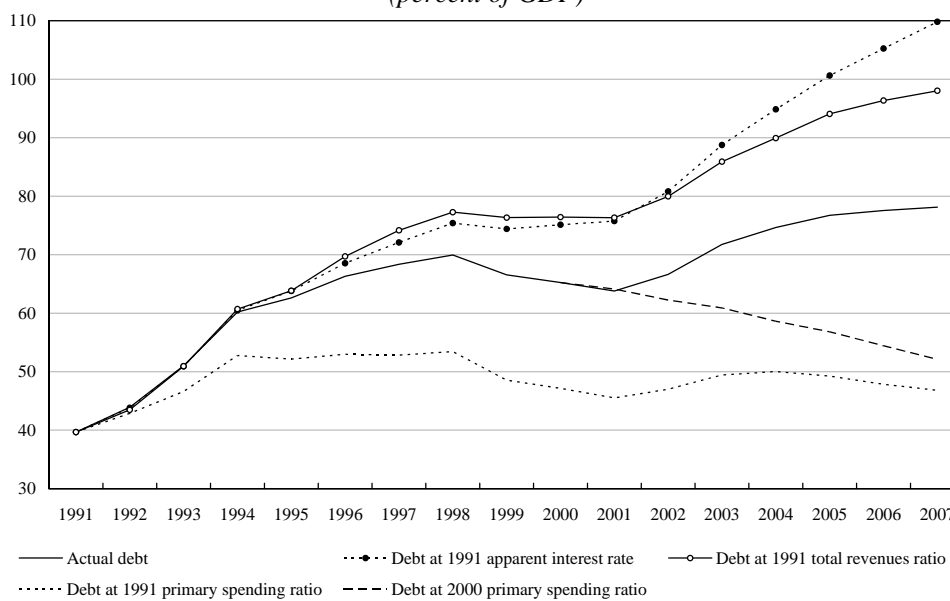Source: National Accounts. Since 1995, base 2000, INSEE.

Figure 11

Future Path of Debt under Several Assumptions

(percent of GDP)

Actual debt — Debt at 1991 apparent interest rate — Debt at 1991 total revenues ratio

Debt at 1991 primary spending ratio — Debt at 2000 primary spending ratio

In the first place, the uptrend in public spending can be attributed to the increased scope of the public sector. The share of public sector employment in total employment increased by 8 percentage points between 1970 and 1994, before dipping slightly (Figure 12). Collective preferences partly explain France's bias towards public provision. In particular, French public authorities responded to the need among the general population for more insurance provision with measures that helped to extend the welfare system. For example, a new "dependency" risk appeared in 2002 with the creation of special benefits for the elderly (Allocation personnalisée d'autonomie – APA). Also, a universal health coverage system was set up in 1998. Figure 13 illustrates the way that public spending by social security agencies has risen in the last 30 years. However, aside from responding to the needs of the population (education, healthcare, etc.), recruitment in the general government sector was also aimed at sustaining employment. Yet growth in the public wage bill is inherently difficult to reverse, especially when it comes to the recruitment of civil servants.

The trend increase in public spending is also the result of asymmetric management of spending over the economic cycle. Thus, between 1979 and 2005, if we add the years of increased spending, we find that the spending ratio increased by 14 percentage points. Only about one-third of this was offset by reduced spending in other years (–5.7 percentage points). Overall, the French public spending ratio rose by 8.3 pp. The following table breaks down the increases and decreases in primary spending items. Aside from the wage bill and public investment, the other main items have increased far more than they have decreased. The uptrend in benefits, in particular, reflects two factors: not only have these expenditures risen more often than they have declined, they have also increased by more (on an annual average) than they have declined. The spending dynamic is therefore doubly asymmetric, both over time and in quantitative terms.

The excess spending during cyclical dips, which sometimes went beyond the free operation of the automatic stabilisers, continued when economic conditions brightened and were not always fully financed by equivalent revenue increases, thus leading to high, persistent deficits. In the institutional context of the 1990s, during preparations for membership of monetary union, a series of French governments worked to halt the increase in spending in order to comply with the Maastricht criteria. However, the primary public spending ratio merely stabilised on average at a high level, while many other EU-15 countries reduced their ratios significantly and sustainably. It seems in other words that the French spending control strategy was not sufficiently effective. Yet consolidation efforts have been backed up by rules. Since 1997, for example, Parliament has voted each year on a national target for health insurance spending. And since 2003, the annual budget has assigned a spending growth target for central government.[2]

––––––––––

[2]   Until 2006, the aim was to hold central government spending growth to 0 per cent in real terms. The growth target from 2007 onwards is –1 per cent in real terms.

Figure 12

**Public Sector Employment in Relation to the Private Sector
and Public Sector Wage Bill, 1970-2005**

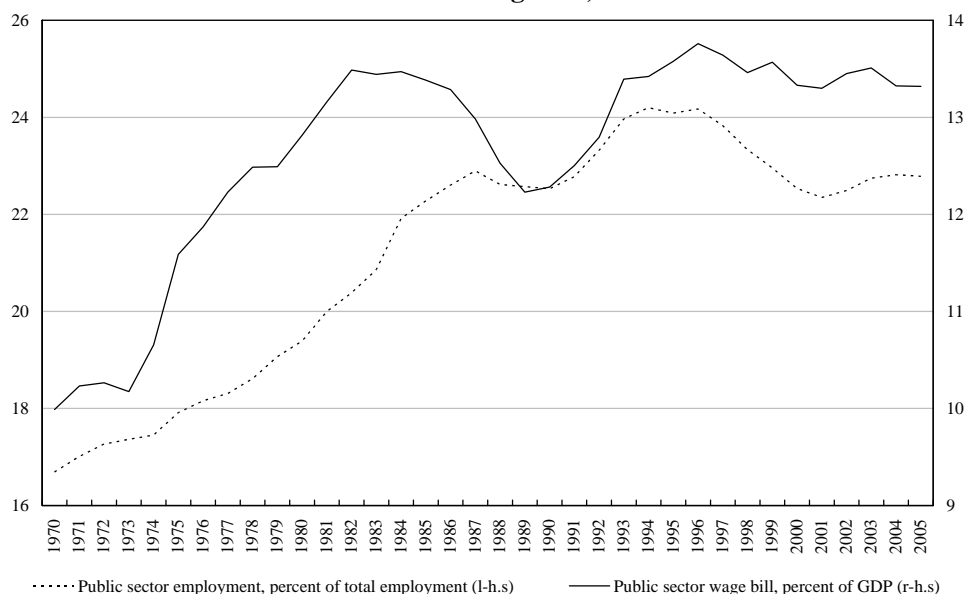······ Public sector employment, percent of total employment (l-h.s)   ——— Public sector wage bill, percent of GDP (r-h.s)

Figure 13

Increase in Welfare Spending, 1978-2005

——— Central government   ······ Social security entities

<div align="right">**Table 5**</div>
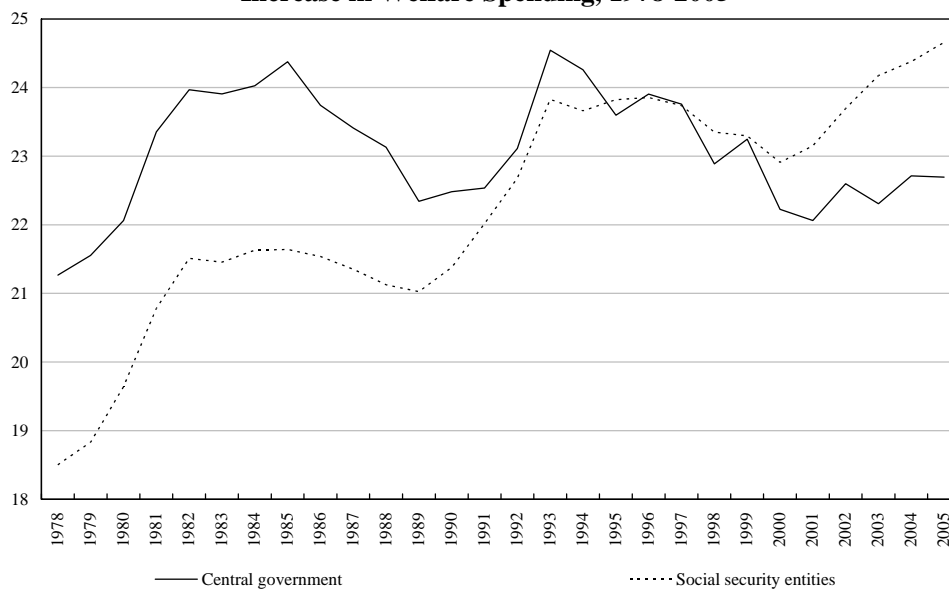
**Decomposition of the Increase/Decrease in Primary Public Spending
(1979 and 2005)**

	GDP share			Increase		Decrease	
	1978	2005	Difference 1978-2005	Total	Number of Years	Total	Number of Years
Social benefits (in cash and in kind)	18.5	23.6	+5.1	+7.2	20	–2.1	7
Social benefits in cash	*14.8*	*17.9*	*+3.1*	*+5.2*	*17*	*–2.1*	*10*
Social benefits in kind	*3.7*	*5.7*	*+2.0*	*+2.6*	*20*	*–0.6*	*7*
Public sector wage bill	12.5	13.3	+0.8	+2.8	15	–2.0	12
Public investment	3.0	3.2	+0.2	+1.5	15	–1.3	12
Other spending (intermediate consumption and subsidies, etc.)	8.8	11.0	+2.2	+4.7	18	–2.5	9
Total primary spending	42.9	51.2	+8.3	+14.0	16	–5.7	11

However, both these rules suffer from gaps: there is no penalty mechanism. For example, since it was first set and through to 2005, the target for health insurance spending was systematically exceeded without any real consequences; the scope of application is not sufficiently exhaustive. As a result, while the increase in central government spending has been curbed in recent years, the same cannot said for other government sub-sectors, which are not subject to any rules. Spending that was initially within the purview of central government has actually been devolved to local government in part of decentralisation measures. Transfers to the regions of fast-growth spending items like the APA or income support (Revenu minimum d'insertion – RMI) certainly helped central government to meet spending targets, but led to an increase at the local government level.

The French spending control mechanism has not helped to consolidate the public finances or control the debt ratio. Yet the demographic changes that are foreseeable in the short and medium term will exacerbate these problems. The European Commission is forecasting public spending linked to population ageing to increase by 3.2 pp by 2050. At that time, the government debt ratio could reach 240 per cent of GDP according to Commission, and up to 400 per cent according to the Pébereau Report. Faced with these additional requirements, the government will definitely not be able to respond solely by increasing statutory charges, which are already among the highest in Europe. But long-term control of spending growth, coupled with more efficient, better-quality public spending, looks like a winning strategy from a fiscal and macroeconomic standpoint. This, at least, is the lesson learned from successful experiences by other countries.

REFERENCES

Alesina, A. and R. Perotti (1997), "Fiscal Adjustments in OECD Countries: Composition and Macroeconomic Effects", International Monetary Fund, Staff Papers, Vol. 44, No. 2, p. 210-48.

Banca d'Italia (ed.), articles presented in the workshops *Fiscal Rules* (2001), *Fiscal Sustainability* (2002), *The Impact of Fiscal Policy* (2003), *Public Debt* (2004) and *Public Expenditure* (2005), available at the address: http://www.bancaditalia.it/studiricerche/convegni/atti

Barro, R.J. (1974), "Are Governments Bonds Net Wealth?", *Journal of Political Economy*, No. 82, p. 1095-117, November-December.

Bassanini, A. and R. Duval (2006), "Employment Patterns in OECD Countries: Reassessing the Role of Policies and Institutions", OECD, Economic Department, Working Paper, No. 486.

Buti, M., D. Franco and E. Sylvester (2003), "Revisiting the Stability and Growth Pact: Grand Design or Internal Adjustment?", CEPR, Working Paper, No. 3692.

Creel, J. and H. Sterdyniak (2006), "Faut-il réduire la dette publique?", *Lettre de l'Observatoire français des conjonctures économiques*, OFCE, No. 271, January.

Dabán Sánchez, T., E. Detragiache, C.G. di Bella, G.M. Milesi-Ferretti and S.A. Symansky (2003), "Ruled-based Fiscal Policy in France, Germany, Italy and Spain", International Monetary Fund, Occasional Paper, No. 225, November.

European Commission (2003), "Can Fiscal Consolidations in EMU Be Expansionary?" and "Expenditure Rules in EU Member States", in *Public Finance in EMU*, Annual Report.

————— (2006), "The Impact of Ageing on Public Finances", Economic Policy Committee, *European Economy Special Report*, No. 1.

Giavazzi, F. and M. Pagano (1995), "Non-Keynesian Effects of Fiscal Policy Changes: International Evidence", CEPR, Discussion Paper, No. 1284.

Hallett, A.H., J. Lewis and J. von Hagen (2003), "Fiscal Policy in Europe, 1991-2003: An Evidence-based Analysis", CEPR.

Hauptmeier, S., M. Heipertz and L. Schuknecht (2006), "Expenditure Reform in Industrialised Countries: A Case Study Approach", European Central Bank, Working Paper, No. 634, May.

Hemming, R., M. Kell and S. Mahfouz (2002), "The Effectiveness of Fiscal Policy in Stimulating Economic Activity – A Review of Literature", International Monetary Fund, Working Paper, No. 02/208.

Joanis, M. and C. Montmarquette (2005), "La problématique de la dette publique au Québec: causes, conséquences, solutions", Centre Interuniversitaire de Recherche en Analyse des Organisations (CIRANO), Rapport 2005RB-06.

Joumard, I., P. Mathis Kongrusd, Y.S. Nam and R. Price (2004), "Enhancing the Effectiveness of Public Spending: Experience in OECD Countries", OECD, Economics Department, Working Paper, No. 380.

Kiander, J. (2004), "The Finnish Experience of Fiscal Consolidation in the 90's: What Was Cyclical and What Was Structural?", Euroframe (European Forecasting Research Association for the Macro-economy) conference, June Conference Series.

Lindh, Y. and O. Ohlsson (2000), "Trends in Swedish Public Finances: Past and Future", *Economic Review*, No. 4.

OECD (2003), "Fiscal Stance over the Cycle: the Role of Debt, Institutions and Budget Constraints", OECD, *Economic Outlook*, No. 74.

Pébereau, M. (2005), "Des finances publiques au service de notre avenir", available at the address: www.finances.gouv.fr/notes_bleues/nbb/nbb301/pebereau.pdf

Schuknecht, L. and V. Tanzi (2000), *Public Spending in the 20th Century: A Global Perspective*, Cambridge University Press.

——————— (2003), "Public Finances and Growth in European Countries", paper presented in the conference *Fostering Economic Growth in Europe*, organised by the Austrian National Bank, Vienna, June.

Wierts, P. (2005), "Expenditure Composition and Institutional Reform in Europe: A Policy Perspective", paper presented at the workshop *Public Expenditure*, organised by Banca d'Italia, Perugia, April.

HOW DO EXPENDITURE RULES AFFECT FISCAL BEHAVIOUR?

Peter Wierts[*]

This paper investigates the effects of self-enforced expenditure rules on fiscal behaviour. According to theory, such rules can restrain spending biases if the political and institutional costs of non-compliance are sufficiently large. The empirical analysis indicates that the institutional design of the rules reflects political willingness to address high expenditure to GDP ratios. Through this effect, well-designed expenditure rules have a restraining impact on expenditure outcomes, and also mitigate the effect of shocks on expenditure developments.

1   Introduction

According to the literature, the effectiveness of fiscal rules may depend on the political support for the rule, the design of the rule (e.g. Inman, 1996) and the whether the rule fits the national political/institutional setting (e.g. von Hagen, 2006). The main difficulty in testing the effect of fiscal rules and institutions and fiscal outcomes is that rules may be endogenous to underlying political preferences. Existing studies on the effects of rules and institutions address this issue by arguing that rules and institutions are rather constant over time, so that they can be taken as exogenous for the period under consideration, or make a case that adequate instrumental variables are not available. This paper takes a fresh look at these issues by focusing on a specific type of rule (expenditure rule) within its specific institutional context. The focus on expenditure rules is motivated by the fact that during the 1990s several EU countries introduced national expenditure rules as a central institutional arrangement in their budgetary management.

Even if the effectiveness of fiscal rules has been highly controversial, the empirical evidence shows that fiscal rules are here to stay. In the European Union, the use of national rules has increased strongly over the past fifteen years, from around 30 in 1990 towards around 60 in 2005 (European Commission, 2006). Many fiscal policy debates now centre on the (non) respect of fiscal rules. This is the case at national level, where debates in many countries concentrate on, *inter alia*, (non) compliance with national expenditure ceilings, debt rules or fiscal targets for lower

levels of government, as well as at European level, where policy discussions take place in the context of a yearly cycle of fiscal surveillance.

Over the past two years, research on the interaction between national fiscal rules and fiscal outcomes has been facilitated by increased data availability. Wierts (2005a) proposed to measure the institutional design of national rules in EU countries on the basis of the so-called Inman criteria (1996), and to include these measures in augmented fiscal reaction functions. Studies that subsequently adopted this approach confirmed that the effectiveness of national expenditure rules depends on their design (Deroose *et al.*, 2006), that the presence, coverage and design of fiscal rules all matter for explaining fiscal policy outcomes (European Commission, 2006, and Ayuso *et al.*, 2007) and that the effect of fiscal rules on fiscal outcomes is no longer statistically significant once fiscal rules are instrumented in order to overcome issues of reverse causality (Debrun and Kumar, 2007).

This paper intends to take the debate forward by addressing issues concerning enforcement (why would policy makers comply with the rule?) and causality, as raised by Debrun and Kumar (2007) and others. Focusing on a specific type of fiscal rule instead of the broad index of all types of fiscal rules may be helpful in this respect. It allows being specific about the underlying theoretical base, the incentives for (non) compliance and the choice of instrumental variables in overcoming problems of reverse causality. At the same time, drawbacks of a focus on a specific type of rule are that results cannot be generalised to other types of fiscal rules and that data availability is limited. In this respect, the analysis in this paper can be seen as complementary to the analysis in which all types of national fiscal rules are aggregated into a single time-varying index, as in European Commission (2006) and Ayuso *et al.* (2007).

Results show that countries with higher initial expenditure to GDP have introduced stricter expenditure rules. These rules, in turn, restrain expenditure outcomes in the expected way, and also mitigate the effect of shocks on expenditure developments. The rest of the paper is organised as follows. Section 2 contains the model, Section 3 presents the empirical estimations and Section 4 concludes.

2   The Model

2.1   *Institutional setting*

In the fiscal rules literature a question arises whether to build the approach on theories of the common pool problem, deficit bias or both (e.g., Krogstrup and Wyplosz, 2007). An advantage of focusing specifically on the expenditure side of the budget is that it facilitates the choice of the theoretical basis. First, the original aim theories of common pool and political fragmentation has been to explain expenditure biases (as in Shepsle and Weingast, 1981) while theories of the deficit bias focus on the budget balance. Second, empirical studies have found convincing support for the impact of political fragmentation on expenditure outcomes (e.g., Perotti and Kontopoulos, 2002, and Ricciuti, 2004).

In common pool models, expenditure outcomes are determined, first, by the degree of political fragmentation, and, second, by the rules that govern the decision-making process. The version of von Hagen and Harden (1994) concentrates on the role of individual spending ministers in reaching the expenditure objectives of their respective ministries. Their model is extended here to analyse the effects of expenditure rules. The common pool problem arises as in the original model; the new elements concern the way expenditure rules counterbalance spending biases and the inclusion of fiscal shocks on the revenue side. Section 2.2 contains the standard arguments that fiscal rules may only be effective is backed by sufficiently strong enforcement, as highlighted by Inman (1996) and formalised by Milesi-Feretti (2003). Section 2.3 models the case that seems more realistic in the context of the EU, where the effectiveness of the rules depends on the political and institutional costs of non-compliance.

2.2 Compliance due to enforcement and sanctions

In the model of von Hagen and Harden (1994), a spending bias arises due to the common pool problem in which each individual spending minister maximises its own utility function. The crucial assumption according to the tragedy of the commons is that the tax burden is distributed evenly over all spending ministers (reflecting different constituencies in society) so that each spending ministers internalises only a fraction of $1/n$ of its own spending bids (where n is the total number of spending ministers). In other words: each spending minister takes the spending bids of his/her colleagues as exogenous, so that he/she only internalises the additional tax burden that is caused by his/her own spending bids. In order to counterbalance the spending bias that arises, we include a fiscal rule in the loss function that punishes expenditure above a threshold as set by the rule.

Given that the common pool problem arises in a static setting, we can restrict the analysis at this point to a one period model. Each spending minister minimises a convex loss function that is increasing in deviations of spending G from its overall desired level G^* and in the overall tax level T divided by the number of spending ministers (reflecting the pre-existing distortion caused by decentralised choice). An underlying assumption is that expenditure (in money terms) translates one-to-one into the expenditure objectives of society through the production function of the government. The spending distortion is addressed through an expenditure rule which applies a penalty (assumed to be quadratic here) when spending is above the threshold t. The variable I indicates whether expenditure is above or below the threshold so that the rule is binding ($I=1$) or not ($I=0$) while p denotes the probability of enforcement. As a result, the loss function of each individual spending minister (denoted by subscript i) is:

$$LF(SM_i) = \frac{1}{2}(G_i - G_i^*)^2 + \frac{1}{2}\left(\frac{T_i}{n}\right)^2 + pI(G_i - t)^2 \qquad (1)$$

Subject to the budget constraint:

$$R_i = G_i \qquad (2)$$

$$R_i = T_i + \varepsilon \qquad (3)$$

where R is the revenue obtained by the government, which is a function of the tax rate T times structural GDP (normalised at 1) and an economic shock that is normally distributed with mean zero and variance one. This captures the reality that the largest impact of economic shocks is on the revenue side of the budget.

Minimising with respect to G_i gives:

$$G_i = \frac{\varepsilon + G_i^* n^2 + 2n^2 ptI}{n^2 + 2n^2 pI + 1} \qquad (4)$$

The implications are shown graphically in Figure 1 and Figure 2.

Figure 1 shows the impact of the degree of fragmentation (*i.e.* the number of spending ministers) and the probability of enforcement of the rule on expenditure, keeping other variables constant.[1] Expenditure is increasing in political fragmentation and decreasing in the strength of enforcement of the rule. For high n, expenditure reaches G^* (normalised at 1) asymptotically, while expenditure approaches the threshold set by the rule (here set at 0.5)[2] for high p.

Figure 2 shows the combined impact of economic shocks and the probability of enforcement on expenditure. Expenditure increases in positive shocks to the revenue side of the budget while the effect of these shocks is offset for higher values of p. Overall, the implication is that expenditure is increasing in fragmentation and positive revenue shocks, and decreasing in the threshold established by the rule as well as the enforcement of the rule.

2.3   Compliance due to political and institutional costs

The approach to fiscal rules as outlined above has given rise to criticism. As will be shown in greater detail in the next section, expenditure rules in EU are usually enforced by the same authority that decides on expenditure decisions, *i.e.* the Ministry of Finance. A question then arises why policy makers would stick to such self-enforced rules instead of following their own biased incentives. See for example Debrun and Kumar (2007): "Institutions matter only to the extent that it is intrinsically costlier to ignore them (and adopt biased policies) than to stick to optimal plans. However, most existing theories of fiscal institutions fail to establish this, and would appear thereby to be incomplete".

_____

[1]   Setting shocks ε at zero, target expenditure at 1, the threshold at 0.5, and $I=1$.

[2]   This corresponds to the socially optimal solution, which can be calculated by solving the loss function while assuming the existence of a social planner, no expenditure bias and no fiscal rule.

Figure 1

**Expenditure as a Function of Fragmentation (n)
and the Probability of Enforcement of the Rule (p)**
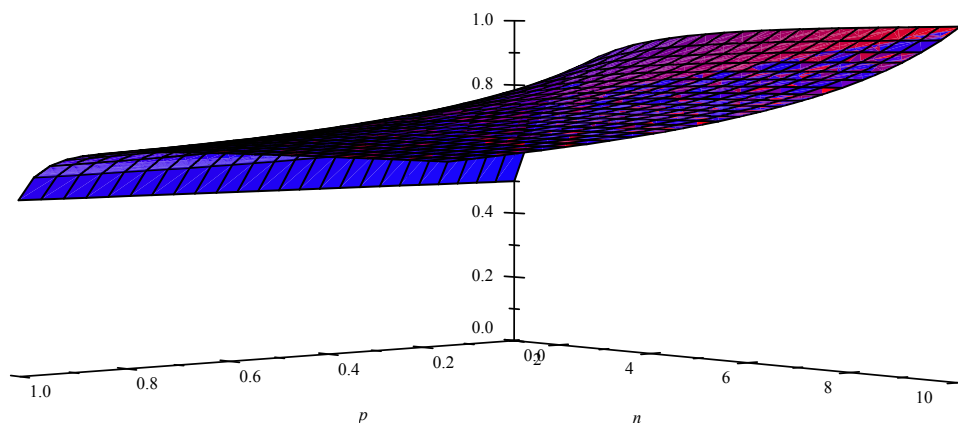
Figure 2

**Expenditure as a Function of Shocks (ε)
and Probability of Enforcement of the Rule (p)**
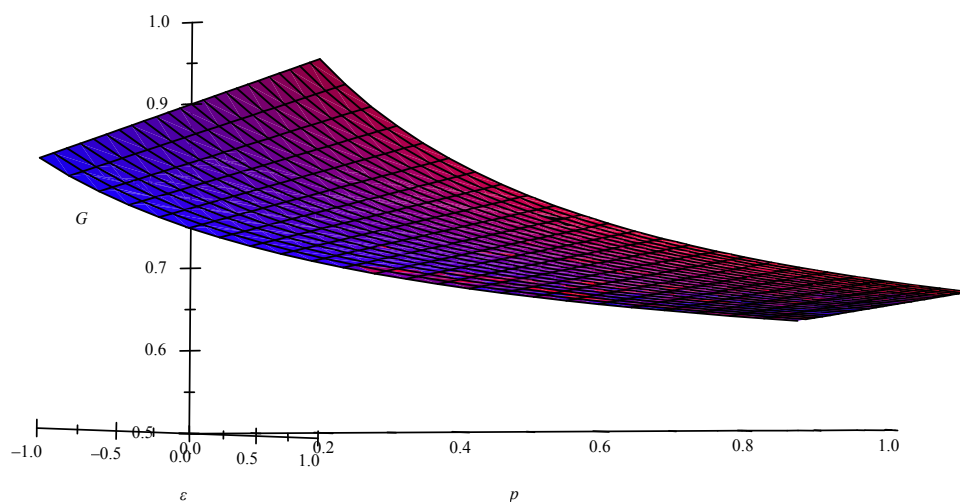
A first part of the reply to the critique has already been given in Hallerberg, Strauch and von Hagen (2007): "… the threat to break up the coalition is an effective one for enforcing budget targets in ideologically dispersed multi-party governments". The argument is that in the EU expenditure rules are often based on coalition agreements by multi-party governments. Non-compliance by individual spending ministers may then give rise to political costs given that the minister of finance attaches strong political weight to compliance with the agreement.

The argument here is that the effectiveness of expenditure rules may depend on the national institutional setting in yet another way, which concerns the effect of reforms of performance budgeting on expenditure management. Performance budgeting can be seen as a deal between the ministry of finance and the spending ministries. Spending ministries are given more autonomy in achieving policy objectives that have been specified *ex ante*. In return, they are held accountable for achieving these public objectives within the budget constraint (Schick, 2003). Within this setting, a tight budget constraint is a precondition for performance budgeting to work since increased flexibility requires certainty over the funds that are available to reach the stated targets (Diamond, 2003). Hence, in the context of performance budgeting, each spending ministry knows that continued non-respect of the expenditure rule may imply losing part of its autonomy in carrying out decentralised policies. This link between devolution of spending authority and expenditure limits is of practical relevance in EU countries: the available empirical data indicate that EU countries that are more advanced in introducing institutional reforms related to performance budgeting also introduced expenditure rules (Wierts, 2005b).

The essence of these arguments is that overspending relative to the threshold may have repercussions in the next period, given that the coalition may fall or given that spending ministries may become subject to intensified fiscal scrutiny by the ministry of finance. We therefore include a feedback mechanism in the loss function of each spending minister: the higher is the degree of overspending the rule in period 1, the lower is spending in period 2. Achieving expenditure objectives in period 1 thus involves a trade-off with achieving expenditure objectives in the next period. The loss function for individual spending ministers now becomes as in (5) below, where the variable *a* reflects the perception about the extent to which overspending may have repercussions.

$$LF(SM_i) = \frac{1}{2}(G_{1,i} - G_i^*)^2 + \frac{1}{2}\left(\frac{T_{1,i}}{n}\right)^2 + \frac{1}{2}(G_{2,i} - aI(G_{1,i} - t) - G_i^*)^2 + \frac{1}{2}\left(\frac{T_{2,i}}{n}\right)^2 \qquad (5)$$

Subject to:

$$R_{1,i} + R_{2,i} = G_{1,i} + G_{2,i} \qquad (6)$$

and

$$R_{1,i} = T_{1,i} + \varepsilon_1 ; \qquad R_{2,i} = T_{2,i} + \varepsilon_2 \qquad (7)$$

Figure 3

**Expenditure as a Function of Fragmentation (*n*) and
Political/Institutional Repercussions of Non-compliance (*a*)**
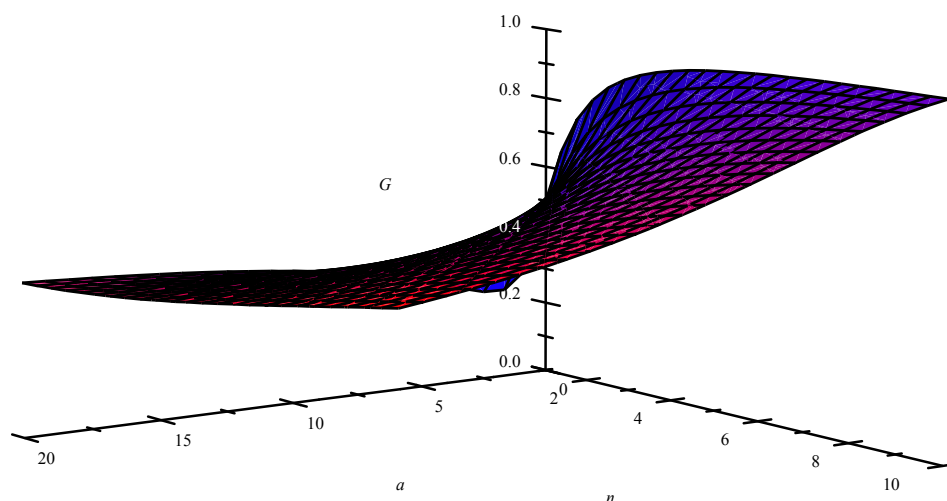
Minimising (5) with respect to (6) and (7) and solving for the choice variables G_{1i}, G_{2i} and T_{1i} gives the solution:

$$G_{1,i} = \frac{\varepsilon_1 + \varepsilon_2 + 2n^2 G_i^* + a^2 tI^2 + atI + a\varepsilon_1 I + a\varepsilon_2 I - aIG_i^*}{a^2 I^2 + 2aI + 2n^2 + 2} \tag{8}$$

As with the model in the previous section, the implication is that expenditure is increasing in fragmentation and positive revenue shocks, and decreasing in the repercussive effects of excess spending as well as the threshold established by the fiscal rule.

Figure 3 visualises the effect of fragmentation and the political/institutional repercussions of overspending on expenditure in period 1.

3   Empirical estimations

This section investigates the main implications of the model as presented in the previous section. Section 3.1 takes a first look at expenditure rules in place in EU

countries. Section 3.2 presents baseline results. Section 3.3 present results from a two-stage regression in which expenditure rules are endogenous to political, institutional and initial fiscal variables.

3.1   Expenditure rules in EU countries

Studies that have analysed the institutional design of national expenditure rules in EU countries include European Commission (2003), Deroose *et al.* (2006) and European Commission (2006). This paper draws on the dataset collected by European Commission (2006). For the purposes of this paper, expenditure rules were included only when they apply to the central or general government and when they have been in force for several years, in order to ensure sufficiently long time series. Table 1 summarises the institutional design of the six countries rules that have been included in the survey. Overall, the data confirm that the rules are self-enforced: they are mostly based on political agreement while external enforcement is lacking.

At the same time, the overview in Table 1 also shows relevant differences in institutional design concerning the definitions of the expenditure rule and on monitoring and enforcement. For example, for some countries no predefined enforcement mechanisms are in force while for others there is an obligation for corrective action. These differences are reflected in the index scores for the institutional design of the rules based on the methodology as outlined in Deroose *et al.* (2006) and European Commission (2006). Table 2 shows these index values on the basis of the following criteria: (1) statutory base; (2) monitoring body; (3) enforcement body; (4) enforcement mechanisms and (5) media visibility of the rule. The first column shows the index on the basis of all criteria, while the second column weighs this index number by the percentage of total expenditure that is subject to the rule. As expected the difference is relevant for the Nordic countries that are more fiscally decentralized (*i.e.* a relatively large part of public expenditure falls under the responsibility of lower levels of government). Both indices will be used in the empirical estimations so that the robustness of the results to alternative indices is immediately tested.

3.2   Data and baseline results

In addition to the data on the expenditure rule index, empirical estimations in this section use the dataset on national budgetary plans and outcomes from Moulin and Wierts (2006), as updated by European Commission (2007). This database contains data for national fiscal plans and outcomes on (primary) expenditure, revenue and the budget balance, as well as macro-economic variables up to three years into the future. This dataset is particularly suitable for analyzing the effects of expenditure rules given that it includes expenditure objectives as formulated by the countries themselves, so that heterogeneity in political preferences across countries

Table 1

Expenditure Rules in EU Countries, 1990-2005

Country	Rule in Operation (Year of Introduction)	Definition of the Rule (Aggregate Targeted)	Sector(s) covered	Time Frame	Statutory Base	Body in Charge of Monitoring	Enforcement (Body&Actions in Case of Non-compliance)
Denmark	1994	Real expenditure growth rate	General government	Multiannual	Political agreement	Government (Ministry of Finance)	Government (Ministry of Finance) No pre-defined action
Finland	1999	Real expenditure ceiling	Central government	Multiannual (5 years)	Political agreement	Government (Ministry of Finance)	Governmental structure proposes corrective measures
France	1998	Real expenditure growth rate	Central government	Annual	Political agreement	Independent (Court of Auditors) and National Parliament	No pre-defined action
Germany	Before 1990	Nominal expenditure growth rate	Central and regional governments	Multiannual (5 years)	Political agreement between central and regional governments	Governmental structure (Financial Planning Council with central, regional and local members)	None (Financial Planning Council can criticise rule violations and deviations)
The Netherlands	1994	Real expenditure ceiling	General government	Multiannual (4 years)	Coalition agreement	Government (Ministry of Finance)	Government (Ministry of Finance) proposes corrective measures
Sweden	1996	Nominal expenditure ceiling	Central government	Multiannual (3 years)	Legal act	Independent (Court of Auditors) and National Parliament	Government, Obligation to correct by appropriate actions

Source: adapted by the author on the basis of data from European Commission (2006).
Note: only national expenditure rules applying to the central/general government are included.

Table 2

Values of the Expenditure Rule Index

Country	Expenditure Rule Index	
	ERA	ERAC
Denmark	0.84	0.38
Finland	0.56	0.17
France	0.55	0.22
Germany	0.67	0.34
The Netherlands	0.75	0.75
Sweden	0.95	0.62

Source: European Commission (2006).
ERA measures the index on the basis of the criteria only, while ERAC also includes the coverage of the rule.

can be taken into account. The dependent variable in the regressions therefore measures expenditure bias as the difference between planned and observed changes in primary expenditure. Moreover, the medium-term time frame of the dataset matches with the multi-annual time-frame of national expenditure rules as shown in Table 1.

In testing the effects of expenditure rules on expenditure outcomes, the main econometric issues to be addressed are that: (i) the index for the expenditure rules does not show time variability so that it is highly collinear with the fixed-effects in panel regressions; and (ii) the argument that the rules may be endogenous to fiscal outcomes so that the expenditure rule index should be instrumented. These issues are related: if the second issue can be addressed, a time varying index of expenditure rules can be estimated, which can then be included in a fixed-effects regression. This is the approach that will be taken in the next section; this section starts by addressing the first issue while using the original index that does not show time variation.

One possibility for including the original index would be to leave out the fixed effects. Such a solution is not feasible here, however, given that an F-test shows that the fixed effects are jointly highly significant, even if many control variables are included in the regression. Another possibility is to leave out the expenditure rule index itself (as indicated, it will however be included in the next section) and to concentrate on the question of whether expenditure rules condition the response to different types of shocks (see Milesi-Ferretti *et al.*, 2002, and Fabrizio and Mody, 2006, for applications of this approach on the effects of institutions on fiscal outcomes).[3] In this respect, the model in Section 2 indicated that, apart from having a direct effect on expenditure outcomes, expenditure rules

---

[3]   The original contribution in this field is Blanchard and Wolfers (2000).

may also mitigate the increase in expenditure outcomes, measured relative to expenditure objectives, to revenue shocks and fragmentation. Hence, the following equation is estimated:

$$FE_{i,t,h} = \alpha_i + t_t + h_h + (1 + \gamma(ER_i - \overline{ER}))(\beta NSM_i + \phi FErev_{i,t,h} + \delta FEgrowth_{i,t,h}) +$$
$$+ x'_{i,t,h}\phi + \varepsilon_{i,t,h} \qquad (9)$$

where *FE* denotes the forecast error in primary expenditure, measured as the difference between observed changes in expenditure and planned changes in expenditure (*i.e.* positive numbers indicate overspending relative to objective). Subscript *i* refers to country, *t* to year and *h* to planning horizons in medium-term budgetary plans from one to three years. *NSM* indicates the number of spending ministers, *FErev* differences between observed and planned changes in revenue, *FEgrowth* is forecast errors in real growth, *x* a vector of control variables and *ε* the usual error term.

In (9), the expenditure rule index *ER* is measured as the difference with its average value. The coefficients β, ϕ and δ on the variables that interact with *ER* therefore measure the effect of these variables when the expenditure rule index is *at* its average value. This effect is conditioned by the interaction effect with the expenditure rule index. For example, the overall effect of the forecast error in revenue on the forecast error in expenditure is the partial derivative of *FE* with respect to *FErev*:

$$\frac{dFE_{i,t,h}}{dFErev_{i,t,h}} = \phi + \gamma\phi(ER_i - \overline{ER}) \qquad (10)$$

Results for equation (9) are reported in Table 3. Coefficients have the expected signs and are mostly statistically significant. Fragmentation, positive revenue shocks and negative GDP-shocks increase expenditure relative to plan, while the expenditure bias also increases with the forecast horizon. The initial level of public expenditure has a restraining effect, which seems to indicate that countries with already high public sectors attach stronger weight to restraining expenditure pressures.

The interaction with revenue developments shows that expenditure rules mitigate the effect of positive revenue shocks on expenditure developments. The magnitude of this effect according to equation (9) is given in the rows MIN MAX in Table 3, which represent the range of effects for the countries with the strongest and weakest expenditure rules in place. In a similar way, results show that expenditure rules mitigate the increase in expenditure following negative GDP shock (while keeping revenue constant). Finally, the interaction of expenditure rules with *NSM* was not statistically significant. This variable was therefore dropped in order to increase the efficiency of the other estimations.

Table 3

Baseline Results

	Forecast Error Primary Expenditure (Ratio to GDP)	
	(1)	(2)
*ERA * FE* revenue ratio	−1.71 (−2.4)**	
*ERA * FE* real growth	0.68 (1.6)	
*ERAC * FE* revenue ratio		−1.13 (−1.6)
*ERAC * FE* real growth		0.98 (3.9)***
NSM	0.00096 (1.0)	0.0018 (2.0)*
FE revenue ratio (to GDP)	0.25 (2.3)**	0.16 (1.5)
FE real growth	−0.51 (−2.1)**	−0.64 (2.7)**
Initial level pr. expenditure	−0.51 (−2.9)***	−0.40 (−2.4)**
DU t=2	0.0058 (2.2)**	0.0054 (2.1)**
DU t=3	0.012 (3.7)***	0.010 (3.4)***
	Conditioning effect of *FE* revenue ratio:	Conditioning effect of *FE* real growth:
Min	0.54	−0.88
Max	−0.14	−0.31
Range	−0.68	0.57
Time dummies	Y	Y
Country dummies	Y	Y
Observations	69	69
R-squared	0.38	0.52

Note: The estimation method is fixed effects panel regression with robust standard errors; *t*-statistics are in parenthesis; ***,** and * indicate statistical significance at 1, 5 and 10 per cent level. Countries included are DE, DK, FI, FR, NL and SE. The time period under consideration is 1999-2004.

Table 4

Endogenous Expenditure Rules

	ERA	*ERAC*
Performance Budgeting	0.13	0.21
	(4.3)***	(2.3)**
Starting Ratio Primary Expenditure	3.89	2.10
	(9.7)***	(2.1)**
NSM	−0.020	−0.016
	(−11.4)***	(−5.6)***
Constant	−0.92	−0.52
	(−5.6)***	(−1.3)
Observations	69	69
R-squared	0.77	0.34

Note: The estimation method is OLS with robust standard errors; ***, ** and * indicate statistical significance at 1, 5 and 10 per cent level. *t*-values are indicated in brackets. Countries included are DE, DK, FI, FR, NL and SE. The time period under consideration is 1999-2004.

3.3 Two-stage regression

We now address the argument that rules may be endogenous to fiscal outcomes. The argument has come in different forms. In most models, the role of fiscal rules is to counter deficit and spending biases, so that rules may have been introduced as a result of dissatisfaction with fiscal outcomes (e.g. high initial expenditure ratios). Debrun and Kumar (2007) explain rules as mechanisms to signal competence, so that governments that are intrinsically more disciplined are more likely to use stringent fiscal rules. Inman (1996) argues that both rules and outcomes may be driven by a third variable of political preferences.

The focus of this paper on a specific fiscal rule (expenditure rule) within a specific theoretical context helps the choice of explanatory variables for the design of the rules themselves. According to the discussion so far, three variables could be used: (1) the reliance on performance information in the budget[4] (given that more autonomy for spending ministers may go hand in hand with tight expenditure limits); (2) the starting point for public expenditure (the higher the initial level of expenditure, the larger the need for a strong expenditure rule); and (3) the degree of fragmentation (the larger the spending bias, the larger the need for a rule). Results as shown in Table 4 confirm the expected impact of the first two variables, but not of

---

[4] Data on the degree of performance information in the budget are taken from European Commission (2004). The underlying source is the OECD/World Bank database on budgetary institutions. The variable measures the percentage of the budgetary programmes for which performance information is included in the budget (ranging from zero to one).

Table 5

Regression Results with Fitted Values of the Expenditure Rules Index

	Forecast Error Primary Expenditure (Ratio to GDP)	
	(1)	**(2)**
ERA-fitted	−0.12 (−2.7)***	
ERA-fitted* FE revenue ratio	−2.45 (−2.9)***	
ERA-fitted * FE real growth	1.29 (2.2)**	
ERAC-fitted		−0.22 (−2.7)**
ERAC-fitted* FE revenue ratio		−2.71 (−2.3)**
ERAC-fitted * FE real growth		0.99 (1.6)
NSM	−0.0017 (−1.15)	−0.0030 (−1.6)
FE revenue ratio (to GDP)	2.00 (3.18)***	1.29 (2.6)**
FE real growth	−2.62 (−2.7)**	−1.35 (−2.3)**
Initial level pr. expenditure	*(dropped)*	*(dropped)*
DU t=2	0.0051 (1.9)**	0.0058 (2.15)**
DU t=3	0.011 (3.1)***	0.012 (3.4)***
	Conditioning effect of FE revenue ratio	Conditioning effect of FE revenue ratio
Min	2.41	1.77
Max	1.56	0.95
Range	−0.85	−0.82
Time dummies	Y	Y
Country dummies	Y	Y
Observations	69	69
R-squared	0.39	0.31

Note: The estimation method is fixed effects panel regression with robust standard errors; *t*-statistics are in parenthesis; ***, ** and * indicate statistical significance at 1, 5 and 10 per cent level. Countries included are DE, DK, FI, FR, NL and SE. The time period under consideration is 1999-2004.

the third (*NSM*). Moreover, the fit for the index with all criteria (*ERA*) is much better than the one that is weighed by the percentage of expenditure covered by the rule (*ERAC*). This may reflect that the latter index is artificially low for the Nordic countries, which complement expenditure rules for the central government with budget balance restrictions for the lower levels of government (which are not included in the index reported here).

The fitted values of the expenditure rules index now show some time variation so that they can be included directly in the fixed effects regression, in addition to the interacted variables. Results as reported in Table 5 show that the fitted expenditure rule index is by itself statistically significant with the expected sign, while the interaction effect is also still confirmed. At the same time, the initial level of primary expenditure is now dropped from the regression, given that it is collinear with the expenditure rule index. In econometric terms, this arises since there is not enough information in the dataset to estimate the effect of expenditure rules on expenditure outcomes, while keeping the starting level of primary expenditure constant (as the two variables move together). This finding that countries with the highest expenditure ratios have introduced the strongest rules suggests that these rules reflect a political consensus that primary expenditure ratios should not rise further or decrease. Such a finding is consistent with the theoretical underpinning of Section 2.2 that expenditure rules may be effective if the political costs of non-compliance are sufficiently large. Overall, results from the regression show that both the expenditure rule itself and the conditioning effect on shocks are statistically significant.

4   Conclusions

This paper has investigated the effects of self-enforced expenditure rules on expenditure outcomes. According to theory, such rules can restrain expenditure biases if the political and institutional costs of non-compliance are sufficiently high. Econometric results show that it is not possible to distinguish between the *ceteris paribus* effect of initial primary expenditure ratios and the effect of expenditure rules on expenditure outcomes, as both variables are highly correlated. It seems therefore that the institutional design of expenditure rules reflects political willingness to address high ratios of expenditure to GDP. Expenditure rules then restrain expenditure, and also mitigate the effect of shocks on expenditure developments. Finally, it should be noted that this paper has not addressed the degree to which expenditure rules may be circumvented by tax expenditure. There are some preliminary indications that countries with stricter expenditure rules (*i.e.* The Netherlands and Sweden) have at times experienced increases in tax expenditure in order to circumvent the expenditure rules (see van Ende *et al.*, 2004, on the Dutch experience and Boije and Fischer, 2007, on the Swedish experience). This would be a fruitful area for further research; a major challenge in bringing this research forward would be to improve the availability of internationally comparable data on tax expenditure.

REFERENCES

Ayuso-i-Casals, J., D. Gonzalez, L. Moulin and A. Turrini (2007, forthcoming), "Beyond the SGP: Features and Effects of EU National-level Fiscal Rules", in European Commission (ed.), *The Role of Fiscal Rules and Institutions in Shaping Budgetary Outcomes*, Economic Papers.

Blanchard, O.J. and J. Wolfers (2000), "The Role of Shocks and Institutions in the Rise of European Unemployment: The Aggregate Evidence", *The Economic Journal*, Vol. 110, No. 462, pp. C1-33, March.

Boije, R. and J. Fischer (2007), "The Swedish Budget 'Model': A Genuine Beauty or in Need of a Face Lift?", in European Commission (ed.), *The Role of Fiscal Rules and Institutions in Shaping Budgetary Outcomes*, Economic Papers.

Debrun, X. and M. Kumar (2007, forthcoming), "The Discipline-enhancing Role of Fiscal Institutions: Theory and Empirical Evidence", in European Commission (ed.), *The Role of Fiscal Rules and Institutions in Shaping Budgetary Outcomes*, Economic Papers.

Deroose, S., L. Moulin and P. Wierts (2006), "National Expenditure Rules and Expenditure Outcomes: Evidence for EU Member States", *Wirtschaftspolitische Blätter*, No. 1, pp. 27-42.

Diamond, J. (2003), "Performance Budgeting: Managing the Reform Process", International Monetary Fund, Working Paper, No. 33.

European Commission (2003, 2006, 2007), "Public Finances in EMU", *European Economy 3*, European Commission.

Fabrizio, S. and A. Mody (2006), "Can Budget Institutions Counteract Political Indiscipline?", *Economic Policy*, pp. 690-739, October.

Hansson Brusewitz, U. and Y. Lindh (2005), "Expenditure Ceilings and Fiscal Policy: Swedish Experiences", in *Public Expenditure*, Banca d'Italia.

Inman, R.P. (1996), "Do Balanced Budget Rules Work? U.S. Experience and Possible Lessons for the EMU", NBER, Working Paper, No. 5838.

Koen, V., and P. van den Noord (2006), "Fiscal Gimmickry in Europe: One-off Measures and Creative Accounting", in P. Wierts, S. Deroose, E. Flores and A. Turrini (eds.), *Fiscal Policy Surveillance in Europe*, Palgrave McMillan, Bansingstoke.

Krogstrup, S. and C. Wyplosz (2007, forthcoming), "A Common Pool Theory of Deficit Bias Correction", in European Commission (ed.), *The Role of Fiscal Rules and Institutions in Shaping Budgetary Outcomes*, Economic Papers.

Milesi-Ferretti, G.M. (2003), "Good, Bad or Ugly? On the Effects of Fiscal Rules with Creative Accounting", *Journal of Public Economics*, No. 88, pp. 377-94.

Milesi-Ferretti, G.M., R. Perotti and M. Rostagno (2002), "Electoral Systems and Public Spending", *The Quarterly Journal of Economics*, pp. 609-57, May.

Moulin, L. and P. Wierts (2006), "How Credible are Multiannual Budgetary Plans in the EU", in *Fiscal Indicators*, Banca d'Italia.

Perotti, R. and Y. Kontopoulos (2002), "Fragmented Fiscal Policy", *Journal of Public Economics*, No. 86, pp. 191-222.

Ricciuti, R. (2004), "Political Fragmentation and Fiscal Outcomes", Public Choice, No. 118, pp. 365-88.

Shepsle, K.A. and B.R. Weingast (1981), "Political Preferences for the Pork Barrel: A Generalization", *American Journal of Political Science*, No. 25, pp. 96-111.

van den Ende, L., A. Haberham and K. den Boogert (2004), "Tax Expenditures in the Netherlands", in H. Brixi *et al.* (eds.), *Tax Expenditures – Shedding Light on Government Spending through the Tax System*, The World Bank.

von Hagen, J. (2006), "Are Fiscal Spending Rules Effective?", *Wirtschaftspolitische Blätter*, No. 1, pp. 7-18.

von Hagen, J. and I.J. Harden (1994), "Budget Processes and Commitment to Fiscal Discipline", *European Economic Review*, No. 39, pp. 771-79.

Wierts, P. (2005a), "Progress Report to the Board of Studies for a Ph.D. Thesis on Fiscal Rules and Fiscal Outcomes in EMU", University of Reading, mimeo.

——————— (2005b), "Expenditure Composition and Institutional Reform in EU Countries: A Policy Perspective", *Presupuesto y Gasto Público*, No. 39, pp. 29-48.

GOVERNMENT EXPENDITURE AND ECONOMIC GROWTH IN THE EU: LONG-RUN TENDENCIES AND SHORT-TERM ADJUSTMENT

Alfonso Arpaia and Alessandro Turrini[*]

This paper analyses the both the long and the short-run relation between government expenditure and potential output in EU countries. Having a satisfactory measurement of these relations has relevant implications for policy. From a long-term perspective, it improves the understanding of the links between output growth and public finances sustainability. Over a medium- to short-run horizon, it provides a benchmark to evaluate the stance of expenditure policy. In the analysis, the panel dimension of the data set is exploited in such a way: (i) to improve the power of statistical tests for the analysis of the dynamic properties of macroeconomic series through panel unit root and panel cointegration tests; (ii) to obtain country-specific information on adjustment dynamics by means of pooled mean group estimation (Pesaran, Shin and Smith, 1999). Results show that, over a sample comprising EU-15 countries over the 1970-2003 period, it cannot be rejected the hypothesis of a common long-term elasticity between cyclically-adjusted primary expenditure and potential output close to unity. The long-run elasticity is however not stable over time (it decreased considerably over the decades) and is significantly higher than unity in catching-up countries, in fast-ageing countries, in low-debt countries, and in countries with weak numerical rules for the control of government spending. The average speed of adjustment of government expenditure to its long-tem relation is 3 years, but there are significant differences across countries. Anglo-saxon and Nordic countries exhibit in general a faster adjustment process, while adjustment in Southern European countries appears somehow slower.

1   Introduction

This paper analyses the relation between government expenditures and economic growth in the EU. It focuses on three questions. By how much government expenditures change with GDP in the long-run and by how much in the short run? Is the relation between government expenditures and GDP robust over time? Is it significantly different across countries?

Better knowledge on the dynamic relationship between government expenditure and GDP is relevant for policy in two major respects.

First, it improves the understanding of long-term, structural public finance issues. Is the size of government shrinking or expanding in the EU? Are long-term trends in the size of government similar across countries or there are relevant differences? Answering these questions is relevant for the debate on the sustainability of public finances in Europe. In particular, it could help to assess the impact on government expenditures and then on deficits arising from a structural deceleration in growth (e.g., associated with ageing populations or a decline in TFP growth) or, conversely, from an improvement in the growth potential (e.g., related to structural reforms).

Second, a better understanding of the dynamic relation between government expenditure and GDP helps the comprehension of policy-relevant issues over a short- to medium-term horizon. Disposing of a reliable measure of the structural relation between the non-cyclical component of government expenditure and potential output is key to obtain a benchmark against which to evaluate the stance of expenditure policy and then of overall fiscal policy. Judging whether expenditure policy is expansionary or contractionary requires some idea about how a neutral expenditure policy would look like. However, while there is broad consensus that a neutral revenues policy is such that government revenues move together with output in a proportion depending on structural factors such as the degree of progression of the tax system and the responsiveness of the various tax bases with respect to output (the output elasticity of revenues), no clear *a priori* exists for what concerns expenditure policy.[1] Estimating the long-term relation between government expenditure and GDP permits to formulate a benchmark for neutral expenditure policy grounded on empirical evidence. Useful information for policy-making would also be provided by estimates of the speed at which government expenditure adjust to their long-term relation with GDP after a shock in economic activity. In the EU context, this information would be helpful, for instance, in formulating and assessing budgetary adjustment plans with a view to achieving medium term budgetary objectives or correcting deficits in excess of the 3 per cent Maastricht reference value for the deficit.

This paper builds on the existing literature studying the long-term determinants of government expenditure and makes a step forward in two respects. First, there is an attempt to better disentangle cyclical from structural factors affecting the relation between government expenditure and GDP. Second, the panel

---

[1] In policy analysis, a constant primary cyclically adjusted budget balance is often taken as an indication of a neutral fiscal policy stance. This implies that expenditure policy is neutral as long as non-cyclical primary expenditures grow in line with non-cyclical revenues. However, one may want to analyse separately the stance of revenue and expenditure policy, and this may require a different notion of neutral expenditure policy. Buti and van den Noord (2003) adopt a definition of neutral expenditure policy according to which primary government expenditures grow in line with potential output plus expected inflation. Fatás *et al.* (2003) and Hughes-Hallet *et al.* (2004) resort to three different definitions of 'neutral fiscal policy': government spending is held constant in volume terms; government expenditures grow in line with revenues; government expenditures grow in proportion with trend GDP. Moreover, Galí and Perotti (2003), among others, consider a broader concept of "non-discretionary" fiscal policy, obtained as the residual of an estimated fiscal reaction function where the primary cyclically-adjusted budget balance is regressed against its own lag, the lagged debt/GDP ratio and a measure of the output gap.

dimension of the data set is exploited in such a way: (i) to improve the power of statistical tests for the analysis of the dynamic properties of macroeconomic series through panel unit root and cointegration tests; (ii) to obtain country-specific information on adjustment dynamics by means of pooled mean group estimation.

There is consensus that a relatively minor part of government spending, typically unemployment benefits, is a purely cyclical phenomenon, so that changes in the level of output matter only to the extent that the cyclical slack in the economy is affected.[2] A different and more complex issue is the one addressed in this paper, namely, how non-cyclical expenditures may be linked to non-cyclical movements in output over time. The empirical literature has tackled this issue from different corners. A branch of the literature investigates the determinants of the size of government across countries, focusing on alternative explanations such as per capita income (e.g., Peltzman, 1980, Borcherding, 1985), the relative price of government-provided goods and services (Baumol, 1967) demographic structures (Heller and Diamond, 1990), the size (Alesina and Wacziarg, 1998) or the degree of openness of the economy (Rodrik, 1998).[3] A growing strand of research aims at explaining cross-country structural differences in the size of government on the basis of political fundamentals that shape the extent of the deficit bias related with free-riding in government expenditure provision and governments' myopia. It has been shown that the size of government tends to be larger in parliamentary than in presidential regimes (Persson and Tabellini, 2000) and that countries with proportional electoral rules are characterized by higher government expenditure shares on GDP than countries with majoritarian election (Persson, Roland and Tabellini, 2006) and by government expenditure tilted towards transfers rather than purchases of goods and services (Milesi-Ferretti, Perotti and Rostagno, 2002). It has also been shown that the fiscal performance of countries is affected by the way budgetary processes are structured (e.g., von Hagen and Harden, 1995, Hallerberg, Strauch and von Hagen, 2001).

A second strand of literature examines the link between expenditure and economic growth over time. Some work aims at describing long-term tendencies in history (Tanzi and Schuknecht, 2000). Other work is more specifically focused at the empirical estimation of elasticity of government expenditure with respect to output, often with the explicit aim of providing an empirical test of the so-called "Wagner law", *i.e.*, the hypothesis that government expenditure increases more than proportionally with economic activity. The underlying idea is that goods and services generally provided by the government sector, including redistribution via transfers and the activities of public enterprises, have an income elastic greater then one, *i.e.*, are superior goods. This last strand of studies includes the empirical analyses most closely related to that provided in this paper.

———————

[2]   See, e.g., van den Noord (2000) for an estimation of the elasticity of government expenditure to the cycle in OECD coountries. See also Bouthevillan *et al.* (2001) for an empirical assessment of expenditure elasticities for the EU-15 countries based on an alternative methodology.

[3]   Reviews of the findings in this strand of literature are provided, for instance, in Peltzman (1980), Borcherding (1985), Tanzi and Schuknecht (2000).

The Wagner law has been tested in different ways. In early time series analyses, government expenditure is regressed on GDP without taking into account the dynamic properties of the series (e.g., Ram, 1987).[4] More recently, new test specifications have been implemented taking into consideration non-stationarity and co-integration. This allows for a more structured modelling of expenditure dynamics introducing the distinction between a long-term relationship and short-term adjustment. Kolluri *et al.* (2000), Akitoby *et al.* (2004) and Wahab (2004) are among the most recent cross-country analysis allowing for dynamic specifications.

Based on country-specific single equation models, Kolluri *et al.* (2000) investigate G7 countries over the 1960-1993 period. They find that government expenditure is generally cointegrated with income, that the long-term income elasticities of government expenditure is slightly above unity in all countries both for government consumption and government transfers, and that short-term elasticities differ widely across countries and average around 0.5 (implying about 1/0.5=2 years for government spending to return to its long-term relation with GDP). Akitoby *et al.* (2004), focus on a set of developing countries between 1970 and 2002. Unit root and cointegration tests on individual country series reveal that government expenditure is often cointegrated with income; country-level ECM estimation yields long-term income elasticities on average slightly above unity and short-term elasticities on average around 0.3. Wahab (2004) analyses a group of OECD countries over the 1950-2000 period. In this paper, individual country series are checked for unit roots and panel estimations for ECM specifications are performed for alternative country groupings. It is found that over the whole sample government expenditure increases less than proportionately with income (long-term income elasticity slightly below unity). The same result is obtained by limiting the sample only to EU countries. The response of government expenditure to GDP, however, is found to be asymmetric. While government expenditure increases less than proportionally when growth is below trend, it falls more than proportionally when growth is below trend.

The approach followed in this paper differs from previous work in two major respects.

First, by using cyclically-adjusted figures for both GDP and government expenditure, we manage to better disentangle short-term dynamics related to business cycle fluctuations and to concentrate the analysis on relations of structural nature. This also permits to contain the issue of reverse causation in interpreting results. Since the impact of government expenditure on GDP is mostly cyclical (the effect of government expenditure on potential output is associated with the composition rather than with the size of government expenditure. We interpret the relation between primary cyclically-adjusted expenditure and potential output as

---

[4]   See, e.g., Bohl (1996), Payne and Ewing (1996), Chang (2002) for reviews on empirical studies on the Wagner's law.

reflecting the adaptation of expenditure to a changing size of the economy.[5] As the economy grows, governments need to face growing demand for public goods and services, adapt wages and salaries of government employees to meet higher remunerations in the private sector, revise the degree of generosity of transfers. This process of adaptation of government expenditure to changing potential output may take time. The possibility of distinguishing the long-run from the short-run impact of potential GDP on government expenditure in our empirical analysis permits to measure the speed at which this process of adaptation of government expenditure to a new value for potential output takes place.

Second, in our analysis we exploit as far as possible the variation both over time and across countries in our data set. This permit to improve the power of estimates when the number of observations over time is small, which is normally the case when analysing structural public finance issues with yearly data. Indeed, it has been shown that inference on the time series properties of the data can be improved upon when applying integration and cointegration tests to the whole panel rather than to each time series separately (see, e.g., Baltagi and Kao, 2000, Phillips and Moon, 2000, Smith, 2000). Furthermore, by resorting to Pooled Mean Group estimates (Pesaran, Shin and Smith, 1999) we manage to extract country-specific information on adjustment coefficients while improving upon the precision of the estimates compared with the alternative of analysing each country separately.

Our analysis comprises EU-15 countries over the 1970-2003 period. Data on primary cyclically-adjusted government expenditure and potential output are taken from the EU Commission AMECO database. The main results can be summarised as follows. The long-term elasticity of government expenditure with respect to GDP across the countries in our panel is slightly below unity, meaning that expenditure is linked to potential output by roughly a one-to-one relationship. The average speed of adjustment of government expenditure to its long-tem relation is 3 years, but there are significant differences across countries. Anglo-Saxon and Nordic countries exhibit in general a faster adjustment process, while adjustment in Southern European countries appears somehow slower. Estimates of the long-term elasticity of expenditure are fairly robust over time and across countries, being the hypothesis of equal elasticity across countries accepted at standard confidence levels. However, there is evidence of a significantly higher elasticity in countries characterized by low initial per capita GDP, relatively fast ageing, low government debt/GDP ratios and weak numerical rules for the control of expenditure.

The remainder of the paper is structured as follows. Section 2 illustrated the empirical strategy followed, describes the data set and provides *prima facie* descriptive statistics. Unit root and cointegration tests are performed in Section 3. Section 4 presents the estimation of the dynamic relationship between government expenditure and potential output and discusses the results concerning long- and short-term elasticities. Section 5 deals with robustness issues, both with respect to

----

[5] See, for instance the results from the meta-analysis on empirical work aimed at testing the impact of government activity on growth by Nijkamp and Poot (2004).

different sub-periods and different grouping of countries. Section 6 discusses the policy implications of results. The concluding remarks follow.

2   Empirical strategy and data

2.1   Empirical strategy

Our aim is that of establishing the dynamic properties of the relationship between government expenditures and GDP in the EU-15 countries over the 1970-2003 period. In particular, we are interested in the following questions. Are government expenditures and potential output linked by a stable long-run relationship? Is the long-term elasticity between government expenditure and potential GDP greater than one, as predicted by the Wagner law? Do countries share the same long-run elasticity or are there considerable differences? Is the relation robust over time? What is the value of the speed at which expenditure adjusts to the level predicted by the long-run relationship with potential output? Are there relevant cross-country differences in the speed of adjustment?

Rather than exploring the relation between economic activity and various definitions of subcategories of government expenditure as in other papers, we focus on overall primary expenditure. Although the dynamics of different categories of government expenditure are undoubtedly explained by different determinants, we concentrate our attention on a broad expenditure aggregate because of two main reasons. First, what matters for the determination of government deficit and debt, and ultimately for the overall sustainability of public finances is overall government expenditure. Second, existing work analysing separately different government expenditure categories via the estimation of dynamic equations does not find evidence of a strongly different relation with economic activity across types of expenditure (e.g., Kolluri *et al.*, 2004, Akitoby *et al.*, 2004).

To overcome the issue of spurious regression that characterized earlier studies on the relation between government expenditure and GDP due to the neglect of the time series properties, we follow the now standard three-step approach consisting of (i) assessing the stationarity of the time series, (ii) in case the variables are not stationary, checking whether they are characterized by a cointegration relationship, (iii) in case cointegration holds, estimating error correction mechanism (ECM), which permits to analyse the long-run relationship between the variables jointly with the short-term adjustment towards the long-run equilibrium.

We abstract from cyclical considerations, by using cyclically-adjusted figures for both government expenditure and GDP. More precisely, the series used in our analysis are, respectively, primary cyclically-adjusted government expenditure and potential output. This has two major advantages. First, it permits to disentangle from the analysis business cycle gyrations and to concentrate the analysis on relations of structural nature, unrelated to interest rate shocks or to the "automatic" response of government expenditure to cyclical conditions (associated with the working of automatic stabilizers like unemployment benefits and subsidies). Second, abstracting

form cyclical dynamics helps to reduce the issue of reverse causation in interpreting results. Government expenditure reacts to changing potential output as a result of the adaptation of the public sector to a modified size of the economy. However, it also true that shocks to government expenditure translate into aggregate demand and then changed GDP levels, *i.e.*, it is difficult to disentangle *a priori* whether the relation between government expenditure and GDP goes from the latter to the former or vice-versa. To the extent that the impact of government expenditure on GDP is mostly in terms of aggregate demand impulse rather than changed output potential, focusing the analysis on figures adjusted for the cycle contributes to contain the issue of reverse causality.[6] Hence, in our context, the use of cyclically-adjusted variables implies that the temporary deviations from the long-run relationships do not reflect the evolution of the business cycles, but rather temporary deviations due to a lagged response of fiscal authorities in adjusting expenditure to changes in potential output

We aim at exploiting as far as possible both the time series and the cross-section (*i.e.*, across countries) properties of the data. This has the major advantage of improving the statistical properties of estimates when the number of observations over time is limited, which is typically the case when analysing structural public finance issues with yearly data. Indeed, in estimating and testing the stochastic properties of time series with "small" sample sizes one has to face the well-known risks of low power of stationarity and cointegration tests. To circumvent these problems, the recent literature on non-stationary panel data has concluded that inference on the time series properties of the data can be improved upon when applying integration and cointegration tests to the whole panel rather than to each unit separately.[7] Opting for panel estimates as opposed to repeated time-series estimates for each of the country in the sample has the advantage of improving the power of the statistical tests but at the cost of losing country-specific information. We use the recently introduced Pooled Mean Group estimators (PMG) that allows for country-specific adjustment coefficients in panel estimation but pool countries over the long-run (Pesaran, Shin and Smith, 1999).

_____

[6]   An impact of government expenditure on potential output cannot be excluded. However, the effect can be opposite depending on which type of expenditures are considered. While government investment or public education expenditures are likely to improve the growth potential, other types of expenditure may reduce growth by crowding out resources to private investment (Kneller, Bleaney and Gemmell, 1999). Moreover, Levine and Renelt (1992) show that fiscal variables are generally non-robust when included in cross-country growth regressions. See also the main conclusions of the meta-analysis on cross-country and panel empirical studies on fiscal policy on growth by Nijkamp and Poot (2004).

[7]   When there are similarities between the data generation processes of cross sectional units, some form of averaging may improve the power of unit roots tests and the consistency of cointegrating relationships – *i.e.* the potential risks of spurious regression are largely reduced (the cross-section dimension can in fact be considered as repeated draws from the same distribution). Hence, independent cross sections in the data add more information and lead to a strong signal than that of the pure time series. Averaging over units (individuals, regions or countries) attenuates the noise of the least square estimates due to the covariance of two independent random variables. For a survey of the literature on non-stationary panel data see for instance Banerjee (1999), Baltagi and Kao (2000), Phillips and Moon (2000), and Smith (2000).

The empirical analysis in the remainder of the paper proceeds as follows. First, we give a description of the data set employed and inspect by means of graphical analysis the dynamic behaviour of government expenditure and potential output.[8] Second, panel unit root tests are performed to assess whether the variables we use in the analysis are stationary. Third, the existence of a long-run relationship between cyclically-adjusted primary expenditure and potential output is verified by means of the residual-based Pedroni (1999) panel cointegration tests. Fourth, the dynamic relation between government expenditure and GDP is analysed empirically by means of testing an error correction mechanism (ECM) with the PMG estimator. Fifth, the robustness of results is discussed with respect to different time sub-periods in the sample and different groupings of countries.

2.2   Data

To investigate the relationship between public expenditure and GDP, we use yearly observations from 1970 to 2003 for the EU-15 countries. Data are taken from the Annual Macroeconomic (AMECO) database of the European Commission. All data are expressed at constant 1995 prices and denominated in common currency (ECU). Expenditure data are net of interest expenditure and are adjusted for the cycle. GDP data refer to potential GDP. Potential GDP series are obtained by means of the production function approach, *i.e.*, potential output is estimated starting from an assumed aggregate production function for the economy and estimates of the capital stock, labour inputs and total factor productivity (see Denis *et al.*, 2002). The government expenditure-to-GDP ratio is adjusted for the cycle following the approach used by the European Commission, *i.e.*, by deducting a measure of "cyclical" government expenditure consisting of a country-specific expenditure "sensitivity" parameter multiplied by the output gap.[9] The sensitivity of expenditure to the cycle captures the monetary change in expenditure associated with a unit monetary change in the difference between actual and potential output as a result of the operation of existing legislation (automatic stabilizers). Sensitivity parameters are constructed on the basis of budgetary elasticities estimated in van den Noord (2001). Unemployment subsidies is the only government expenditure component assumed to react "automatically" to the cycle.[10] To get the cyclically-adjusted expenditure net of interest spending, the expenditure/GDP ratio is multiplied by the GDP at current prices, and finally deflated.

Figure 1 plots the series for each country in log scale. Despite the apparent common positive relation between expenditures and potential output in all countries over the long-run, there are notable differences over time periods and across

---

[8]   Henceforth, in the paper we will use, for brevity, the terms "government expenditure" to refer to primary cyclically-adjusted primary government expenditure.

[9]   For the years 1970-78, cyclically adjusted expenditure/GDP ratio based on potential output is not available for Luxembourg; for these years the cyclical adjustment of primary expenditure is based on trend GDP.

[10] See European Commission (2002 and 2004) for an explanation of the European Commission methodology for the cyclical adjustment of public finance variables.

Figure 1

Government Expenditure and Potential Output (Log Scale)
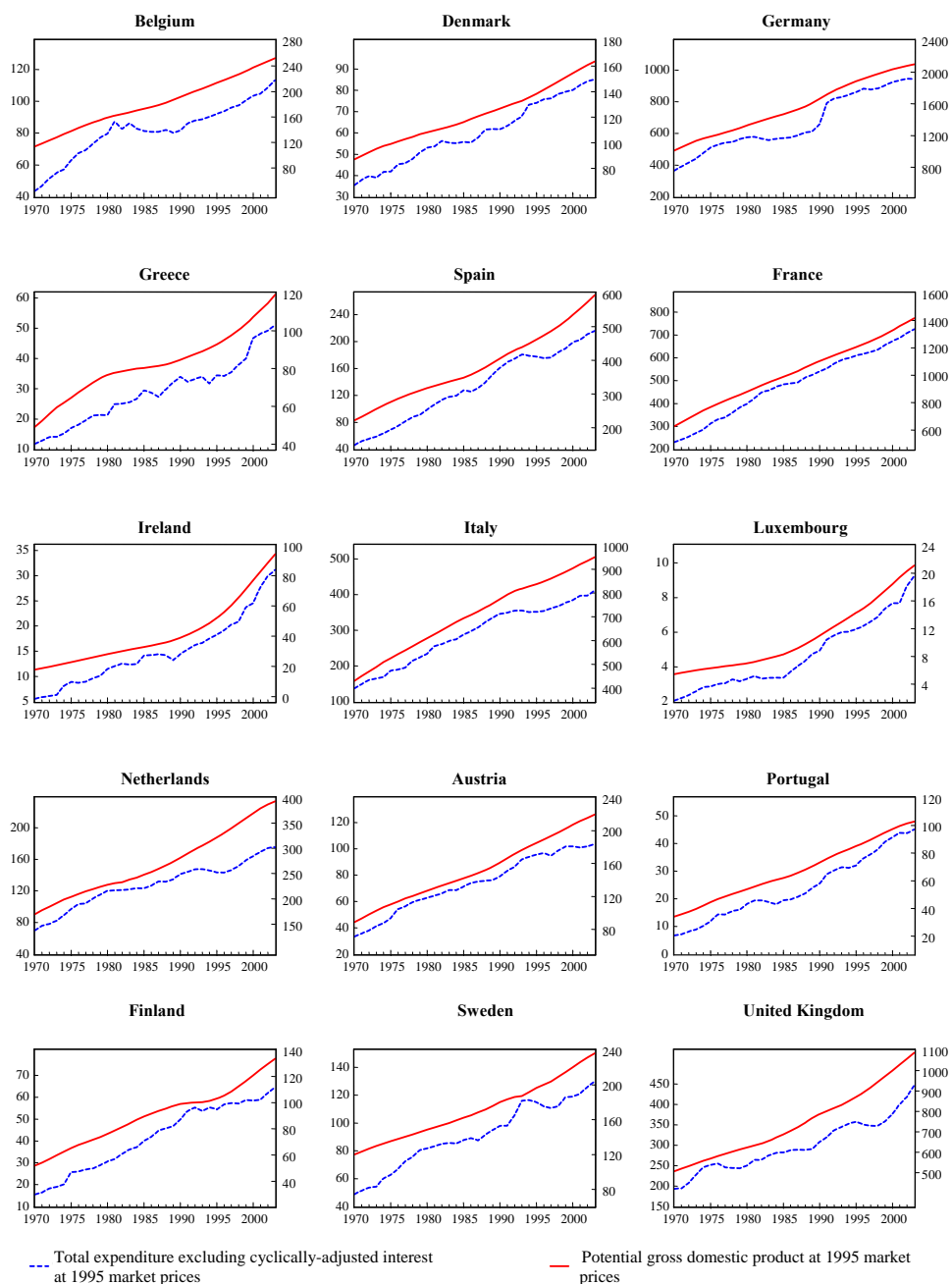
Source: European Commission AMECO database.

countries. While in most countries during the 1970s the growth rate of government expenditures outpaced that in potential output, starting from the 1980s it is observed a generalised deceleration in expenditure. In some countries, government expenditure decelerated already during the 1980s as a result of a general restructuring of the government sector (UK) or as a consequence of expenditure-based consolidations carried out to stabilize debt-to-GDP ratios (Belgium, Denmark, Ireland). In other countries, the downward adjustment in the growth rate of expenditure was enacted in the 1990s, in some cases with the express objective to achieve the respect of the deficit Maastricht criterion in the run-up to EMU (Spain, Italy). Overall, in the 1980s government expenditure kept growing at lower pace compared with the 1970s (see Table 1). However, while during the 1980s the growth rate of government expenditure was less than that of potential output in Belgium, Ireland, Germany, the Netherlands and the UK, the opposite holds for Spain, Italy, Finland, France and Portugal. In this second group of countries (and in the Netherlands), government expenditure growth decelerated in the 1990s and declined relative to that of potential output (except in Portugal). Expenditure grew less than potential output also in the 1990s in Ireland, Luxembourg and the UK. In recent years, several countries are witnessing a change in the behaviour of government expenditure. Starting from 2000, government expenditures relative to potential output picked up in UK, Luxembourg, Ireland, Belgium, Sweden and Italy.

Figure 2 reports on the horizontal and on the vertical axis, respectively, the average growth rate over the different decades of potential output and of government expenditure across countries. The figure shows that while in the 1970s there was a clear and almost linear cross-country positive relation between the two variables such that at higher rates of potential growth it was associated a more than proportionally higher growth in government expenditure, this cross country relation changes in the 1980s and 1990s. The relation is still positive, but when potential output grows faster, government expenditure tends to grow faster but less than proportionally. Additionally, this cross-country relation weakens: there is a greater dispersion in data points indicating that cases where potential growth is high and expenditure growth is low, or vice versa, become more frequent. Finally, it is to notice that on average across countries, while in the 1970s government expenditure grew faster than potential output, starting from the 1980s the growth rate in the two variables is roughly equal. Overall, this indicates that the relation between government expenditure changed over time to some extent. Part of this change reflected a general tendency observed in all countries, part was related to specific country cases.

3   Panel unit root tests and cointegration analysis

3.1   *Panel unit root tests*

A first specification assumes that all units are stationary with the same autoregressive coefficient across units (the *homogeneous* alternative hypothesis).

Table 1

Growth Rates of Government Expenditure and Potential Output
(average annual growth rates)

	Cyclically-adjusted Government Expenditure				Potential Output			
	1970-1980	1980-1990	1990-2000	2000-2003	1970-1980	1980-1990	1990-2000	2000-2003
Belgium	6.2	0.2	2.4	3.0	3.4	1.9	2.2	2.0
Denmark	4.1	1.5	2.7	2.0	2.2	1.6	2.0	2.0
Germany	4.7	1.4	3.4	0.8	2.8	2.3	2.0	1.0
Greece	6.1	4.8	3.2	3.0	4.5	1.0	2.4	3.6
Spain	7.9	5.0	2.1	2.8	3.7	2.5	2.8	3.6
France	5.6	3.1	2.2	2.5	3.4	2.3	1.9	2.1
Ireland	7.6	2.3	5.5	8.3	4.7	3.3	7.0	7.0
Italy	5.5	4.0	1.1	2.3	3.5	2.4	1.6	1.7
Luxemburg	4.9	4.1	4.5	6.4	2.6	4.6	5.3	4.6
The Netherlands	5.6	1.7	1.5	2.3	3.0	2.1	2.7	2.1
Austria	6.6	2.3	2.6	0.5	3.6	2.4	2.6	2.0
Portugal	10.5	3.5	5.2	2.1	4.7	3.1	2.9	1.9
Finland	7.1	5.0	1.6	3.4	3.9	2.7	2.0	3.4
Sweden	5.3	1.8	2.0	3.0	2.2	1.9	2.0	2.4
UK	2.6	2.1	2.0	5.9	2.1	2.4	2.4	2.8
Simple average	6	2.9	2.8	3.2	3.4	2.4	2.8	2.8
Coefficient of variation	0.30	0.52	0.48	0.65	0.26	0.34	0.52	0.53

Source: European Commission AMECO database.

Figure 2

Growth in Government Expenditure Relative to Potential Output
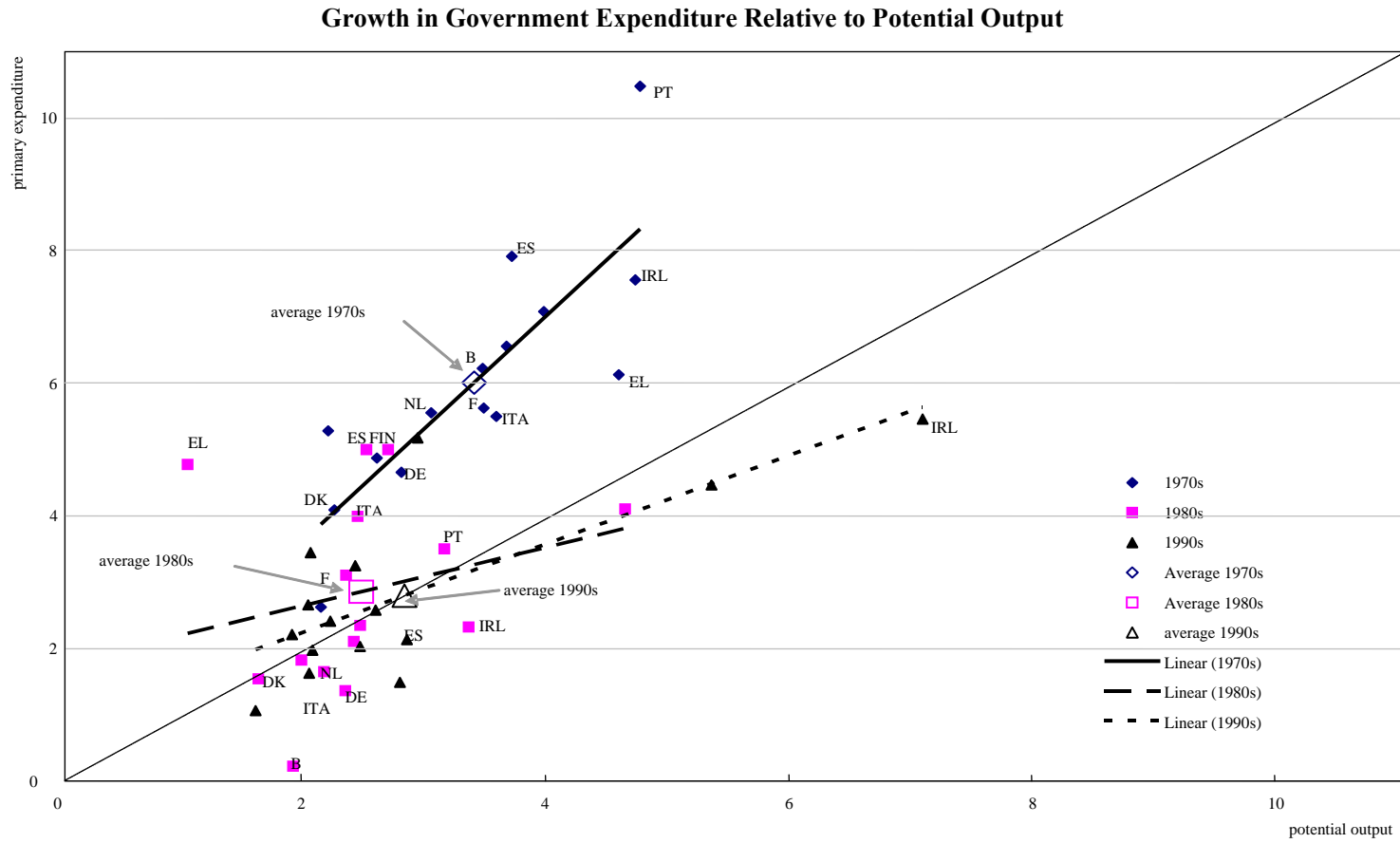
Source: European Commission AMECO database.

This implies that the relevant variable in all countries converge towards their average at the same speed. The statistics developed by Levin, Lin and Chu (2002) – LLC hereafter – and Breitung (2000), both test the null of unit root against this homogeneous alternative of stationarity. These tests allow for heterogeneous serially correlated errors, country-specific fixed effects and country-specific deterministic trends, and are based on an Augmented Dickey-Fuller (ADF) regression of the following type:

$$\Delta y_{it} = \delta_i \tau + \phi_i y_{it-1} + \sum_j^{p_i} \beta_{ij} \Delta y_{it-j} + \xi_{it} \tag{1}$$

where y_{it} is a given variable (expenditure or GDP in our case), i denotes panel units (countries in our case), t is time, τ is a common trend across countries, p_i is the country-specific lag order, and ξ_{it} are stochastic errors which could be serial correlated.

The formulation of the null (H_0) and alternative (H_1) hypothese in this set up is as follows: H_0: $\phi_i=0$; H_1: $\phi_i=\phi<0$. This dynamic structure is likely to be restrictive for variables with a time path strongly influenced by country-specific factors such as public finance variables.[11] Neglecting this source of heterogeneity makes the use of the pooled estimators such as those proposed by LLC and Breitung inappropriate and the estimates of the parameters inconsistent even when the time and the cross-section dimension of the sample are large (Pesaran and Smith, 1995).[12]

Second-generation unit root tests allowing *heterogenous short-run dynamics* help to overcome the above limitations. The test devised by Im, Pesaran and Shin (2003) – IPS hereafter – allows for some (but not all) of the individual series to have a unit root under the alternative hypothesis, implying that the degree of persistence of the variable of interest is not forced to be the same. The heterogeneous alternative hypothesis is that al least some of the units have stationary processes.[13] Maddala and Wu (1999) – MW hereafter – suggest instead a test of unit root against the heterogeneous alternative that combines the *p*-values from unit root statistics in each cross-sectional unit.[14]

---

[11] Certainly it is too restrictive in the case of public finance variables whose dynamic properties are influenced by the characteristics of national institutions.

[12] Moreover, when the independence across units is violated, unit root tests tend to over-reject the null hypothesis (Banerjee *et al.*, 2004).

[13] Formally, the null hypothesis is H_0: $\phi_i = 0$ against the alternative H_1: $\phi_i < 0$ for $i = 1,2,\ldots,N_1$ and H_1: $\phi_i = 0$ for $N_1+1,\ldots,N$, where N is the total number of cross-section units and N_1 is the number of cross-section units having a stationary process.

[14] Their test statistics is $-2\log\prod_i^N p_i$, where N is the number of cross-section units and p_i is the p value associated to unit i. The test is distributed as χ^2 with $2N$ degrees of freedom. The *p*-value is the smallest significance level at which H_0 can be rejected (not the probability of H_0 itself). If the significance level is less than the *p*-value it is not possible to reject the H_0. If H_0 were to be rejected at significance level α, this
(continues)

To smooth series and permit an interpretation of regression coefficients in terms of elasticities, all the regression analysis is performed on the natural logarithms of expenditure and GDP series described in Section 2.2. With trending variables, the testing equation should have intercepts when variables are expressed in first differences.

Moreover, since panel unit root tests require cross-sectional independence, the tests are also applied to de-meaned data. If countries are equally affected by common factors (*i.e.* aggregate disturbances common to all), then demeaning the data permits to eliminate cross-sectional dependence. In the presence of country-specific deterministic trends, Phillips and Moon (2000) suggest to test the unit root hypothesis on OLS de-trended. Tests are therefore also performed on demeaned and OLS de-trended data.

Tables 2a-2c present the results from LLC, Breitung, IPS and MW unit-root tests. For each variable, the table displays the *p*-value associated with the testing equations including, alternatively, country fixed effects only or also country-specific trends. The lags included in the ADF regressions are selected on the basis of the Akaike Information Criterion (AIC).

Table 2a shows that in almost all cases, government expenditure in levels has a unit root, while the series appear stationary once taken in first differences. In the case of potential output, the tests give instead conflicting result. When country-specific trends and intercepts are included in the testing regression, the null hypothesis of unit root is accepted by LLC, while it is rejected by the IPS and the MW statistics.[15]

Table 2b presents tests on cross-sectional de-meaned data. It turns out that the null hypothesis of expenditure being integrated of order 1 ($I(1)$) when a trend is included in the testing regression cannot be rejected. However, the results are still uncertain for the potential output. The results do not change significantly when the unit root tests are run on de-meaned and OLS-de-trended data (Table 2c).

---

would be the case for $p<\alpha$. For example, if the *p*-value is 0.027, the results are significant (*i.e.* it is not possible not to reject the null) for significance levels greater than 0.027 (such as 0.05) and not significant for all significance levels less than 0.027 (such as 0.01). Somebody using the 5 per cent level would reject the null hypothesis while a person who uses the 1 per cent level would fail to reject it. The inferential step to conclude that the null hypothesis is false goes as follows: the data (or data more extreme) are very unlikely given that the null hypothesis is true. This means that: (1) a very unlikely event occurred or (2) the null hypothesis is false.

[15]   According to the Breitung test it is not possible to reject the assumption that potential output is $I(2)$. This outcome is clearly inconsistent with the hypothesis of balanced growth as it implies that temporary shocks to the growth rate turn out to be permanent. One problem with panel unit root tests is that they tend to over-reject the null hypothesis of non-stationarity when there are errors with a large negative root and the lag selected by the traditional information criteria is small. Ng and Perron (2001) propose a Modified Akaike Information Criteria (MAIC) that is data-dependent. The MAIC takes into account the nature of the deterministic components and the de-trending procedure, which allows for a better measurement of the cost of each lag choice. When lag length is determined with the MAIC, in all cases it is not possible to reject the null of unit root (results are available by the authors upon request).

Table 2a

Panel Unit Root Test (*p*-values), EU-15, 1970-2003

Variable Method	Cyclically-adjusted Primary Government Expenditure		Potential Output	
	Without Trend	**With Trend**	**Without Trend**	**With Trend**
H_0: Unit root (common unit root process)				
LLC *t*				
Level	0.00 (473)	**0.05** (456)	**0.94** (456)	**0.25** (463)
First Difference	0.00 (468)	0.00 (454)	0.00 (460)	0.00 (459)
Breitung *t*-stat				
Level	**0.35** (458)	**0.12** (441)	**0.21** (441)	**0.62** (448)
First Difference	0.00 (453)	0.00 (439)	**0.09** (445)	**0.29** (444)
H_0: Unit root (individual unit root process)				
IPS *t*-stat				
Level	0.004 (473)	**0.05** (456)	**1.00** (456)	0.00 (463)
First Difference	0.00 (468)	0.00 (454)	0.00 (460)	0.00 (459)
ADF-MW χ^2				
Level	0.00 (473)	**0.06** (456)	**0.99** (456)	0.001 (463)
First Difference	0.00 (468)	0.00 (454)	0.05 (460)	0.00 (459)
PP - MW χ^2				
Level	0.00 (495)	**0.64** (495)	0.00 (510)	0.00 (495)
First Difference	0.00 (480)	0.00 (480)	0.002 (495)	**0.90** (495)

All data are expressed as natural logarithms of differences with respect to the cross-country averages. Country-specific intercepts are included in the testing equation. The *p*-value of the test when the null hypothesis of unit root is *not* rejected is in bold. The null of unit root is accepted at significance level α when the *p*-values are bigger than $\alpha/100$. The number of observations is reported in parentheses. Automatic selection of lags based on the Akaike Information Criterion.

ADF and PP are two tests that uses Fisher's (1931) result to derive test that combine the *p*-values from individual unit roots tests. The tests are distributed as a χ^2 with $2*N$ degrees of freedom where N is the number of cross-sections.

When the effect of the common component differ across countries, de-meaning is not sufficient to eliminate cross-sectional dependence. Pesaran (2005) suggests a unit root test which controls for the common factor proxied by the cross section-averages of lags and differences of the individual series (named cross-section IPS or CIPS). Similarly to the IPS test, panel unit root tests are based on the averages of individual Cross-sectional Augmented Dickey-Fuller *t*-statistics (CADF).[16] Table 2d shows that, based on the CIPS test, the hypothesis of unit root both for the expenditure and the potential output cannot be rejected at the 5 significance level (Table 2d).

---

[16]   The cross-sectional IPS (CIPS) test is defined as the average of the individual CADF. The CIPS test has a non-standard distribution with critical values tabulated in Pesaran (2005).

Table 2b

**Panel Unit Root Test (*p*-values): Cross-sectionally De-meaned Data,
EU-15, 1970-2003**

Variable Method	Cyclically-adjusted Primary Government Expenditure		Potential Output	
	Without Trend	**With Trend**	**Without Trend**	**With Trend**
H₀: Unit root (common unit root process)				
LLC *t*				
Level	0.00 (482)	**0.91** (473)	**0.81** (451)	**0.37** (452)
First Difference	0.00 (473)	0.00 (471)	**0.11** (459)	**0.86** (440)
Breitung *t*-stat				
Level	**0.60** (467)	**0.43** (458)	0.05 (436)	**0.56** (437)
First Difference	0.00 (458)	0.00 (456)	**0.31** (444)	**0.21** (425)
H₀: Unit root (individual unit root process)				
IPS *t*-stat				
Level	**0.61** (482)	**0.72** (473)	**0.94** (451)	**0.48** (452)
First Difference	0.00 (473)	0.00 (471)	**0.07** (459)	0.04 (440)
ADF-MW				
Chi-square				
Level	**0.48** (482)	**0.48** (473)	**0.29** (451)	**0.16** (452)
First Difference	0.00 (473)	0.00 (471)	**0.08** (459)	0.01 (440)
PP - MW				
Chi-square				
Level	**0.85** (495)	**0.98** (495)	0.04 (495)	**0.77** (495)
First Difference	0.00 (480)	0.00 (480)	**0.64** (480)	**0.94** (480)

All data are expressed as natural logarithms of differences with respect to the cross-country averages. Country-specific intercepts are included in the testing equation. The *p*-value of the test when the null hypothesis of unit root is *not* rejected is in bold. The null of unit root is accepted at significance level α when the *p*-values are bigger than $\alpha/100$. The number of observations is reported in parentheses. Automatic selection of lags based on the Akaike Information Criterion.

ADF and PP are two tests that uses Fisher's (1931) result to derive test that combine the *p*-values from individual unit roots tests. The tests are distributed as a χ^2 with $2*N$ degrees of freedom where N is the number of cross-sections.

Overall, there is evidence that primary cyclically-adjusted government expenditure and potential output are non-stationary and therefore candidate for being cointegrated – *i.e.* there is a potential long-run relationship tying cyclical adjusted primary expenditure and potential output.

4.2 *Panel cointegration tests*

Difficulties analogous to those encountered with unit root tests are found when testing for cointegrating relationships in panel data. Firstly, it is necessary that

Table 2c

Panel Unit Root Test (*p*-values):
De-trended and Cross-sectionally De-meaned Data, EU-15, 1970-2003

Variable Method	Cyclically-adjusted Primary Government Expenditure	Potential Output
H$_0$: Unit root (common unit root process)		
LLC *t*		
Level	0.00 (482)	**0.82** (451)
First Difference	0.00 (473)	0.11 (459)
Breitung *t*-stat		
Level	**0.60** (467)	**0.07** (459)
First Difference	0.00 (458)	**0.31** (444)
H$_0$: Unit root (individual unit root process)		
IPS *t*-stat		
Level	**0.61** (482)	**0.94** (451)
First Difference	0.00 (473)	**0.07** (459)
ADF-MW Chi-square		
Level	**0.48** (482)	**0.28** (451)
First Difference	0.00 (473)	**0.08** (459)
PP - MW Chi-square		
Level	**0.85** (495)	0.03 (495)
First Difference	0.00 (480)	**0.63** (480)

All data are expressed natural logarithms of differences with respect to the cross-country averages. Country-specific intercepts are included in the testing equation. The *p*-value of the test when the null hypothesis of unit root is *not* rejected is in bold. The null of unit root is accepted at significance level α when the *p*-values are bigger than $\alpha/100$. The number of observations is reported in parentheses. Automatic selection of lags based on Akaike Information Criterion. ADF and PP are two tests that uses Fisher's (1931) result to derive test that combine the *p*-values from individual unit roots tests. The tests are distributed as a χ^2 with $2N$ degrees of freedom, where N is the number of panels.

the idiosyncratic error terms are independent across units in the panel. This implies that disturbances to one unit are not diffused to other units.[17] Secondly, Banerjee *et al.* (2001) warn against the existence of cointegration *between* some units in the panel.[18] Thirdly, there is the issue of possible multiple cointegration vectors. Available residual based panel cointegration tests make the assumption of a single cointegrating vector. In our particular application this is not an issue since panel cointegration is tested between two variables only: government expenditure and potential output.

---

[17] Asymptotic distributions of the tests are derived under the hypothesis of cross-sectional independence.

[18] In the case of testing PPP, they show that the hypothesis of a unit root tends to be rejected too often in the presence of cross-unit cointegrating relationships.

Table 2d

**Cross-sectional Augmented IPS Test for Panel Unit Root (CIPS),
EU-15, 1970-2003**

Variable	Cyclically-adjusted Primary Government Expenditure		Potential Output	
	Without trend	**With Trend**	**Without Trend**	**With Trend**
p=1	–0.22	–0.30	–0.074	–0.05
p=2	–0.25	–0.34	–0.069	–0.04
p=3	–0.29	–0.40	–0.072	–0.05

H_0: unit root. The critical values for the CIPS are tabulated in Pesaran (2005). For T=30 and N=15 the 5 per cent critical value of the test in the case of models with an intercept is –2.25; for models with an intercept and a linear trend the critical value is –2.76. The 1 per cent critical values are, respectively, –2.45 and –2.96. p is the number of lags in the cross-sectionally augmented Dickey-Fuller test.

This paper uses residual-based tests of the null hypothesis of no cointegration developed by Pedroni (1995, 1997, 1999). The tests is performed on the residuals of a static regression and allow for country-specific short-term dynamics and long-run relationships.[19] In symbols, the tests are based on the following regression:

$$e_{it} = \alpha_i + \theta_i\, y_{it} + u_{it} \tag{2}$$

where e_{it} and y_{it} are, respectively, the log of primary cyclically-adjusted government expenditure and of potential GDP in country i and year t, u_{it} is a stochastic residual and α_i the country-specific intercept. The elasticity of expenditure to output θ_i is allowed to vary across individual countries. Cointegration occurs when the linear combination of $I(1)$ variables is stationary, implying that deviations of one variable from the path prescribed by the cointegrating relationship are transitory (*i.e.* without memory). In such a case, there is a long-run relationship between the variables and temporary deviations can be modelled with an error correction mechanism (ECM).

Starting from equation (2), Pedroni proposes seven tests for the null hypothesis of no cointegration using the residuals estimated from panel regressions, in analogy with the Engle and Granger method. These tests differ according to the way in which information is combined. Four tests are based on pooling information along the within dimension and three tests on pooling along the

---

[19] No hypothesis of exogeneity is imposed on the regressors of the cointegrating equation. The test control for endogeneity/reverse causality. In contrast, the test is based on the assumption of a single cointegrating vector, although this does not need to be the same across countries. As in the case of panel unit root tests, the individual processes are assumed to be independent cross-sectionally.

between-dimension.[20] For the within-dimension statistics, the test for the null hypothesis of no cointegration is a residual-based test of the hypothesis that the residuals are non-stationary (*i.e.* no cointegration between the variables) against the alternative of stationary residuals (*i.e.* cointegration) with exactly the same autocorrelation coefficients of residuals across countries. Regarding the tests performing pooling along the between dimension, the null hypothesis does not change (*i.e.* no cointegration) while the alternative presumes country-specific autocorrelation coefficients of residuals.

Pedroni (1997) performs Monte Carlo simulations to study the small sample properties of the tests. He shows that in terms of power, panel ADF tests (obtained pooling along the within dimension) followed by group ADF tests (constructed pooling along the between dimension) perform better than the other. Hence, we restrict our analysis to panel ADF and group ADF Pedroni cointegration tests.[21]

As already mentioned, the cointegration tests used in this paper are valid only under the assumption of cross-sectional independence, *i.e.* disturbances to one unit are not diffused to other units. A general form of cross-sectional dependence can be modelled as follows:

$$e_{it} = \alpha_i + \theta_i y_{it} + \delta_i t + \delta_t + \varepsilon_{it} \tag{3}$$

where δ_t is a common residual component which impacts all countries in the same way, $\delta_i t$ is a common trend which may have a different impact depending on the country, and ε_{it} is serially uncorrelated disturbance. The main idea to achieve cross-sectional independence is to eliminate the common factor before applying cointegration tests on filtered data. The structure assumed for the common component of equation (3) is quite flexible to model alternative forms of cross-sectional dependence. When $\delta_i = 0$, the common component has the same effect on expenditure for all countries and cross-section independence is achieved by simply de-meaning the data. When $\delta_i \neq 0$ and $\delta_t = 0$, the effect of the common component differs across countries and independence can be achieved de-trending the original data.[22] Finally, when $\delta_i \neq 0$ and $\delta_t \neq 0$, there is a common component of trend expenditure which impacts all countries in the same way and one whose

---

[20] The within dimension statistics are based on estimators that pool the autoregressive coefficient across different members for the unit root tests on the estimated residuals. The between dimension statistics are based on estimators that average the individually estimated coefficients for each member of the panel (see Pedroni, 1999).

[21] These tests, after appropriate normalisation, converge to a standard normal under the null of no cointegration. These statistics are normally distributed and diverge to negative infinite under the alternative of cointegration. Hence, the null of no cointegration is rejected for large and negative values of the test statistics.

[22] When there is a considerable heterogeneity in the deterministic trends, Phillips and Moon (1999) suggest OLS de-trending. They argue that a consistent estimate of the cointegrating vectors can be obtained when data are OLS de-trended. They also show that OLS de-trending is more efficient than GLS-de-trending.

Table 3

Panel Cointegration Test Between Cyclically-adjusted Primary Government Expenditure and Potential Output, EU-15, 1970-2003

	Original Data	Cross-sectionally De-meaned Data	De-trended	De-trended and Cross-sectionally De-meaned Data
With trend				
Panel ADF	0.2	–0.43		
Group ADF	–1.00	**–1.91**		
Without trend				
Panel ADF	–1.61	–0.28	**–2.10**	**–2.61**
Group ADF	**–1.91**	–0.94	**–3.31**	**–4.14**

H_0: no cointegration. The critical level of the test at 5 per cent is –1.65. The calculated statistics must be in absolute value larger than this value to reject the null hypothesis of absence of cointegration for all units in the panel. In bold are reported the values for which it is not possible to reject the null at the 5 per cent level.

effect is country specific: both de-trending and de-meaning are required to get cross-sectional independence. Since there is no clear *a priori* on the form in which cross-sectional dependence could manifest, we perform Pedroni tests alternatively on original data, de-meaned data, OLS de-trended data and data that are both de-meaned and de-trended.

Table 3 reports the results of the cointegration tests.[23] In interpreting results, it is important to bear in mind that different transformations of the original data reflect different assumptions on the common component. The tests are performed both including and non including a trend in the cointegration regression. Trends are dropped from the cointegration regression when tests are performed on de-trended data. Results show that when variables are not de-trended, the null hypothesis of no cointegration is rejected by the group ADF test on original data if the cointegrating equation does not include a trend and on de-meaned data if there is no trend in the cointegration regression. In the case of de-trended data, Pedroni tests always reject the null hypothesis of no cointegration. Overall, on the basis of this evidence, and given that the group ADF, which allows for a more general structure of the residual correlation under the null hypothesis is also the most powerful test in small samples (Pedroni, 1997), we conclude that the primary expenditure and potential output are cointegrated.

Having established that government expenditure is cointegrated with potential output, we proceed modelling the error correction mechanism allowing for

—————

[23] When data are de-trended and then cross-sectionally de-meaned the cointegration test exclude a trend from the cointegrating regression.

country-specific short-run coefficients. The approach is based on the pooled mean group estimator (PMG, see Pesaran *et al.*, 1999) which allows testing the hypothesis that the cointegration relation across the cross section units is the same, in our case, that the long-run elasticity between government expenditure and potential output is the same for all countries.

4 Heterogeneous panel ECM estimation

4.1 The approach

Building on the existence of a long-term relation between government expenditure and potential output in our panel of EU countries, the aim of this section is to estimate this long-run relationship jointly with the short-term dynamics. A fairly general dynamic specification is represented by an auto-regressive distributed lag model of order p_i and q_i, ARDL(p_i, q_i):

$$e_{it} = \sum_{j=1}^{p_i} \lambda_{ij} e_{it.j} + \sum_{j=0}^{q_i} \delta_{ij} y_{it.j} + \mu_i + u_{it} \qquad (4)$$

where μ_i is an unobserved country-specific effect and u_{it} is the error term. The ARDL(p_i, q_i) can be rewritten in the following error correction model form (Pesaran *et al.*, 1999):

$$\Delta e_{it} = \phi_i \left(e_{it-1} + \frac{\beta_i}{\phi_i} y_{it} \right) + \sum_{j=1}^{p_i-1} \lambda_{ij}^* \Delta e_{it.j} + \sum_{j=0}^{q_i} \delta_{ij}^* \Delta y_{it.j} + \mu_i + u_{it} \qquad (5)$$

where $\phi_i = -\left[1 - \sum_{j=1}^{p_i} \lambda_{ij} \right]$; $\beta_i = \sum_{j=0}^{q_i} \delta_{ij}$; $\lambda_{ij}^* = -\sum_{k=j+1}^{p_i} \lambda_{ik}$; $\delta_{ij}^* = -\sum_{k=j+1}^{p} \delta_{ik}$

When the ARDL(p_i, q_i) is stable (*i.e.*, error correcting), the adjustment coefficient ϕ_i is negative and less than 1 in absolute value. In this case, the long-run relationship is defined by:

$$e_{it} = -\frac{\beta_i^{'}}{\phi_i} y_{it} + \eta_{it} \ , \qquad (5)$$

where η_{it} is a stationary process. In steady-state, trend expenditure and potential output are tied one to the other, with a *long-term elasticity* of by $\theta_i = -\dfrac{\beta_i}{\phi_i}$. Under the Wagner law, the long-term elasticity is expected to be positive and larger than 1. Conversely, the assumption underlying widely used methods to adjust government

budgets for the effect of the cycle is that the long-term elasticity between government expenditure and potential output is unitary.

Temporary deviations from this relationship are possible and may be driven by common and/or country-specific shocks. The parameter ϕ_i measures the adjustment coefficient of the error correction term. It says how much of a temporary deviation of trend government expenditure from potential output is eliminated in one year.

The ECM in equation (5) can be estimated in different ways. Traditional time series models do not take into account the information on the cross-country correlation in the data. Dynamic fixed effect models control for country fixed effects but impose the same coefficients for all countries.[24] Pesaran and Smith (1995) show that pooling produces inconsistent estimates of the parameters value unless the slope coefficients are identical.[25] To tackle this issue, Pesaran and Smith (1995) propose a mean group estimator (MG) consisting of estimating the coefficient of each cross section and then taking an average of them. Although consistent, the MG estimator does not take into account that some of the parameters may be the same across countries, implying that its estimates, especially in small samples, are likely to be inefficient and strongly affected by the presence of outliers.

An intermediate choice between imposing slope homogeneity and no restrictions is the pooled mean group estimator (PMG) proposed in Pesaran, Shin and Smith (1999), which combines the characteristics of the pooled estimators (namely the fixed effect) with those of the mean group estimator.[26] The PMG estimator treats differently the short- and the long-run dynamics.[27] The short-run dynamics are allowed to differ across countries but the long-run effects are constrained to be the same. Formally, the PMG estimator imposes the restriction that the long-run-coefficients are the same across units: $\theta_i = \dfrac{\beta_i}{\varphi_i} = \theta$.[28]

---

[24]   It is well known that with a small time dimension, dynamic fixed effects estimators give biased and inconsistent estimates of the parameters. However, when the number of observations over time is large enough, the asymptotic bias of the estimator is likely to be rather small (Baltagi, 2005).

[25]   The inconsistency does not disappear even when the size of the cross-section and of that of the time periods is large.

[26]   There is an increasing use of PMG estimates in applied econometric work. PMG estimates have been recently used in the analysis of the effects of institutions on innovation and growth (OECD, 2001), for modelling the Euro area demand of money (Golinelli and Pastorello, 2002), to analyse the wealth effects in the consumption function (Barrel and Davis, 2004), to explore the impact of policies on fertility rates (D'Addio and Mira D'Ercole, 2005), to identify the determinants of the sovereign risks in the gold standard (Cameron and Tan, 2006), to the analysis of the link between fiscal policies and the trade balance (Funke and Nickel, 2006), to investigate the effects of financial intermediation on economic activity (Loyaza, 2006).

[27]   If a long-run relationship between y_{it} and x_{it} with coefficients identical across groups exist and assuming that disturbances u_{it} are normally and independently distributed across countries, equation (5) is estimated with Maximum Likelihood by means of the Newton-Raphson algorithm.

[28]   Long-run homogeneity can also be imposed on a subset of variable and/or countries.

The PMG estimator is appropriate when data have complex country-specific short-term dynamics which cannot be captured imposing the same lag structure on all countries. This estimator combines the properties of efficiency of the pooled dynamic estimators while avoiding the inconsistency problem deriving from slope heterogeneity.[29] The restriction of homogenous long-run coefficients can be tested by means of a Hausman test.[30] Moreover, since the PMG estimator does not impose any restriction on short-term coefficients, it provides important information on country-specific values of the speed of convergence towards the long-run relationship linking government expenditure and potential output.

4.2   Pooled mean group ECM estimation

PMG estimates are valid under the assumption that disturbances are independently distributed across units and over time with zero mean and constant variances. The independence of the disturbances across countries is needed for the consistent estimation of the short-term coefficients. Following Pesaran *et al.* (1999), we model cross-sectional dependence assuming the existence of observable common components in the residual, captured by the EU-15 aggregate potential output, which is assumed to have an impact on government expenditure that differs across countries. In formal terms, the error component of the ARDL is defined as follows:

$$u_{it} = \boldsymbol{\psi}_i' \lambda_t + \varepsilon_{it} \tag{6}$$

where λ_t is a common factor and ε_{it} are stochastic disturbances assumed to be with zero mean and constant variance and independently distributed across *i* and *t*. We make the further assumption that

$$\boldsymbol{\psi}_i' \lambda_t = \psi_i\, y_{EU,t} \tag{7}$$

i.e., that the EU aggregate potential output, $y_{EU,t}$, affects government expenditure in each country with an intensity measured by parameter ψ_i.[31]

---

[29]   The test of homogeneity of the long-run coefficients consists of an Hausman test that compares the MG and the PMG estimators (Pesaran *et al*., 1999; Pesaran *et al*., 1996). The PMG estimator is consistent and efficient under the null hypothesis of long-run slope homogeneity and inconsistent under the alternative of long-run slope heterogeneity. The MG estimator provides a consistent estimate of the mean of the long-run parameters although this is inefficient under null of homogeneity.

[30]   Also when the restriction of long-run homogeneity is rejected, pooling may still be preferable to averaging across country-specific parameters as it reduces the effects of outliers, especially in small samples.

[31]   Bai and Ng (2002) propose to model cross sectional dependence of the error terms constructing the common factor λ_t from the error term using principal component analysis. However, Pesaran (2006) shows that the principal components approach can still yield inconsistent estimates. Pesaran (2006) shows that linear combinations of unobserved factors can be approximated by cross-section averages of the dependent variable and the observed regressors.

Table 4

Pooled Mean Group ECM Estimates: Common Parameters, EU-15, 1970-2003

Long and short-term elasticities	
Long-run elasticity $(-\dfrac{\beta_i}{\phi_i})$	0.93*** *(6.83)*
Error correction coefficient (cross country average of error correction coefficients ϕ_i)	–0.35*** *(–4.83)*
Short run coefficients	
GDP	0.33*** *(4.83)*
Δ government expenditure(–1)	0.07 *(1.86)*
Δ government expenditure(–2)	0.034 *(1.00)*
Δ potential output	–1.28 *(–1.5)*
Δ potential output (–1)	0.40 *(0.84)*
Δ potential output (–2)	–0.27 *(–1.00)*
Intercept	–0.69** *(–2.08)*
EU-15 potential output	0.15* *(1.7)*
Hausman test for poolability of countries	0.89 *(0.34)*

Lags are selected by the Akaike Information Criterion. *t*-statistic are reported in parentheses. The error correction coefficient measures the speed of adjustment and is computed as the average of each country speed of adjustment. The Hausman test is a test of poolability of the long-run coefficient (*i.e.* of the restriction that all countries have the same long-run elasticity). *t*-statistic in parentheses excepted for the Hausman where *p*-values are reported in parenthesis. The null of homogenous long-run coefficient is accepted at 5 per cent when the *p*-values are bigger than 0.05. *** Significant at 1 per cent; ** significant at 5 per cent; * significant at 10 per cent.

Table 4 reports PMG estimates of the ECM. Lags are chosen on the basis of AIC and are allowed to vary across countries. Table 4 shows that the long-run elasticity of expenditure to output is not significantly different from 1. On the basis of the Hausman test it is not possible to reject the hypothesis of poolability of the long-run elasticity of public expenditure (*p*-value 0.34). The error correction coefficient is negative and statistically different from zero, implying that any deviation of government expenditure from the value predicted by the long-run relationship with the potential output triggers a change in the opposite direction in

government expenditure. The average value of the error correction coefficient of government expenditure is –0.35, implying a speed of adjustment of about 3 years.

Specification tests indicate that in most countries there is no evidence of misspecification (Table 5). In all countries but Belgium, there is no first order serial autocorrelation. The RESET test rejects the functional form of the ECM only for Belgium, Germany and France. The heterosckedasticity test rejects the hypothesis of constant variances for Belgium, Germany, Ireland, Italy, Netherlands and Finland. Finally, the Jarque-Bera test suggests non-normal errors for Austria, Finland and Germany.

Table 5 shows that countries' individual estimates of the error correction coefficient are all negative, implying convergence of expenditure towards its long-run equilibrium.

The adjustment coefficient for Belgium is equal to 1 as the AIC criteria selects an ARDL(0,0). However, tests of functional form suggest possible problems with this specification (Table 5). Hence, for this country, an ARDL has been estimated,imposing the long-run elasticity given by the PMG estimator and selecting the lags on the basis of their statistical significance and of the usual diagnostic tests. The final model has normal, serially, uncorrelated and homoskedastic residuals and a speed of adjustment of 0.11.[32]

Similarly, the equation for Germany suffers from non-normal and heteroskedastic errors and the test of functional form is rejected by the data. The equation for Germany has therefore been re-estimated imposing the long-run elasticity estimated by the PMG. A model with 2 lags of the EU-15 potential output, a dummy variable for 1991 (a unification dummy), and the ECM lagged by one year yields a satisfactory representation of the data. The short-run elasticity is in this case 0.073, implying a very persistent out-of-steady-state dynamics.

With the revised coefficients for Belgium and Germany, the average speed of adjustment is about 0.29, implying that on average it takes about 3 years for public expenditure to close a temporary deviation from the level predicted by the long-run relationship with potential output.

The speed of adjustment is relatively fast in the UK, Ireland, Sweden, Greece and Finland, while it is relatively slow in Spain, Italy and Portugal. Overall, there is some evidence that Anglo-Saxon and Nordic countries exhibit a faster adjustment of government expenditure to its long-term equilibrium, while adjustment is slower in Southern European countries. There are two exceptions to this pattern. First, Greece appears to be characterized by a very fast adjustment process. Second, Germany in our alternative specification exhibits a considerably low speed of adjustment.

----

[32]   An ARDL with 3 lags for both government expenditure and potential output, no lags for EU potential output and a shift dummy for 1981 yield well behaved disturbances in the case of Belgium.

Table 5

Pooled Mean Group ECM Estimates:
Country-specific Parameters and Specification Tests, EU-15, 1970-2003

	Number of Lags Selected by AIC[1]	Error Correction Coefficients ϕ_i	Auto-Correlation Test	Functional Form Test	Normality Test	Heteroscedasticity Test	Adjusted R square
Belgium	0; 1	–1 (NA)	43.45	31.9	0.54	8.75	–0.71
Denmark	1; 0	–0.318 (2.7)	0.14	0.66	0.17	0.43	0.15
Germany	1; 2	–0.150 (1.7)	4.66	11.13	27.0	8.33	0.38
Greece	1; 2	–0.570 (3.9)	1.33	0.12	0.02	0.08	0.26
Spain	2; 0	–0.064 (1.6)	0.05	7.39	1.69	0.54	0.37
France	1; 0	–0.126 (2.8)	0.46	12.98	1.61	3.53	0.52
Ireland	1; 2	–0.558 (3.5)	0.26	0.62	0.53	13.88	0.36
Italy	2; 2	–0.087 (1.06)	0.27	1.54	0.25	11.00	0.21
Luxembourg	1; 1	–0.287 (2.8)	0.12	0.48	0.40	0.34	0.20
Netherlands	2; 0	–0.133 (2.8)	1.58	7.35	0.69	7.54	0.39
Austria	1; 0	–0.139 (2.6)	0.54	5.36	15.41	0.77	0.45
Portugal	1; 1	–0.093 (1.01)	2.06	0.39	2.93	0.06	0.48
Finland	1; 1	–0.446 (3.2)	0.35	2.05	70.11	7.45	0.33
Sweden	2; 3	–0.572 (5.7)	1.21	0.03	0.33	0.34	0.50
United Kingdom	3; 1	–0.70 (7.2)	4.12	0.26	0.95	0.65	0.72

In the first column, the first figure indicates the lag selected by the Akaike Information Criterion for the dependent variable; the second number refers to the lags selected by the Akaike Information Criterion for the explanatory variable. *t*-statistics of the error correction coefficients in parentheses. Diagnostic checks refer to the equations that pool the long-run coefficients but leaving unconstrained the short-run dynamics. Specification tests are as follows: Godfrey's test of residual serial correlation distributed as $\chi^2(1)$ under the null of no autocorrelation; Ramsey's RESET test of functional form distributed as $\chi^2(1)$ under the null of no autocorrelation; Jarque-Bera's test of normality distributed as $\chi^2(2)$ under the null of no autocorrelation; Test of Heterosckedasticity distributed as $\chi^2(1)$ under the null of no autocorrelation.

4.3   *Alternative modelling of the common component and estimation*

To what extent are the estimates robust to the chosen approach? To provide an answer to such question we compute first the same estimates as in Table 4 with a different modelling of the common component affecting government expenditure across the EU. Instead of relying on an observed common factor (EU-15 aggregate potential output) as in our previous estimates, we assume now that the common factor cannot be easily identifiable with an observable variable. We simply assume instead the presence of a common EU wide deterministic trend that affects the relation between government expenditure and potential output. Since there is not strong a priori on the functional form for this trend, we allow both a linear and a quadratic trend component.[33] By estimating by PMG the model specified in this way with an unobserved common component, our previous results are to a large extent confirmed (see Table 9). The common long-term elasticity of government expenditure is above but close to unity (1.29) and the average short-term elasticity is –0.46. The short-run elasticity in all countries is negative, implying convergence of government expenditure towards its long-term relation with potential output.[34] The Hausman test accepts the poolability of countries.[35]

Second, we estimate the model via mean group estimation (MG), *i.e.*, as suggested by Pesaran and Smith (1995), we estimate the model for each country and take an average of the value of the coefficients to infer the behaviour of government expenditure across the whole panel. As discussed, such method has a cost in terms of estimates' precision (efficiency) and, especially in small samples, the presence of outliers can greatly affect the estimated coefficients. Nonetheless, to check robustness, in Table 10 we repeat the estimation of the model via MG estimation. Results show that, while the long-term government expenditure elasticity is higher than that obtained with PMG (2.16), the average short-term elasticity is close (–0.44).

Overall, our baseline results in Table 4 seem relatively robust with respect to alternative specifications of the common component affecting government expenditure across the panel. Conversely, the estimation of the long-term elasticity is clearly affected by the estimation method. By choosing the MG rather than the PMG method a much higher value is obtained.

---

[33]   In terms of equation (7), $\psi'_i \lambda_t = \psi'_i \tau + \psi''_i \tau^2$.

[34]   The country-specific values of the short-term elasticity broadly reflect the ranking in Table 5, with the exception of Spain, Italy and Austria (higher elasticities compared with baseline) and Ireland (lower elasticity).

[35]   Although, in light of the wide array of interdependencies among European countries we consider the lack of any form of cross-section dependence unrealistic, to check robustness we also estimated the model excluding a common component altogether. Without controlling for common factors the long-term elasticity of government expenditure is the same as that of our baseline estimates in Table 4 (0.93), while the estimated short-term elasticity is somehow smaller (–0.19), implying an adjustment of government expenditure taking on average about 5 years.

5   Robustness analysis

In this section, the robustness of the relation between government expenditure and potential output is checked against alternative definitions of the sample. We address the following questions. Is the relation significantly stable over time? Are there countries with a significantly different behaviour? Which country characteristics appear to be related with the values of the elasticity of government expenditure with respect to potential output?

5.1   Stability over time

We first check the stability over time of our results via a recursive PMG estimation of the empirical model illustrated in section 5. The model is estimated initially over the 1970-79 sub-period and repeatedly adding 5 additional years until the entire sample period (1970-2003) is covered. Figure 3 displays the results. The upper panel plots the values of the long-run elasticity of government expenditure over the various sub-samples considered; the lower panel does the same for short-run elasticities.

Results show that the long-term elasticity changed substantially over the period considered. In the 1970s the value of the elasticity was around 2. The 1980s were marked by a substantial decline in the long-term elasticity, whose value appears to have stabilised only at mid nineties. Overall, recursive estimations suggest a significantly different and higher response of expenditure to output for the earlier decades. Indeed, for the 1970s and the 1980s the confidence bands of the coefficient estimated recursively (the dotted lines in the upper panel of Figure 3) do not include any of the values included in the corresponding bands estimated including also the 1990s.

In contrast, the lower panel of Figure 3 shows that the speed of adjustment appears rather stable over time. In almost all sub-periods, the estimates of the adjustment coefficients are significantly negative and less than 1 in absolute value, implying that following a shock, expenditure converges back towards its long-run relationship with the potential output. The set of values falling into confidence intervals overlaps with that obtained for the whole period already in the 1980s.

In light of the evidence of substantial changes in the long-term relation between government expenditure and potential output during the 1980s, PMG estimations and Hausman tests are performed over two different sub-periods: 1970-89 and 1990-2003 (Table 6). The Hausman test suggests that hypothesis of long-run homogeneity (*i.e.* equality across countries of the long-run elasticity) is supported by the data over all the sub-periods. In line with the findings from recursive estimations, the hypothesis of unit elasticity of expenditure to output is rejected for the earlier period, while it is accepted for the more recent sub-period. Regarding the short-term elasticity, it appears relatively stable across-sub-periods.

Figure 3

Results from Recursive Estimates EU-15, Different Sub-periods

Recursive Estimate of the Elasticity of Primary Expenditure to Potential Output
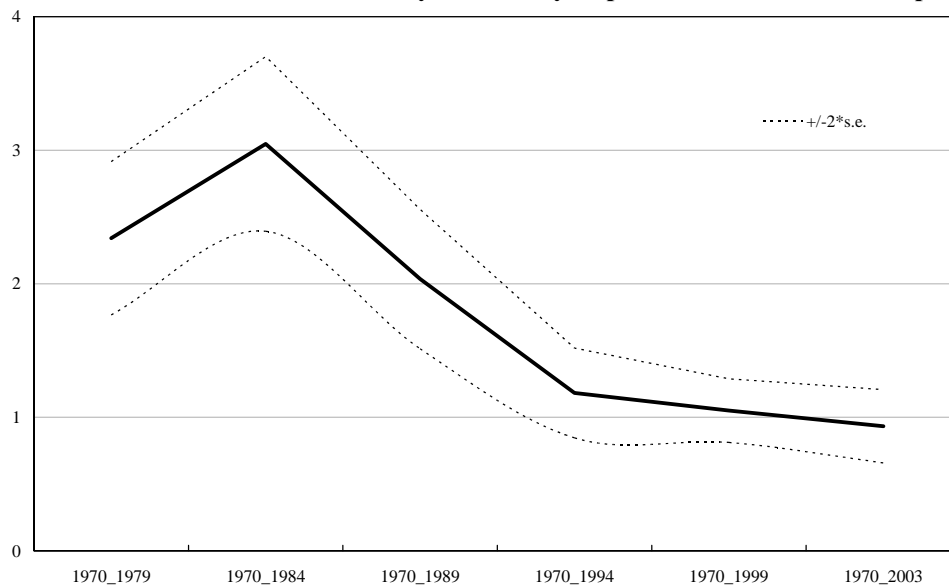
Recursive Estimate of the Speed of Adjustment
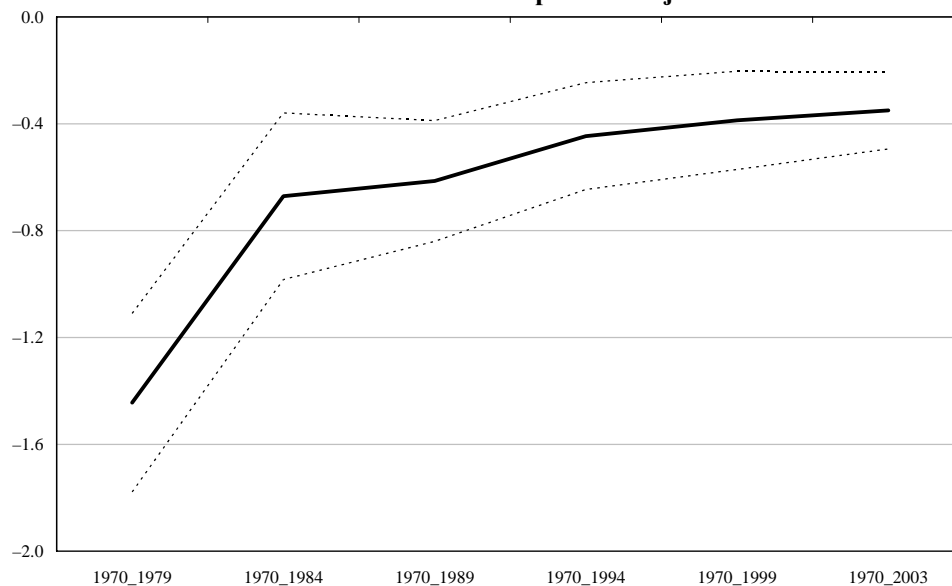
Table 6

Pooled Mean Group ECM Estimates, EU-15 over Different Sub-periods

	Coefficient Values	Hausman Test for Poolability of Countries
1970-2003		
Long-run Coefficients	0.93*** (6.8)	3.15 (0.08)
Error Correction Coefficient	−0.35*** (−4.8)	
1970-1989		
Long-run Coefficients	2.03*** (7.8)	0.13 (0.72)
Error Correction Coefficient	−0.61*** (−5.4)	
1990-2003		
Long-run Coefficients	1.18*** (4.35)	1.25 (0.26)
Error Correction Coefficient	−0.69*** (−4.86)	

Lags are selected by the Akaike Information Criterion. *t*-statistic are reported in parentheses. The Hausman test is a test of poolability of the long-run coefficient (*i.e.* of the restriction that all countries have the same long-run elasticity). The *p*-value is reported in parenthesis. ***, ** and * denote, statistical significance at, respectively, 1 per cent, 5 per cent and 10 per cent level.

5.2   Stability across countries

The findings from our ECM estimation via PMG might be affected also by the relative small number of countries in the sample. As a further robustness check we have re-estimated the model excluding from the sample one country at a time. This permits to understand whether the results are strongly driven the behaviour of a single country. Figures 4 and 5 plot, respectively, the value of the long-run and of the short-run elasticity of government expenditure on the country excluded from the sample.

The only country that appears to influence significantly the estimation of the long-run elasticity is Ireland. When this country is excluded from the sample, the estimated elasticity is significantly higher: there are values of the long-run elasticity falling inside the 95 per cent confidence band (*i.e.*, +/–2 times the standard deviation of the estimated elasticity) that would be too high to fall inside the corresponding confidence bands when the estimates concern any sample with Ireland included. This indicates that the presence of Ireland contributes to keep low the value of the long-run elasticity estimated on the whole sample. The impact, though significant, appears not to be strong enough to alter qualitative results: the long-run elasticity of government expenditure once Ireland is excluded is still close to unity.

Figure 4

Cross-sectional Stability of the Long-run Elasticity of Government Expenditure with Respect to Potential Output
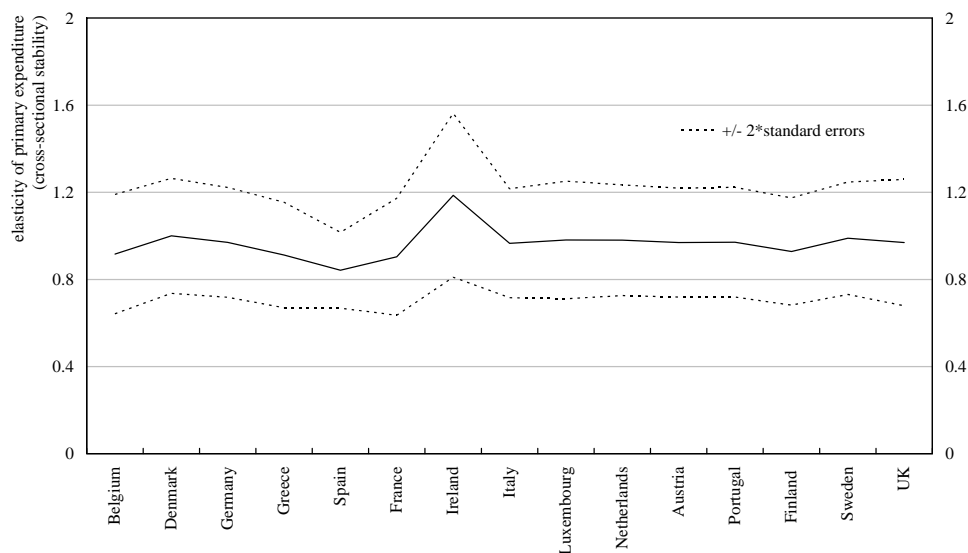
Figure 5

Cross-sectional Stability of the Speed of Adjustment
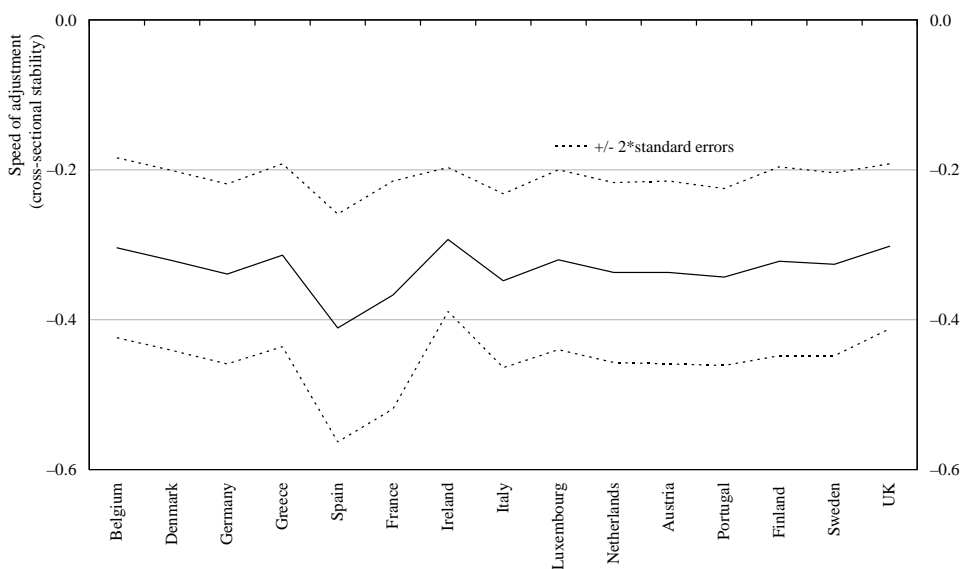
Regarding the short-run elasticity, Spain appears to reduce (in absolute value) significantly the value estimated across the whole panel: its exclusion leads to an estimated elasticity of about –0.4, with values falling within the confidence band that are too negative to be included also in the corresponding confidence bands obtained with any sample including Spain.

As a further check of stability we have computed the Hausman test of poolability of long-run coefficients 15 times excluding each time one country from the estimation. The test is always accepted, implying that the long-run countries' coefficients are indeed poolable in all cases.

5.3 *Checking rebustness across country groupings: development stage, demography, public finances, fiscal governance*

The relationship between government expenditure and potential output is affected by a series of factors (economic, demographic, institutional, ...). For instance, there are reasons to think that catching-up countries are likely to exhibit a higher long-run elasticity of government expenditure compared with countries at a later stage of development. Catching up countries are in general characterized by a less developed social welfare system, which tends to grow in size as income per capita rises. The demand for government investment is also likely to grow faster during the catching up process, since public infrastructure needs to adapt to the requests of an expanding private sector. This means that, by grouping countries according to their initial per capita GDP, one should expect different long-run elasticities for government expenditure for different country groupings: relatively high for countries starting with low income-per capita, relatively low for those countries where initial income per capita was high.

This section aims at testing robustness of results by splitting countries according to particular characteristics that are likely to affect the relation between government expenditure and economic activity. A systematic analysis of the influence of all possible factors that could play a role is beyond the scope of this paper. We focus instead on a limited set of factors that appear obvious candidates for such an exercise: the stage of economic development, demography, the state of public finances. Results are reported in Table 7.

5.3.1 *Development stage*

The first robustness check consists of splitting the sample according to the per capita GDP (measured in PPP) at the beginning of the sample period. The expectation is that the long-run elasticity in countries with initial low per capita income should be higher, being those the countries likely to have experienced a catching up process during the period considered.

In order to obtaining country groups of about equal size, the median of the initial per capita GDP has been used as a cut-off value to split countries. According

Table 7

Pooled Mean Group ECM Estimates, Different EU-15 Sub-samples, 1970-2003

	Coefficient values	Hausman test for poolability of countries
Full Sample		
Long-run coefficient	0.93 *(6.83)*	3.15 *(0.08)*
Error correction coefficient	–0.35 *(–4.83)*	
Development stage: split based on the median level of GDP per capita in 1970		
Low GDP per capita		
Long-run coefficient	3.1*** *(19.6)*	0.05*** *(0.83)*
Error correction coefficient	–0.25*** *(–2.1)*	
High GDP per capita		
Long-run coefficient	1.04*** *(5.3)*	0.01*** *(0.91)*
Error correction coefficient	–0.40*** *(–3.6)*	
Low GDP per capita		
Long-run coefficient	3.1*** *(19.6)*	0.05*** *(0.83)*
Error correction coefficient	–0.25*** *(–2.1)*	
Demography : split based on the median yearly change in the dependency ratio over the sample		
Slow ageing countries		
Long-run coefficient	0.61*** *(4.6)*	0.20*** *(0.65)*
Error correction coefficient	–0.35*** *(–3.5)*	
Fast ageing countries		
Long-run coefficient	1.5*** *(5.1)*	0.42*** *(0.51)*
Error correction coefficient	–0.27*** *(–3.3)*	
Slow ageing countries		
Long-run coefficient	0.61*** *(4.6)*	0.20*** *(0.65)*
Error correction coefficient	–0.35*** *(–3.5)*	
Public finances: split based on the median level of the average debt/GDP ratio		
Low average debt		
Long-run coefficient	1.5 *(5.7)*	0.89 *(0.34)*
Error correction coefficient	–0.26 *(–3.96)*	
High average debt		
Long-run coefficient	0.6 *(4.1)*	3.73 *(0.05)*
Error correction coefficient	–0.52 *(–3.53)*	
Fiscal governance: split based on the median level of expenditure rule indexes		
Above Median countries		
Long-run coefficient	0.28 *(1.7)*	0.05 *(0.83)*
Error correction coefficient	–0.32 *(–3.3)*	
Below Median countries		
Long-run coefficient	3.2 *(20.9)*	0.89 *(0.35)*
Error correction coefficient	–0.39 *(–2.7)*	

Lags are selected by the Akaike Information Criterion. *t*-statistic are reported in parentheses. The Hausman test is a test of poolability of the long-run coefficient (*i.e.* of the restriction that all countries have the same long-run elasticity). The *p*-value is reported in parenthesis. ***, ** and * denote, statistical significance at, respectively, 1 per cent, 5 per cent and 10 per cent level.

to the most recent update of the Penn World Tables (Heston, Summers and Aten, 2002), the median annual real GDP measured in PPP across EU-15 countries in 1970 was 3640.3 US dollars (base year 1996). Countries with income per capita below this value median in 1970 were Portugal, Ireland, Greece, Spain, Italy, Austria and Finland (see Table 8).

Table 7 shows that our expectation is fully met: while the long-run elasticity of government expenditure is close to unity for high per capita GDP countries, the elasticity for the countries with low initial per capita GDP is about 3. This result seems to suggest that the Wagner law is a phenomenon that mostly pertains to catching-up countries. Regarding the short-run elasticity, the difference between the two country groups is rather limited and values are close in both cases to those estimated for the whole sample. The Hausman test accepts the poolability of countries for both country groups.

5.3.2 Demography

The second assumption that we are interested in testing is whether countries characterized by a population that is ageing faster are also distinguished by a high elasticity of government expenditure over the long-run, and whether this has any bearing on the short-run elasticity as well. The idea is that an ageing population entails expenditure dynamics that are independent of those relating to potential output growth. Government expenditure grows not only to satisfy rising demands for public goods and services stemming from rising incomes, but also to accommodate a changing composition of the population (a rising fraction of old people with higher social welfare claims). Since old dependency ratios tend to raise over time as well as potential output, the time series relation between government expenditure and potential output is inevitably affected by ageing.

Countries have been split in two groups on the basis of the median change in the old dependency ratio over the period 1970-2003. The median change in the dependency ratio is 4.5.[36] Countries classifiable as slow-ageing according to this criterion are Ireland, Austria, Luxembourg, Denmark, UK, the Netherlands, while Germany and France are very close to the median.

Results in Table 7 show that, in line with our expectations, the long-run elasticity of slow-ageing countries is lower than that of fast-ageing countries.[37] Slow-ageing countries are also characterized by a somehow faster adjustment process of government expenditure to its long-term relation. Hausman tests accept the hypothesis of countries poolability for both country groups.

---

[36]   This indicator is the ratio between the total number of elderly persons of an age when they are generally economically inactive (aged 65 and over) and the number of persons of working age (from 15 to 64). Source: Eurostat.

[37]   This finding is robust with respect to the exclusion of France and Germany from the group of slow-ageing countries. In this case, the elasticity is 0.84 (*t*-Student of 7.46), the speed of adjustment –0.48 (*t*-Student –4.22) and the Hausman test 0.26 (*t*-student 0.61).

Table 8

Variables Used to Split the Sample of Countries (see Table 7)

	Debt/GDP Ratios		GDP per capita		Yearly Change in Dependency Ratio		Expenditure Rule Index	
	Avg. Level	Rank	Level in 1970	Rank	Avg. Level	Rank	Avg. Level	Rank
Belgium	98.4	16	3697.2	9	20.4	8	0.49	9
Denmark	49.5	9	4783.4	14	16.5	5	0.79	11
Germany	40.4	5	3748.8	10	19.1	6	0.90	13
Greece	63.9	13	2473.6	3	39.8	11		
Spain	36.9	3	2729.5	4	50.5	14	0.25	7
France	39.8	4	3764.1	11	19.8	7	–0.33	5
Ireland	70.9	14	2219.8	2	–16.3	1	–0.67	2
Italy	85.0	15	3417.2	5	48.4	12	–0.66	3
Luxembourg	10.5	1	5064.2	15	9.0	3	1.27	14
Netherlands	59.8	12	4051.3	12	22.6	9	0.84	12
Austria	46.7	7	3434.3	6	0.4	2	–0.54	4
Portugal	46.1	6	1849.3	1	49.8	13	–1.03	1
Finland	25.4	2	3453.6	7	52.1	15	0.26	8
Sweden	49.4	8	4604.9	13	24.7	10	0.14	6
United Kingdom	51.5	11	3640.3	8	14.0	4	0.68	10

Per capita GDP data are based on Penn World Tables mark 6.1. Expenditure indexes are described in Ayuso *et al.* (2006). The average reported in the table covers the period 1990-2003, *i.e.*, the whole years for which index data are available. The source of debt/GDP ratios and dependency ratios are AMECO database and Eurostat, respectively.

5.3.3 Public finances

A further hypothesis we are interested in is whether countries with high debt/GDP ratios are characterised by a lower long-run government elasticity. Since Bohn (1991) an expanding literature has analysed the issue of public finances sustainability by looking at the relation between flow and stock public finance variables via the econometric estimation of fiscal reaction functions. The aim is establishing whether any increase in government debt induces a rise or a fall in primary government surpluses, the former implying debt sustainability. Fiscal reaction functions generally analyse the behaviour of the share of primary government budget balance over GDP, but estimates have been carried out separately for government primary expenditure as a share on GDP. Results show in

general that government expenditure tend to fall in relation to GDP as debt/GDP ratios fall, a result consistent with the hypothesis that fiscal authorities set expenditure motivated also by the purpose of stabilising debt (see, e.g., European Commission, 2006).

To shed light to the above assumption, the sample has been slit between high-debt and low-debt countries on the basis of the median value of the debt/GDP ratio observed on average across the period (see Table 8).[38]

Table 7 shows that, in accordance with the hypothesis outlined above, the long-run elasticity estimated for the group of low-debt countries is considerably higher than that for high-debt countries. The latter group of countries also appears to adjust government expenditure at a speed that is about twice that high-debt countries.. In the case of high-debt countries, however, Hausman tests reject the hypothesis of poolability, a possible indication of heterogeneity in the cross section's long-run coefficients and panel mis-specification.

5.3.4 Fiscal governance

Finally, we check robustness of our baseline results concerning the long run relation between expenditure and potential output and the error correction coefficient splitting country groups according to their fiscal governance, namely the set of rules and institutions that contribute to the government control of fiscal variables, notably public expenditure. To that purpose, the sample was split on the basis of the average value of the EU Commission indicators of national-level expenditure rule across years for which information are available. The indicators vary across countries and over time and capture both the degree of coverage of numerical rules to keep expenditures under control (*i.e.*, which share of general government expenditures are subject to the rule) and a series of qualitative features of the rule: their statutory basis, their monitoring and enforcement procedures, and their visibility in the media (for details on the construction of the indexes see European Commission, 2006 and Ayuso-i-Casals *et al.*, 2006). The information for the construction of the indicators was collected via questionnaires targeted to experts on finance ministries and covers 22 EU countries over the 1990-2005 period. The countries with expenditure rules receiving a raking higher than that of the median country are Denmark, Germany, France, Ireland, Luxemburg, the Netherlands and Sweden.

The expectation is that countries with "stronger" numerical rules to control expenditure should exhibit a lower long-run coefficient linking government expenditure to potential output compared with the group of "weak-rule" countries: for the former it would be easier to contrast the tendency for government expenditures to grow over time as a result of ageing or increased pressures for

---

[38] This criterion to split the sample depends to some extent on the expenditure dynamics itself. An alternative would be to use the median debt/GDP ratio observed at a given point in time. This is however problematic, since the rank of countries according to their debt/GDP ratio changes over time.

spending. The same group of countries is also expected to be able to correct faster any divergence between current developments in expenditure and the long-term trend (*i.e.*, to exhibit a higher error correction coefficient). Table 7 shows that our results are in line with expectations. Hausman tests reject the hypothesis of poolability only for countries with low numerical expenditure rules. This finding suggests that the presence of strong fiscal rules is sufficient to identify an homogenous group of countries with an elasticity of expenditure to output below one, while the group of countries with weak expenditure rules exhibits a higher average long-run elasticity but is not homogenous.

6   Implications for policy

Overall, the analysis shows that on average, across our sample of EU countries, government expenditure and potential output are linked by a long-run relation such that government spending grows roughly in proportion with potential output.

This finding has a clear implication for the EU debate on public finances sustainability. It is often claimed in the EU policy debate that rising potential growth would be key to ensure the compatibility of relatively generous welfare systems with the sustainability of public finances over the long-run.[39] Satisfactory rates potential growth are a necessary condition for satisfactory growth rates of government revenues and would ensure a rapid reduction of the existing stock of government debt as a share of GDP. However, the net impact of potential growth on the future stream of government budget balances ultimately depends also on its impact on government expenditure. Our results suggest that, on average, increased rates of potential growth would leave the share of government expenditure on potential output roughly unaffected, but the impact would differ quite considerably across countries.

Evidence of a roughly proportional relation between cyclically-adjusted primary government expenditure and potential GDP also sheds some light on the empirical validity of the alternative approaches followed to construct measures of cyclically-adjusted budget balances and to assess the stance of fiscal policy. Our findings yield empirical support to the models for the cyclical adjustment of budget balances based on the assumption that the share of government expenditure on potential output is constant in the long-run and that possible deviations have a cyclical nature. Our results also lend support to the analysis of the stance of expenditure policy based on the share of cyclically-adjusted primary expenditure over potential output: an increase in such a ratio would be an indication of an expansionary stance of government expenditure.

The evidence on the speed of adjustment of government expenditure to potential output has implications for budgetary surveillance. This is particularly

---

[39]   See, e.g., Sapir *et al.* (2004).

relevant in the EU context, where national budgetary policies are subject to a common framework for fiscal policy enshrined in the EU Treaty and in the Stability and Growth Pact (SGP).

Some implications concern the so-called preventive arm of the Stability and Growth Pact. In order to prevent the risk of breaching the 3 per cent of GDP reference value for deficits, EU countries aim at medium term budgetary objectives defined in structural terms well below this threshold. The respect of such medium term objectives implies that the growth of government expenditure adjusts to changes in the growth rate of potential output. Our estimates indicate that such adjustment could take few years and be largely country-specific.

Regarding the so-called corrective arm of the SGP, budgetary deteriorations ensuing from sluggish economic growth could lead to the breach of the 3 per cent of GDP reference value for deficits and the opening of an Excessive Deficit Procedure (EDP), in which countries are subject to enhanced surveillance by the Commission and the Council with a view to correct budgetary imbalances within deadlines defined in the SGP. The estimated short-run elasticities of government expenditure with respect to potential output provide information on the feasibility of the budgetary effort of EDP countries.

7   Concluding remarks

This paper has provided an estimation of the long and short-run relation between government expenditure and potential output across EU countries. Panel cointegration tests reveal that government expenditure and potential output in the EU are linked by a stable long-run relation. The estimation of the dynamic relation between the two variables by means of the Pooled Mean Group (PMG) estimator (Pesaran, Shin and Smith, 1999) permits to combine the precision of the estimates allowed by pooling the data across the cross-country dimension while limiting the risk of inconsistency of the estimates associated with the possible heterogeneity of regression coefficients across countries. The PMG imposes a common long-term elasticity for all countries while allowing country-specific short-term elasticities.

Results show that the assumption of a common long-run elasticity is accepted by the data and that such elasticity is slightly below unity. The long-run elasticity is however not stable over time (it decreased considerably over the decades) and is significantly higher than unity in catching-up countries, in fast-ageing countries, in low-debt countries, and in countries with weak numerical rules for expenditure control. Country-specific short-term elasticities imply on average a speed of adjustment of government expenditure to potential output of about 3 years, even though coefficients vary quite widely across countries, with Anglo-Saxon and Nordic countries exhibiting in general higher speed of adjustment than Southern European countries. Such findings have implications for policy, notably for the EU, where countries are subject to a common framework for budgetary surveillance.

Overall, the paper shows that the estimation method matters substantially for the measurement of the relation between government expenditure and potential output. Relying and the average of individual country-level estimates would have yielded a long-run elasticity of government expenditure well above unity. However, such estimate would be less precise than one exploiting the panel dimension of the data.

APPENDIX

<div align="right">

Table 9

</div>

Pooled Mean Group ECM Estimates: Common Parameters
Unobserved Common Component, EU-15, 1970-2003

Long and short-term elasticities	
Long-run elasticity $(-\dfrac{\beta_i}{\phi_i})$	1.29*** (8.14)
Error correction coefficient (cross country average of error correction coefficients ϕ_i)	−0.46*** (−6.58)
Short run coefficients	
GDP	0.59*** (6.58)
Δ government expenditure(−1)	0.12** (2.02)
Δ government expenditure(−2)	0.045* (1.73)
Δ potential output	−0.39 (−0.52)
Δ potential output (−1)	0.61 (0.83)
Δ potential output (−2)	−0.02 (0.13)
Intercept	0.04 (0.76)
Trend	−0.001 (−0.65)
Trend square	0.00 (0.36)
Hausman test for poolability of countries	0.89*** (0.34)

Lags are selected by the Akaike Information Criterion. *t*-statistic are reported in parentheses. The Hausman test is a test of poolability of the long-run coefficient (*i.e.* of the restriction that all countries have the same long-run elasticity). The *p*-value is reported in parenthesis. ***, ** and * denote statistical significance at, respectively, 1 per cent, 5 per cent and 10 per cent level.

<div align="right">**Table 10**</div>

Mean Group ECM Estimates:
Cross-country Average of Estimated Parameters, EU-15, 1970-2003

Long and short-term elasticities	
Long–run elasticity $(-\dfrac{\beta_i}{\phi_i})$	2.16^{***} *(3.1)*
Error correction coefficient (error correction coefficients ϕ_i)	-0.44^{***} *(–5.66)*
Short run coefficients	
GDP	0.95^{***} *(2.70)*
Δ government expenditure(–1)	0.095^{**} *(2.50)*
Δ government expenditure(–2)	0.034 *(1.0)*
Δ potential output	–1.36 *(–1.22)*
Δ potential output (–1)	1.08 *(1.08)*
Δ potential output (–2)	–0.29 *(–1.00)*
Intercept	0.21 *(0.17.1)*
EU–15 potential output	–0.92 *(1.30)*

Lags are selected by the Akaike Information Criterion. *t*-statistic are reported in parentheses. ***, ** and * denote statistical significance at, respectively, 1 per cent, 5 per cent and 10 per cent level.

REFERENCES

Abizadeh, S. and M. Yousefi (1988), "An Empirical Examination of Wagner's Law", *Economics Letters*, No. 26, pp. 169-73.

Alesina, A. and R. Perotti (1995), "Fiscal Expansions and Adjustments in the OECD Countries", *Economic Policy*, No. 21, pp. 207-48.

——————— (1996), "Budget Beficits and Budget Institutions", NBER, Working Paper, No. 5556.

Alesina, A. and R. Wacziarg (1998), Openness, Country Size, and Government, *Journal of Public Economics*, No. 49, pp. 305-21.

Axfentiou, P.C. (1992), "The Importance of Transfers in Canada: An Analysis Within the Framework of Wagner's Law", *Rivista Internazionale di Scienze Economiche e Commerciali*, No. 39, pp. 709-25.

Ayuso-i-Casals, J., D. Gonzalez Hernandez, L. Moulin and A. Turrini (2006), "Beyond the SGP: Features and Effects of EU National-level Fiscal Rules", paper presented at the workshop organised by the European Commission on *The Role of National Fiscal Rules and Institutions in Shaping Budgetary Outcomes*, Brussels, 24 November.

Baltagi, B.H. (2000), "Non-stationary Panels, Panel Cointegration, and Dynamic Panels", Amsterdam, JAI Press.

——————— (2005), *Econometric Analysis of Panel Data*, John Wiley & Sons.

Baltagi, B.H. and C. Kao (2000), "Non-stationary Panels, Cointegration in Panels, and Dynamic Panels: A Survey" in B. Baltagi (ed.), *Advances in Econometrics, Vol. 15: Non-stationary Panels, Panel Cointegration, and Dynamic Panels*, Amsterdam, JAI Press.

Banerjee, A. (1999), "Panel Unit Roots and Cointegration: An Overview", *Oxford Bullettin of Economics and Statistics*, special issue.

Banerjee, A., M. Marcellino and C. Osbat (2004), "Some Cautions on the Use of Panel Methods for Integrated Series of Macroeconomic Data", *Econometrics Journal*, No. 7, pp. 322-40.

——————— (2005), "Testing for PPP Should We Use Panel Methods", *Empirical Economics*, No. 30, pp. 77-91.

Blanchard, O. and R. Perotti (2001), "An Empirical Characterisation of the Dynamic Effects of Changes in Government Spending and Taxes on Output", mimeo.

Bogetic, Z., S. Randolph and D. Heffley (1996), "Determinants of Public Expenditure on Infrastructure", World Bank, Policy Research, Working Paper, No. 1661.

Bohl, M.T. (1996), "Some International Evidence on Wagner's Law", *Public Finance*, No. 51, pp. 185-200.

Bouthevillan, C., P. Cour-Thimann, G. van den Dool, P. Hernandez de Cos, G. Langenus, M. Mohr, S. Momigliano, M. Tujula (2001), "Cyclically-adjusted Budget Balances: An Alternative Approach", European Central Bank, Working Paper, No. 77.

Breitung, J. (2000), "The Local Power of Some Unit Root Tests for Panel Data", in B. Baltagi (ed.), *Advances in Econometrics, Vol. 15: Non-stationary Panels, Panel Cointegration, and Dynamic Panels*, Amsterdam, JAI Press, p. 161-78.

Breitung, J. and M.H. Pesaran (2005), "Unit Roots and Cointegration in Panels", Institute for Economic Policy Research (IEPR), Research Paper, No. 32, forthcoming in L. Matyas and P. Sevestre (eds.), *The Econometrics of Panel Data*, 3rd edition, Kluwer Academic Publishers.

Buti, M. and P. van den Noord (2003), "Discretionary Fiscal Policy and Elections: The Experience of the Early Years of EMU", OECD, Working Paper, No. 351.

Chang, T. (2002), "An Econometric Test for Wagner's Law for Six Countries Based on Cointegration and Error Correction Modeling Techniques", *Applied Economics*, No. 34, pp. 1157-69.

Choi, I. (2005), "Non-stationarity panels", in K. Patterson and T.C. Mills (eds.), *Palgrave Handbook of Econometrics*, Vol. 1: Econometric Theory.

D'Addio, A. and M. Mira D'Ercole (2005), "Policies, Institutions and Fertility Rates: A Panel Data Analysis in OECD Countries", OECD, Economic Studies, No. 41.

Denis, C., K. McMorrow and W. Roeger (2002), "Production Function Approach to Calculating Potential Output Growth and Output Gaps – Estimates for the EU Member States and the US", *European Economy*, Economic Paper, No. 176.

Engle, R.F. and C.W.J. Granger (1987), "Cointegration and Error Correction: Representation, Estimation, and Testing", *Econometrica*, No. 55, pp. 251-76.

European Commission (2002), "Public Finances in EMU 2002", *European Economy*, No. 3, Bruxelles.

————— (2006), "Public Finances in EMU 2006", *European Economy*, No. 3, Bruxelles.

Fatás, A. and I. Mihov (2002), "The Case for Restricting Fiscal Policy Discretion", CEPR, Discussion Paper, No. 3277.

Fatás, A., J. von Hagen, A. Hughes Hallet, A. Siebert and R.R. Strauch (2003), *Stability and Growth in Europe: Towards a Better Pact*, Centre for Economic Policy Research, London.

Funke, K. and C. Nickel (2006), "Does Fiscal Policy Matter for the Trade Account? A Panel Cointegration Study", European Central Bank, Working Paper, No. 620.

Golinelli, R. and S. Pastorello (2002), "Modelling the Demand for M3 in the Euro Area", *The European Journal of Finance*, No. 8, pp. 371-401.

Halleberg, M., R. Strauch and J. von Hagen (2001), "The Use and Effectiveness of Budgetary Rules and Norms in EU Member States", report prepared for the Dutch Ministry of Finance by the Institute of European Integration Studies.

Heller, P.S. and J. Diamond (1990), "International Comparison of Government Expenditure Revisited: The Developing Countries, 1975-1986", International Monetary Fund, Occasional Paper, No. 69.

Henrekson, M. (1993), "Wagner's Law – A Spurious Relationship?", *Public Finance*, No. 48, pp. 406-15.

Heston, A., R. Summers and B. Aten (2002), *Penn World Table*, Version 6.1, Center for International Comparisons at the University of Pennsylvania (CICUP).

Hughes Hallet, A., J. Lewis and J. von Hagen (2004), *Fiscal Policy in Europe, 1991-2003. An Evidence-based Analysis*, Centre for Economic Policy Research, London.

Im, K., M.H. Pesaran and Y. Shin (2003), "Testing Unit Roots in Heterogeneous Panels", *Journal of Econometrics*, No. 115, pp. 53-74.

Kneller, R., M.F. Bleaney and N. Gemmell (2004), "Fiscal Policy and Growth: Evidence from OECD Countries", *European Journal of Political Economy*, No. 74, pp. 171-190.

Kolluri, B.R., M.J. Panik and M.S. Wahab (2000), "Government Expenditure and Economic Growth: Evidence from G7 Countries", *Applied Economics*, No. 32, pp. 1059-68.

Cameron, G. and K.Y. Tan (2006), "Sovereign Risk in the Classical Gold Standard Era", University of Oxford, Discussion Paper, No. 258.

Larch, M. and M. Salto (2003), "Fiscal Rules, Inertia and Discretionary Fiscal Policy", *European Economy*, Economic Paper, No. 194.

Levin, A., C.F. Lin and C.S.J. Chu (2002), "Unit Roots Tests in Panel Data: Asymptotics and Finite Sample Properties", *Journal of Econometrics*, No. 108, pp. 1-24.

Levine, R. and D. Renelt (1992), "A Sensitivity Analysis of Cross-country Growth Regressions", *American Economic Review*, No. 82, pp. 942-63.

Loayza, N. and R. Rancière (2006), "Financial Development, Financial Fragility, and Growth", *Journal of Money, Credit and Banking*, No. 38, pp. 1051-76.

Mackenzie, G.A. (1989), "Are All Summary Indicators of the Stance of Fiscal Policy Misleading?", International Monetary Fund, Staff Paper, No. 36, pp. 743-70.

Martinez-Mongay, C. (2002), "Fiscal Policy and the Size of Governments", in M. Buti, J. von Hagen and C. Martinez-Mongay (eds.), *The Behaviour of Fiscal Authorities*, Palgrave.

Milesi Ferretti, G.M., R. Perotti and M. Rostagno (2002), "Electoral Systems and Public Spending", *Quarterly Journal of Economics*, No. 117, pp. 609-56.

Nijkamp, P. and J. Poot (2004), "Meta-analysis of the Effect of Fiscal Policy on Long-run Growth", *European Journal of European Economy*, Vol. 20, No. 1, pp. 91-124, March.

Oxley, L. (1994), "Cointegration, Causality, and Wagner's Law: A Test for Britain 1870-1913", *Scottish Journal of Political Economy*, No. 41, pp. 286-98.

Payne, J.E. and B.T. Ewing (1996), "International Evidence on Wagner's Hypothesis: A Cointegration Analysis", *Public Finance*, No. 51, pp. 258-74.

Peacock, A. and A. Scott (2000), "The Curious Attraction of Wagner's Law", *Public Choice*, No. 102, pp. 1-17.

Pedroni, P. (2000), "Fully-modified OLS for Heterogeneous Cointegrated Panels", in B. Baltagi (ed.), *Advances in Econometrics, Vol. 15: Non-stationary Panels, Panel Cointegration, and Dynamic Panels*, Amsterdam, JAI Press, pp. 93-130.

——————— (2000), "Critical Values for Cointegration Tests in Heterogeneous Panels with Multiple Regressors", *Oxford Bulletin of Economics and Statistics*, Vol. 61, pp. 653-70.

——————— (2001), "Purchasing Power Parities Tests in Cointegrated Panels", *Review of Economic and Statistics*, N. 83, pp. 727-31.

Perotti, R. (2002), "Estimating the Effects of Fiscal Policy in OECD Countries", European Central Bank, Working Paper, No. 168.

Persson, T. and G. Tabellini (1990), "Comparative Politics and Public Finance", *Journal of Political Economy*, Vol. 108, pp. 1121-61.

——————— (1999), "The Size and Scope of Government: Comparative Politcs with Rational Politicians", *European Economic Review*, No. 63, pp. 699-735.

Pesaran, M.H. (2003), "A Simple Panel Unit Root Test in the Presence of Cross Section Dependence", Cambridge Working Paper in Economics, No. 346.

——————— (2005), "A Simple Panel Unit Root Test in the Presence of Cross Section Dependence", Cambridge Working Paper in Economics, No. 346, revised version.

Pesaran, M.H., Y. Shin and R. Smith (1999), "Pooled Mean Group Estimator of Dynamic Heterogeneous Panels", *Journal of the American Statistical Association,* Vol. 94, pp. 621-34.

Pesaran, M.H. and R. Smith (1995), "Estimating Long-run Relationship from Dynamic Heterogeneous Panel", *Journal of Econometrics*, Vol. 68, pp. 79-113.

Phillips, P.C.B. and H.R. Moon (1999), "Non-stationary Panel Data Analysis: An Overview of Some Recent Developments", Cowles Foundation Discussion Paper, No. 1221, Cowles Foundation, Yale University.

————— (1999), "Linear Regression Limit Theory for Non-stationary Panel Data", *Econometrica*, No. 67, pp. 1057-12.

Ram, R. (1987), "Wagner's Hypothesis in Time-series and Cross-section Perspectives: Evidence From 'Real' Data for 115 Countries", *Review of Economics and Statistics*, Vol. 69, pp. 194-204.

Rodrik, D. (1998), "Why Do More Open Economies Have Bigger Governments?", *Journal of Political Economy*, Vol. 151, pp. 997-1032.

Sapir, A., P. Aghion, G. Bertola, M. Hellwig, J. Pisani-Ferry, D. Rosati, J. Vinals and H. Wallace with M. Buti, M. Nava and P.M. Smith (2004), *An Agenda for a Growing Europe – The Sapir Report*, Oxford University Press, Oxford.

Smith, R.P. (2000), "Estimation and Inference with Non-stationary Panel Time-series Data", mimeo, Department of Economics, Birbeck College, London.

Tanzi, V. and L. Schuknecht (2000), *Public Spending in the 20th Century: A Global Perspective*, Cambridge University Press, Cambridge.

van den Noord, P. (2000), "The Size and Role of Automatic Stabilizers in the 1990s and Beyond", OECD, Economics Department, Working Paper, No. 230.

Wahab, M. (2004), "Economic Growth and Government Expenditure: Evidence from a New Test Specification", *Applied Economics*, Vol. 36, pp. 2125-35.

CYCLICAL ASYMMETRY IN FISCAL VARIABLES

Fabrizio Balassone, Maura Francese and Stefania Zotteri[*]

In this paper we present a stylised framework of fiscal policy determination that considers both structural targets and cyclical factors. We find significant cyclical asymmetry in the behaviour of fiscal variables in a sample of fourteen EU countries over 1970-2004, with budgetary balances (both overall and primary) deteriorating in contractions without correspondingly improving in expansions. Analysis of budget components reveals that cyclical asymmetry comes from expenditure, in particular from transfers in cash. We find no evidence that fiscal rules introduced in 1992 affected the cyclical behaviour of fiscal variables. Numerical simulations show that cyclical asymmetry inflated average deficit levels, contributing significantly to debt accumulation.

1   Introduction

There is growing evidence that fiscal variables react asymmetrically to positive and negative cyclical conditions. It has often been remarked that during 1970-2000 in European Union (EU) countries, deficits increased in downturns, but did not fall in periods of high growth, with countries offsetting the effects of automatic stabilizers via tax cuts and/or expenditure increases. The procyclicality of fiscal policy in good times is also a stylized fact in emerging markets.

Buti and Sapir (1998) note that for the average of EU countries, "when there is a moderately negative output gap […] the actual deficit gradually increases", while "when there is a moderately positive output gap […] the actual deficit remains stable", and it is only "when there is a strongly positive output gap [that] the actual deficit improves" (p. 87-88). Some evidence of asymmetric behaviour is provided by Buti *et al.* (1998) for high-debt EU countries where, between 1970 and 1990, deficit-to-GDP ratios are around 6 per cent of GDP when output is close to or above its trend value, while the imbalance increases up to 8 per cent when output falls below its trend level. In a previous version of this paper (Balassone and Francese, 2004) we found evidence of a significant difference in the elasticity of the overall

balance to positive and negative output gaps in a sample of sixteen OECD countries over 1969-2002.[1]

Concerning developing countries, Gavin and Perotti (1997) provide evidence of fiscal expansions in good times and contractions in bad times in Latin America. Talvi and Végh (2000) point out that fiscal procyclicality seems to be the norm in the developing world, not just in Latin America. IMF (2007) extends the analysis in Balassone and Francese (2004) to developing countries and finds that the overall balance deteriorates in contractions without improving in expansions.

Available evidence suggests that expenditure play a predominant role in determining the observed cyclical asymmetry of the overall fiscal balance. For instance, Kaminsky *et al.* (2004) show that in a sample of eighty-three developing countries real government spending tends to increase much more in good times than in bad times. Hercowitz and Strawczynski (2004) use a panel of twenty-two OECD countries and find that "the prolonged rise in the spending/GDP ratio [over 1975-98] is partially explained by cyclical upward ratcheting due to asymmetric fiscal behaviour: the ratio increases during recessions and is only partially reduced in expansions" (p. 353).

However, while the cyclical behaviour of fiscal balances is usually analyzed with reference to positive and negative output gaps, the cyclicality of spending is generally measured with respect to GDP growth rates. For instance, both Kaminsky *et al.* (2004) and Hercowitz and Strawczynski (2004) define good and bad times as periods in which real GDP growth is, respectively, higher and lower than "normal" (with the norm defined as the sample average or median). Since periods in which real output growth is above/below an "average" value do not always correspond to periods in which the output gap is positive or negative, the available evidence on the cyclicality of spending and fiscal balances is not necessarily fully consistent.[2]

In order to provide comparable evidence on the cyclical behaviour of fiscal balances and public expenditure, we expand the stylised framework used in Balassone and Francese (2004) to allow for the analysis of the primary balance and individual budget components. We use data from a sample of fourteen EU member states over the period 1970-2004.

The stylised framework underlying the analysis is described in Section 2. Section 3 reports regression results on cyclical asymmetry in fiscal variables; besides the extent and source of asymmetry, the analysis also covers the impact of European fiscal rules on the cyclicality of fiscal policy and the long-term values of fiscal variables. The extent to which cyclical asymmetry affects deficit and debt levels is assessed in Section 4, using numerical simulations. Section 5 summarizes and concludes.

––––––––––

[1]   The estimated elasticity (strictly speaking, semi-elasticity) is 0.4 for negative output gap and zero for positive ones.

[2]   IMF (2007) reports regression results indicating an asymmetric reaction of the expenditure-to-GDP ratio to positive and negative output gaps.

2   The stylised framework

The stylized description of the dynamics of the overall fiscal balance in this Section is based on Balassone and Francese (2004), which in turn owes significantly to Hercowitz and Strawczynski (2004).

We split the ratio of the budget balance to GDP (b_t, with $b_t > 0$ indicating a deficit in period t) into a long-run component (b^l_t) and a cyclical component (b^c_t):

$$b_t = b^l_t + b^c_t \tag{1}$$

We assume that the long-run component is determined by a linear adjustment process towards the government's preferred balance and debt ratios to GDP, b^* and d^*,[3]

$$b^l_t = b_{t-1} + \alpha(b^* - b_{t-1}) + \beta(d^* - d_{t-1}) \qquad \alpha, \beta > 0 \tag{2}$$

Note that in the long run $d^* = b^*/g$, where g is the long-run nominal GDP growth.

The cyclical component, instead, is proportional to the difference between actual and trend GDP (*i.e.* the output gap, ω_t). To allow for cyclical asymmetry, the coefficient of proportionality is different ($\eta = \eta^P$, η^N; $\eta^P \neq \eta^N$) depending on whether the output gap is positive ($\omega_t = \omega^P_t$) or negative ($\omega_t = \omega^N_t$):

$$b^c_t = \eta^P \omega^P_t + \eta^N \omega^N_t \tag{3}$$

The η coefficients in (3) include both the automatic reaction of the budget to cyclical conditions (*i.e.* what is usually called the budget elasticity to the cycle) and the discretionary action undertaken by fiscal authorities in response to such conditions.

Combining (2) and (3) gives:

$$b_t = (\alpha b^* + \beta d^*) + (1 - \alpha)b_{t-1} - \beta d_{t-1} + \eta^P \omega^P_t + \eta^N \omega^N_t \tag{4a}$$

From which the following estimating equation for the overall balance results:[4]

---

[3]   These can be thought of as the result of the optimisation of an objective function linking electoral support – or consistency with one's "ideology", or both – to a number of macroeconomic variables, subject to constraints defined by one's preferred model of the economy (along the lines of the literature on the political business cycle; see, e.g., Nordhaus, 1975; and Alesina, 1987). Alternatively, b^* and d^* may be seen as the government's preferred solution to the present value budget constraint (Blanchard *et al.*, 1990). Artis and Marcellino (1998) provide a review of studies testing the hypothesis that governments actually behave so as to satisfy the present value budget constraint. Finally, a debt stabilisation motive in modelling budgetary decisions has been adopted in empirical analyses by several authors defining "simple" fiscal rules in analogy to the Taylor rule for monetary policy (see, e.g., Bohn, 1998; Ballabriga and Martinez-Mongay, 2002; Galí and Perotti, 2003).

$$b_t = \alpha_0 + \alpha_1 b_{t-1} + \alpha_2 d_{t-1} + \eta^P \omega_t^P + \eta^N \omega_t^N + u_t \qquad u_t \sim NID(0, \sigma_u) \tag{4b}$$

Countercyclical movements of the overall balance would require η^P, $\eta^N < 0$, *i.e.* a slowdown in economic activity ($\omega_t < 0$) determines a worsening of the budget while an expansion ($\omega_t > 0$) determines an improvement. From (4) we define an asymmetry index as follows:

$$\phi = \eta^P - \eta^N \tag{5}$$

If $\phi = 0$ ($\eta^P = \eta^N$), then fiscal policy is symmetric with respect to the cycle, while if $\phi > 0$ the worsening of the budget balance due to a negative output gap is higher than the improvement in the balance experienced when GDP is above potential.

Since equation (4b) can only be estimated using ex-post evaluations of the output gap (as opposed to expected values), in empirical applications it must be interpreted as an instrument for assessing whether *de facto* budgetary movements have been pro/counter-cyclical and symmetric/asymmetric with respect to the cycle, regardless of the government's intention in that respect. It cannot be used to infer the policy intentions of fiscal authorities.[5]

---

[4]   A different specification is often used where the cyclically adjusted balance is regressed against its lagged value, the lagged value of debt and the output gap (plus, possibly, other control variables; see, e.g., Momigliano and Golinelli, 2007):

$$cab_t = \phi_0 + \phi_1 cab_{t-1} + \phi_2 d_{t-1} + \phi_3 \omega_t + u_t \qquad u_t \sim NID(0, \sigma_u) \tag{a}$$

Neither (4b) in the main text, nor (a) above have micro-foundations. Thus, when choosing between the two models one can only rely on how they fit the data. From (4b), using the identity $b_t = cab_t + \gamma \omega_t$ (where the budget balance is split into its cyclically adjusted component – cab_t – and the automatic reaction to the output gap – $\gamma \omega_t$) and dropping the distinction between positive and negative output gaps to economize in notation, we get

$$cab_t = \alpha_0 + \alpha_1 cab_{t-1} + \alpha_1' \omega_{t-1} + \alpha_2 d_{t-1} + (\eta - \gamma) \omega_t + u_t \qquad u_t \sim NID(0, \sigma_u) \tag{b}$$

where $\alpha'_1 = \alpha_1 \gamma$. Comparison of (a) and (b) shows that the two specifications are equivalent if: (a) $\alpha'_1 = 0$ (that is, if current policy, as measured by cab_t, is not affected by past cyclical conditions); or (b) if the output gap is so persistent that it can be safely assumed that $\omega_t = \omega_{t-1}$. With our sample, in regressions not reported here, we consistently find $\alpha'_1 \neq 0$. Moreover, the correlation coefficient between of ω_t and ω_{t-1} is about 0.5. Hence we retain (4b) as our preferred specification.

[5]   Otherwise we would be assuming perfect forecast on the part of the government, which is clearly too restrictive an assumption. When the purpose of the analysis is the assessment of policy intentions, two options can be considered: (a) the use of published government forecasts; and (b) the use of forecasts produced by international organisations. In both cases data availability is limited. Moreover, official government forecasts may suffer from systematic biases (see Larch and Salto, 2003, for evidence of a systematic tendency to overestimate growth, especially during slowdowns), while forecasts by international organizations do not necessarily reflect government's expectations (even assuming that they share the same information set). The informational problems associated with the analysis of policy rules have been thoroughly analysed in the context of monetary policy (see, e.g., Orphanides, 2001), but have received much less attention with reference to fiscal policy. See Momigliano and Golinelli (2006) for an analysis of fiscal policy reaction functions using real-time indicators.

2.1 The primary balance

While the framework described above focuses on the overall balance, the policy variable of fiscal authorities is the primary balance. From (2), by decomposing b_t into its interest (i_t) and primary balance (p_t) components, since $b^l_t = p^l_t + i_t$ and $b_t = p_t + i_t$, we have:

$$p^l_t = p_{t-1} - (i_t - i_{t-1}) + \alpha(b^* - p_{t-1} - i_{t-1}) + \beta(d^* - d_{t-1}) \qquad (6)$$

Equation (6) shows that by ignoring the composition of the overall balance, equation (2) implicitly assumes that: (i) changes in interest expenditure ($i_t - i_{t-1}$) are compensated one-for-one by the primary balance; and (ii) differences between b^* and b_{t-1} have the same impact on p^l_t (as measured by α) regardless of whether they originate from p_{t-1} or i_{t-1}.

Since there is no reason to maintain a priori either assumption, we modify (6) to allow for partial compensation of changes in interest outlays by the primary balance and for a differential impact of the lagged primary balance and interest payments on the policy variable (p^l_t):

$$p^l_t = p_{t-1} - \xi(i_t - i_{t-1}) + \alpha'(b^* - p_{t-1} - \theta i_{t-1}) + \beta'(d^* - d_{t-1}) \qquad \xi \neq 1; \theta \neq 1 \qquad (7)$$

Note that once we allow coefficients ξ and θ to be different from 1 and move from equation (6) to equation (7), we cannot assume that the other coefficients in equation (7) are the same as those in equations (2), hence the dash sign on α and β.

Concerning the cyclical component of the primary balance, we assume that it is determined in the same way as the cyclical component of the overall balance. Hence, by analogy with (3), we have:

$$p^c_t = \eta^{'P} \omega^P_t + \eta^{'N} \omega^N_t \qquad (8)$$

Note again the dash sign accompanying the η coefficients, marking that they are different from their counterparts in (3) since they do not pick up the cyclical behaviour of interest expenditure.[6]

Summing (7) and (8) we obtain the equation governing the primary balance:

$$p_t = (\alpha' b^* + \beta' d^*) + (1 - \alpha')p_{t-1} - \beta' d_{t-1} - \xi(i_t - i_{t-1}) - \alpha' \theta i_{t-1} + \eta^{'P} \omega^P_t + \eta^{'N} \omega^N_t \qquad (9a)$$

resulting in the estimating equation:

$$p_t = \alpha'_0 + \alpha'_1 p_{t-1} + \alpha'_2 d_{t-1} + \alpha_3 \Delta i_t + \alpha_4 i_{t-1} + \eta^{'P} \omega^P_t + \eta^{'N} \omega^N_t + u^p_t \qquad (9b)$$

$$u^p_t \sim NID(0, \sigma^p_u)$$

---

[6] Interest spending is not directly related to the output gap, but its ratio to GDP is affected by cyclical fluctuations in output.

Comparison of (4b) and (9b) indicates that an estimating equation for the primary balance should not be obtained by simple analogy with the one used for the overall balance without checking whether interest spending is a significant explanatory variable. Moreover, the inclusion of interest spending among regressors allows to control – albeit approximately – for possible interactions between fiscal and monetary policy.[7]

From the estimated parameters in (9b) we can recover the underlying value of b^*. In the long-run equilibrium we have $\omega=0$, $b=b^*$ and $d=d^*=(b^*/g)$. Therefore, $i_t = r\,(b^*/g)$, $\Delta i_t=0$, and $p_t=b^*-r(b^*/g)$ (where r is the long-run nominal interest rate). Substituting in (9b) it follows:

$$b^* = \frac{\alpha'_0}{(1-\alpha'_1) - \dfrac{\alpha'_2}{g} - (1-\alpha'_1+\alpha_4)\dfrac{r}{g}} \tag{10}$$

2.2   Expenditure and revenue

In order to analyze the cyclical behaviour of different budget components, we use the following definition of the primary balance:

$$p_t = \sum_{s=1}^{n} e_t^s - \sum_{s=n+1}^{m} r_t^s \tag{11}$$

where e^s_t ($s=1,...,n$) are primary expenditure items and r^s_t ($s=n+1,...,m$) are revenue items.

For each budget item we write an equation similar to (9b). We assume that similarly to the primary balance, each budget item x_t^s depends on its lagged value, the change in interest spending and its lagged level, lagged debt, and output gap. However, we also allow for cross interactions and include among regressors for each item, the lagged level of all other items:

$$x_t^s = \alpha_0^s + \alpha_1^s x_{t-1}^s + \alpha_2^s d_{t-1} + \alpha_3^s \Delta i_t + \alpha_4^s i_{t-1} + \sum_{k\neq s}\alpha_{5,k}^s x_{t-1}^k + \eta_s^P \omega_t^P + \eta_s^N \omega_t^N + u_t^s \tag{12}$$

––––––––––

[7]   To this end Galí and Perotti (2003) use a different approach. In their estimating equation the dependent variable is the cyclically adjusted primary balance, which is regressed against its lagged value, the lagged value of debt and a set of control variables, including the deviation of the interest rate from a predetermined Taylor rule. Specifically, they compute the average absolute deviation between each country's short-term interest rate and the rate generated by the following Taylor rule:

$$r_t = 4.0 + 1.5\,(\pi - 2.0) + 0.5\,x_t$$

where r is the short-term nominal interest rate and x is a vector of control variables. They argue that this rule is generally viewed as a good first approximation of the behaviour of central banks that have been successful in stabilising inflation and the output gap and such a rule has been shown to have desirable properties when embedded in a dynamic optimizing model with realistic frictions.

$$x_t^s = \begin{cases} e_t^s & \text{for } s = 1, \ldots, n \\ -r_t^s & \text{for } s = n+1, \ldots, m \end{cases}$$

with $u_t^s \sim NID(0, \sigma_u^s)$ and where the coefficients of proportionality to the output gap are specific to each budgetary item x_t^s.

To ensure that the sum of the m equations defined in (12) is equivalent to equation (9b) and that estimating the latter is equivalent to estimating the m equations in (12), we assume that in each of the m equations the coefficient of the lagged dependent variable is the same as the coefficient applying to the other lagged budget items (*i.e.* each x_t^s depends on the lagged value of the primary balance, not on its composition):

$$\alpha_1^s = \alpha_{5k}^s \quad \forall k \neq s \quad \text{and} \quad \forall s = 1, \ldots, m \tag{13}$$

Therefore, we have:

$$x_t^s = \alpha_0^s + \alpha_1^s p_{t-1}^s + \alpha_2^s d_{t-1} + \alpha_3^s \Delta i_t + \alpha_4^s i_{t-1} + \eta_s^P \omega_t^P + \eta_s^N \omega_t^N + u_t^s \tag{14}$$

$$x_t^s = \begin{cases} e_t^s & \text{for } s = 1, \ldots, n \\ -r_t^s & \text{for } s = n+1, \ldots, m \end{cases}$$

The sum over s of the estimates of η_s^P and η_s^N in the m equations defined in (14) is equal to the estimate of η'^P and η'^N in (9b).

For each budgetary item we can therefore define an asymmetry index as follows:

$$\phi_s = \eta_s^P - \eta_s^N \tag{15}$$

and the index of asymmetry for the primary balance can also be written as:

$$\phi' = \sum_{s=1}^{m} \phi_s = \sum_{s=1}^{n} \phi_{e_s} - \sum_{s=n+1}^{m} \phi_{r_s} \tag{16}$$

3 The empirical analysis

We apply the stylized framework described above to a sample of fourteen EU countries (those belonging to the EU before May 2004, excluding Luxembourg) over the period 1970-2004. The source for the data is the AMECO database published by the European Commission.[8] Data are annual; fiscal variables are expressed in percent of GDP and display significant variation both over time and

---

[8]   In particular, the data used in this study are retrieved from the Spring 2005 release of the AMECO dataset.

across countries; the sample is unbalanced (Tables 1a, 1b and 1c). Due to the dynamic structure of the estimating equations, whenever feasible we also use the Arellano-Bond method for dynamic panel regressions. Output gaps are computed using the Hodrick-Prescott filter.[9]

3.1   *The overall balance*

We start off by estimating equation (4b) including time dummies to check for breaks in the behaviour of fiscal policy. Each time dummy covers a decade in the sample (1980s, 1990s and 2000s). The equation is estimated both using fixed effects (FE) and Arellano-Bond (AB) techniques (Table 2, Columns A and B).

The results indicate the presence of cyclical asymmetry. The coefficient for the negative output gap is relatively large (–0.46 using FE; –0.39 with AB) and statistically significant at the 1 percent confidence level. The coefficient for the positive output gap is much smaller (–0.03 with FE; –0.13 with AB) and not significant at the 5 percent confidence level. The asymmetry index ϕ is significantly different from zero both with FE and AB (respectively, at the 5 and 1 percent significance level).

The coefficient of the lagged dependent variable is lower than one and the coefficient of lagged debt is negative, so that convergence of the equation is ensured.

Importantly, the exclusion of time dummies does not affect the results concerning cyclical asymmetry (Table 2, columns C and D).[10]

The coefficients of time dummies estimated using FE suggest that there might be a break at the beginning of the nineties. The time dummies are not jointly significant, but the dummies for the 1990s and the 2000s are individually significant and they are not statistically different.[11] Given that the Maastricht Treaty was signed in 1992, introducing constraints on deficit and debts for EU countries, we choose to account for the early nineties break with a 1992 dummy.[12] We use a general-to-specific estimation strategy. First we interact a dummy variable for 1992

---

[9]   To avoid end-point bias the Hodrick-Prescott filter is applied to GDP series longer then the regression sample (1960-2006 as opposed to 1970-2004; we used Commission forecasts for the last two years). By definition, there are about as many positive as negative gaps in the sample. We tried different values for the smoothing parameter λ and found that econometric results are robust to different choices. For regressions reported in the paper we used output gap estimates obtained by setting $\lambda=30$. See Bouthevillain *et al.* (2001) for a discussion of the issues involved in the use of the Hodrick-Prescott filter.

[10]   The same result is obtained when using time dummies defined over five-years periods. Annual dummies unsurprisingly interfere with our cyclical variables.

[11]   This is supported also by estimation using time dummies covering five-years periods.

[12]   In 1997 the Stability and Growth Pact supplemented the fiscal rules introduced by the 1992 Treaty establishing a medium-term objective of a budgetary position "close to balance or in surplus". We cannot test for a structural break related to the Stability and Growth Pact given the smaller number of observations after 1997.

Descriptive Statistics: Main Fiscal Variables

(as a percentage of GDP; average values over the indicated period)

Country		Debt				Overall Balance[1]				Primary Balance[1]				Primary Expenditure				Revenue			
		1970-1979	1980-1989	1990-1999	2000-2004	1970-1979	1980-1990	1990-1999	2000-2004	1970-1979	1980-1990	1990-1999	2000-2004	1970-1979	1980-1990	1990-1999	2000-2004	1970-1979	1980-1990	1990-1999	2000-2004
Belgium	1970-2004	63.0	114.7	128.9	103.6	4.8	10.7	4.6	–0.3	0.6	0.8	–5.0	–6.1	43.9	49.0	43.4	44.0	43.2	48.2	48.4	50.1
Germany	1970-2004	22.6	38.9	52.2	63.9	1.7	2.0	2.6	2.7	0.4	–0.7	–0.7	–0.5	42.2	43.6	45.1	44.3	41.8	44.2	45.8	44.8
Greece	1988-2004	21.3	48.5	102.6	111.4		12.6	9.4	4.6		5.2	–1.7	–1.7		37.3	38.1	43.2		32.1	40.4	45.1
Spain	1970-2004	13.5	34.3	58.1	52.1	0.2	4.4	4.4	0.2	–0.1	2.3	–0.0	–2.4	23.9	35.9	39.2	37.5	24.0	33.8	39.2	39.9
France	1979-2004	20.8	28.6	49.3	62.2	0.1	2.3	3.7	2.9	–1.2	–0.1	0.3	–0.1	44.0	48.7	50.4	50.8	44.3	48.8	50.1	50.9
Ireland	1985-2004	55.1	96.2	79.0	32.6		7.5	0.9	–0.8		–1.5	–4.6	–2.1		41.2	35.6	32.6		42.7	40.1	34.7
Italy	1980-2004	52.5	77.7	115.0	107.7		11.0	7.6	2.9		3.2	–3.1	–2.7		41.5	42.8	42.8		38.2	45.9	45.4
Netherlands	1975-2004	41.2	64.9	73.9	55.3	1.4	4.8	2.6	1.3	–1.6	–0.8	–3.1	–1.8	45.6	52.1	46.2	44.6	47.2	52.8	49.3	46.4
Austria	1976-2004	23.5	48.1	62.2	64.8	2.7	3.2	3.2	1.1	0.8	–0.2	–0.6	–2.1	48.2	50.5	50.3	47.0	47.4	50.6	51.0	49.0
Portugal	1977-2004	25.1	51.5	59.0	60.6	5.7	6.6	5.5	3.6	3.6	0.8	–0.8	0.6	30.3	33.0	38.9	43.7	26.7	32.2	39.8	43.1
Finland	1975-2004	8.9	15.2	45.5	44.2	–5.4	–3.8	1.8	–3.5	–6.1	–5.3	–1.5	–5.6	39.9	43.7	54.3	47.8	46.0	49.0	55.9	53.4
Denmark	1971-2004	14.7	65.0	68.3	44.8	–2.0	2.1	0.9	–2.2	–3.6	–5.2	–5.1	–4.9	43.6	49.4	52.6	51.8	47.2	54.6	57.6	56.7
Sweden	1970-2004	28.0	53.9	64.9	51.8	–2.5	1.6	3.1	–1.5	–4.6	–4.6	–2.5	–4.1	46.8	54.4	58.6	54.7	51.1	59.0	61.2	58.8
United Kingdom	1970-2004	64.5	49.8	44.9	40.7	2.5	2.3	3.7	1.4	–1.6	2.3	3.7	1.4	40.6	40.9	39.9	39.9	42.2	43.3	39.5	40.8
Euro-area countries[2]		31.6	56.2	75.1	69.0	1.4	5.6	4.2	1.3	–0.5	0.3	–1.9	–2.2	39.7	43.3	44.0	43.5	40.1	43.0	46.0	45.7
EU countries[2]		32.5	56.2	71.7	64.0	0.9	4.8	3.9	0.9	–1.2	–0.3	–1.8	–2.3	40.8	44.4	45.4	44.6	41.9	45.0	47.4	47.1

[1] Positive values indicate deficits; negative values indicate supluses. – [2] Unweighted average.

Table 1b

Descriptive Statistics: Primary Expenditure Composition

(percentage on primary expenditure; average values over the indicated period)

Country		Transfers in Cash				Wages				Other Primary Expenditure			
		1970-1979	1980-1989	1990-1999	2000-2004	1970-1979	1980-1990	1990-1999	2000-2004	1970-1979	1980-1990	1990-1999	2000-2004
Belgium	1970-2004	32.6	36.7	38.0	35.8	26.0	26.0	26.9	26.8	41.4	37.3	35.1	37.4
Germany	1970-2004	36.1	37.0	39.1	43.2	23.9	21.8	19.6	17.6	40.0	41.2	41.3	39.1
Greece	1988-2004		39.1	39.5	42.1		31.1	29.7	28.0		29.8	30.8	29.9
Spain	1970-2004	34.4	36.9	36.3	32.6	31.3	27.8	28.5	27.6	34.3	35.3	35.2	39.8
France	1979-2004	34.1	34.9	36.0	35.8	28.7	27.4	26.6	26.8	37.0	37.7	37.4	37.4
Ireland	1985-2004		34.0	32.2	27.3		26.5	28.3	26.1		39.5	39.4	46.6
Italy	1980-2004		35.4	39.0	40.0		28.4	27.4	25.4		36.3	33.6	34.6
Netherlands	1975-2004	34.0	36.3	34.1	26.6	29.9	24.7	23.1	23.5	36.0	39.0	42.8	49.8
Austria	1976-2004	33.7	35.3	36.8	39.3	23.9	24.0	23.6	20.4	42.5	40.7	39.6	40.3
Portugal	1977-2004	21.4	26.6	28.8	32.2	31.3	31.2	34.8	34.0	47.4	42.2	36.3	33.7
Finland	1975-2004	27.4	30.1	37.4	34.9	32.2	32.1	28.6	28.5	40.3	37.8	33.9	36.6
Denmark	1971-2004	29.0	33.5	36.4	34.0	37.0	36.7	33.4	33.9	33.9	29.8	30.2	32.1
Sweden	1970-2004	30.1	33.5	34.5	32.4	35.4	34.1	29.6	29.6	34.6	32.4	36.0	38.0
United Kingdom	1970-2004	24.7	32.9	36.4	33.7	30.6	30.7	27.5	26.1	44.7	36.4	36.1	40.2
Euro-area countries [1]		31.7	34.8	36.1	35.4	28.4	27.4	27.0	25.9	39.9	37.9	36.9	38.7
EU countries [1]		30.7	34.4	36.0	35.0	30.0	28.8	27.7	26.7	39.3	36.8	36.3	38.3

[1] Unweighted average.

Descriptive Statistics: Revenue Composition
(percentage on revenue; average values over the indicated period)

		Direct taxes				Indirect taxes				Other revenue			
		1970-1979	1980-1990	1990-1999	2000-2004	1970-1979	1980-1990	1990-1999	2000-2004	1970-1979	1980-1990	1990-1999	2000-2004
Belgium	1970-2004	32.8	36.1	33.8	34.6	29.0	24.4	25.6	25.9	38.1	39.6	40.7	39.6
Germany	1970-2004	29.4	27.5	24.9	24.1	28.5	25.2	25.0	26.6	42.3	47.3	50.1	49.3
Greece	1988-2004		15.9	17.4	20.6		37.1	34.7	32.6		46.9	47.9	46.8
Spain	1970-2004	17.7	24.7	27.8	26.7	28.8	26.1	27.0	30.1	53.4	49.2	45.3	43.2
France	1979-2004	15.7	16.5	18.5	22.9	33.3	31.4	30.6	30.1	51.1	52.0	51.0	47.1
Ireland	1985-2004		32.4	35.0	35.4		35.7	34.0	36.8		31.9	31.0	27.9
Italy	1980-2004		31.6	32.7	30.9		23.9	26.9	32.1		44.6	40.3	37.0
Netherlands	1975-2004	30.6	25.9	28.1	24.8	21.5	19.6	22.3	27.7	47.9	54.5	49.5	47.5
Austria	1976-2004	23.8	23.6	24.2	26.7	33.6	31.3	29.1	29.6	42.6	45.1	46.7	43.6
Portugal	1977-2004	20.8	20.9	22.6	21.9	39.6	39.6	34.4	34.9	39.8	39.5	43.0	43.3
Finland	1975-2004	35.9	33.1	31.8	34.9	28.2	29.5	25.9	25.8	35.9	37.4	42.3	39.4
Denmark	1971-2004	51.2	49.9	51.8	52.4	34.8	32.2	29.7	30.6	14.1	17.9	18.5	17.1
Sweden	1970-2004	39.6	36.4	33.8	33.1	26.3	25.4	27.0	28.5	34.1	38.2	39.2	38.4
United Kingdom	1970-2004	38.6	38.3	38.6	39.6	28.3	30.5	33.0	32.7	33.2	31.2	28.4	27.8
Euro-area countries [1]		25.8	26.2	27.0	27.6	30.3	29.4	28.7	30.2	43.9	44.4	44.3	42.2
EU countries [1]		30.5	29.5	30.1	30.6	30.2	29.4	28.9	30.3	39.3	41.1	41.0	39.1

[1] Unweighted average.

Table 2

Fiscal Reaction Functions for the Overall Balance[1]

	A - 4b with ten-year dummy variables	B - 4b with ten-year dummy variables	C - 4b	D - 4b	E - 4b with dummy92 all variables	F - 4b with dummy92 constant and debt	G - 4b with dummy92 constant and debt	H - BF (2004) [2]
	Fixed effect	Arellano bond	Fixed effect	Arellano bond	Fixed effect	Fixed effect	Arellano bond	Arellano bond
a Constant	1.597 ***	−0.158 ***	1.623 ***	0.005	1.113 ***	1.077 ***	−0.006	0.026
	(0.318)	(0.027)	(0.305)	(0.017)	(0.318)	(0.311)	(0.021)	(0.016)
a1 Dummy for 1992					1.900 ***	1.757 ***	1.889 ***	
					(0.477)	(0.457)	(0.639)	
b Lagged Dependent Variable	0.822 ***	0.810 ***	0.820 ***	0.825 ***	0.725 ***	0.744 ***	0.746 ***	0.841 ***
	(0.033)	(0.028)	(0.029)	(0.033)	(0.045)	(0.032)	(0.036)	(0.028)
b1 Lagged Dependent Variable after 1992					0.018			
					(0.054)			
c Lagged Debt	−0.032 ***	−0.027 ***	−0.024 ***	−0.029 ***	−0.005	−0.006	−0.009	−0.013 **
	(0.007)	(0.009)	(0.005)	(0.008)	(0.006)	(0.006)	(0.009)	(−0.006)
c1 Lagged Debt after 1992					−0.037 ***	−0.034 ***	−0.034 ***	−0.029 ***
					(0.007)	(0.007)	(0.009)	(0.006)
d Positive Output Gap	−0.034	−0.131 *	−0.033	−0.040	−0.064	−0.081	−0.085	−0.129
	(0.097)	(0.071)	(0.094)	(0.088)	(0.108)	(0.095)	(0.091)	(0.791)
d1 Positive Output Gap after 1992					−0.195			
					(0.210)			
e Negative Output Gap	−0.458 ***	−0.391 ***	−0.458 ***	−0.457 ***	−0.439 ***	−0.522 ***	−0.511 ***	−0.416 ***
	(0.099)	(0.082)	(0.099)	(0.086)	(0.130)	(0.099)	(0.076)	(0.081)
e1 Negative Output Gap after 1992					−0.143			
					(0.181)			
f1 Dummy 1980-89	0.426	1.690 ***						
	(0.285)	(0.320)						
f2 Dummy 1990-99	0.735 **	3.463 ***						
	(0.353)	(0.459)						
f3 Dummy 2000-04	0.653 *	4.520 ***						
	(0.355)	(0.492)						
test joint significance of dummy variables	1.560	94.640 ***						
	(0.199)	(0.000)						
test dummy 1990-99=dummy 2000-04	0.082							
	(0.262)							
g asymmetry index φ=d-e	0.424 **	0.260 ***	0.425 **	0.417 ***	0.375 *	0.440 ***	0.426 ***	0.287 ***
	(0.168)	(0.086)	(0.165)	(0.095)	(0.207)	(0.165)	(0.088)	(0.032)
Sargan test		426.83 (0.971)		462.03 (0.757)			463.71 (0.739)	445.52 (0.653)
2nd order autocorrelation		−0.26 (0.795)		−0.23 (0.819)			−0.31 (0.757)	−1.11 (0.269)
nr. of observations	400	386	400	386	400	400	386	391
test if cyclical asymmetry is different before and after 1992					0.322			
					(0.270)			

[1] *, **, *** = signficance at 10, 5 and 1 per cent respectively. Robust standard errors in brackets. Sample countries: Austria, Belgium, Denmark, Finland, France, Greece, Germany, Ireland, Italy, Portugal, Spain, the Netherlands, the United Kingdom, Sweden. Period: 1970-2004.

[2] Sample countries: same as in footnote (1). Period: 1970-2000.

with all covariates (Table 2, Column E); then we drop terms with non-significant coefficients (Table 2, Column F and G, for FE and AB estimates respectively).

We find no evidence that the asymmetry index is different before 1992 and after 1992, but we do find a break in 1992 concerning the reaction of the balance to debt. The negative coefficient of lagged debt becomes much larger and statistically significant at the 1 percent level after 1992 (it goes from less than –0.01 to more than –0.04), consistent with the notion that Maastricht fiscal rules increased the relevance of the debt level in determining fiscal adjustment.

Overall these results confirm those in Balassone and Francese (2004; Table 2, Column H).

3.2   The primary balance

The specification used for the primary balance equation is the one indicated in (9b). Therefore, lagged interest spending and the variation in interest expenditure are included among regressors. As with the overall balance, also with the primary balance we follow a general to specific approach when testing for the 1992 break. Similarly to the overall balance equation, the 1992 dummy turns out to be significant only when interacted with the debt and the intercept term (Table 3, Columns A and B).

We find that interest spending is a significant explanatory variable in levels, though not in changes, regardless of the estimation method (Table 3). This confirms the discussion in Section 2.1 that an estimating equation for the primary balance should not be derived by simple analogy with the equation for the overall balance.

We find evidence of cyclical asymmetry also for the primary balance. The elasticity to negative output gap is again large (higher than –0.4) and statistically different from zero at the 1 percent confidence level. The elasticity to positive gaps, instead, is smaller (less than –0.2) and statistically significant only at lower confidence levels (5 and 10 percent for AB and FE, respectively). The asymmetry index is about 0.25, lower than the one for the overall balance, reflecting the non-zero estimate for the coefficient of positive output gaps. The asymmetry index is statistically different from zero at the 1 percent significance level when the equation is estimated using AB.

Using equation (10) we compute the long-run level of the overall balance (b^*) and debt (d^*) consistent with estimates in Table 3 (Column B). Given the break in 1992, we compute two sets of long-run values: one based on the dynamics characterising the period before 1992 and the other for the period beginning in 1992. For the euro-area average, the long-run deficit and debt levels drop from 2.8 and 56.8 percent of GDP to, respectively, 2.6 and 52.3 percent respectively (Table 4). This result reflects the reduction in long-run deficit levels in countries that were characterised by long-run deficits higher than 3 per cent of GDP before 1992 (Belgium, Greece, Italy and Portugal).

Table 3

Fiscal Reaction Functions for the Primary Balance[1]

		A - 11b with dummy92 all variables	B - 11b with dummy92 constant and debt	C - 11b with dummy92 constant and debt
		Fixed effect	Fixed effect	Arellano bond
a	Constant	0.688 **	0.722 **	–0.001
		(0.289)	(0.283)	(0.020)
a1	Dummy for 1992	1.939 ***	1.696 ***	1.718 ***
		(0.453)	(0.428)	(0.439)
b	Lagged Dependent Variable	0.622 ***	0.632 ***	0.636 ***
		(0.445)	(0.036)	(0.021)
b1	Lagged Dependent Variable after 1992	–0.043		
		(0.059)		
c	Lagged Debt	0.004	–0.008	–0.011
		(0.012)	(0.008)	(0.012)
c1	Lagged Debt after 1992	–0.045 ***	–0.027 ***	–0.027 ***
		(0.013)	(0.006)	(0.007)
d	Change in Interest Exp.	0.295	0.243	0.229
		(0.261)	(0.196)	(0.218)
d1	Change in Interest Exp. after 1992	–0.131		
		(0.395)		
e	Lagged Interest Exp.	–0.334 ***	–0.216 ***	–0.203 **
		(0.114)	(0.074)	(0.092)
e1	Lagged Interest Exp. after 1992	0.152		
		(0.130)		
f	Positive Output Gap	–0.115	–0.158 *	–0.168 **
		(0.095)	(0.089)	(0.070)
f1	Positive Output Gap after 1992	–0.347 *		
		(0.197)		
g	Negative Output Gap	–0.298 **	–0.416 ***	–0.406 ***
		(0.143)	(0.103)	(0.075)
g1	Negative Output Gap after 1992	–0.203		
		(0.189)		
h	asymmetry index $\phi=d-e$	0.183	0.258	0.238 ***
		(0.212)	(0.167)	(0.088)
	Sargan test			460.13 (0.776)
	2nd order autocorrelation			0.22 (0.825)
	No. of observations	400	400	386
	test if cyclical asymmetry is different	0.040		
		(0.269)		

(1) *, **, *** = significance at 10, 5 and 1 per cent respectively. Robust standard errors in brackets. Sample countries: Austria, Belgium, Denmark, Finland, France, Greece, Germany, Ireland, Italy, Portugal, Spain, the Netherlands, the United Kingdom, Sweden. Period: 1970-2004.

Deficit and Debt Long-run Levels[1]
(percent of GDP)

	Overall balance		diff.	Debt		diff.
	before 1992	after 1992		before 1992	after 1992	
Belgium	5.9	3.7	–2.2	117.2	73.6	–43.6
Germany	1.5	2.1	0.7	29.1	42.6	13.5
Greece	8.5	4.6	–3.9	169.4	92.0	–77.4
Spain	1.8	2.3	0.4	36.7	45.3	8.6
France	1.9	2.3	0.4	38.5	45.9	7.4
Ireland	0.5	1.8	1.3	10.3	35.9	25.7
Italy	7.7	4.3	–3.4	154.7	86.8	–67.9
Netherlands	2.1	2.3	0.3	41.1	46.8	5.7
Austria	1.8	2.2	0.5	35.9	45.0	9.1
Portugal	3.5	2.8	–0.6	69.1	56.7	–12.4
Finland	–3.8	0.3	4.1	–76.5	5.4	81.9
Denmark	–1.2	1.2	2.4	–23.2	24.2	47.4
Sweden	–0.6	1.4	2.0	–11.5	28.3	39.8
United Kingdom	1.7	2.2	0.5	33.3	44.0	10.8
Euro-area countries (2)	2.8	2.6	–0.2	56.8	52.3	–4.5
EU countries (2)	2.2	2.4	0.2	44.6	48.0	3.5

[1] Computed using the estimated coefficients in Table 3 (Column B) and setting the long-run growth rate at 4 per cent and the interest rate on government debt at 5 per cent.
[2] Unweighted average.

3.3   Expenditure and revenue

As a first step to analyze the source of cyclical asymmetry "within the budget" based on (14), we estimate two equations separating the primary balance into its expenditure and revenue components.

In order to preserve comparability of results with those obtained for the primary balance as a whole, the equations are specified in the same way as the primary balance equation in Table 3, Columns B and C.

Results highlight that most of the cyclical asymmetry detected in the primary balance comes from the expenditure side of the budget (Table 5, columns A and B). The elasticity of revenue to both positive and negative output gaps is not

Table 5

Fiscal Reaction Functions for Primary Expenditure, Revenue and the Primary Balance[1]

		A - 16, Primary expenditure	B - 16, Revenue	C - Implied Primary Balance Fiscal Reaction from (A) and (B)
		Fixed effect	Fixed effect	
a	Constant	38.487 ***	37.801 ***	0.685
		(0.699)	(0.621)	
a1	Dummy for 1992	4.459 ***	2.706 ***	1.753
		(0.828)	(0.776)	
b	Lagged Primary Balance	0.542 ***	–0.087	0.629
		(0.076)	(0.067)	
c	Lagged Debt	0.115	0.123 ***	–0.008
		(0.017)	(0.016)	
c1	Lagged Debt after 1992	–0.054 ***	–0.027 **	–0.028
		(0.013)	(0.013)	
d	Change in Interest Exp.	0.210	–0.103	0.314
		(0.363)	(0.283)	
e	Lagged Interest Exp.	–0.089	0.124	–0.213
		(0.142)	(0.132)	
f	Positive Output Gap	–0.162	–0.013	–0.149
		(0.196)	(0.174)	
g	Negative Output Gap	–0.589 ***	–0.183	–0.406
		(0.222)	(0.185)	
h	asymmetry index $\phi=d-e$	0.427	0.170	0.257
		(0.355)	(0.299)	
	No. of observations	400	400	

[1] *, **, *** = significance at 10, 5 and 1 per cent respectively. Robust standard errors in brackets. Sample countries: Austria, Belgium, Denmark, Finland, France, Greece, Germany, Ireland, Italy, Portugal, Spain, the Netherlands, the United Kingdom, Sweden. Period: 1970-2004.

significantly different from zero. On the contrary, primary expenditure have a cyclical behaviour similar to the primary balance (even though the asymmetry index is not statistically different from zero). In fact, the estimated coefficient for positive output gaps is not statistically different from zero (though the point estimate, –0.16, is not negligible), while we find a large (almost –0.6) elasticity to negative output gaps, which is also significantly different from zero at the 1 percent confidence level. Taking the difference of the two equations we get results very close to those obtained from direct estimation of the primary balance equation (Table 5, Column C).

To further investigate the role played by expenditure in determining fiscal asymmetry over the cycle, we break primary expenditure into three components: transfers in cash, wages, and other primary expenditures. Results, reported in Table 6, suggest that most of the cyclical asymmetry comes from transfers in cash. Wages and other primary expenditure behave like revenues: they do not significantly react to either positive or negative gaps. On the contrary, the elasticity of transfers in cash to negative output gaps is large (–0.28) and different from zero at the 5 percent confidence level, while their elasticity to positive output gaps is small (–0.06) and not significantly different form zero (however, the asymmetry index is again not significant). Summing up the three expenditure equations and subtracting the revenue equation we once again get results close to those from direct estimation of the equation for the primary balance (Table 6, Column E).

4   The effects of cyclical asymmetry

To assess the magnitude of the impact of cyclical asymmetry on debt accumulation we compare two simulations of debt dynamics for each country: one based on the asymmetric values of the ηs estimated from the primary balance equation in Table 3 (Column B); the other assuming symmetry.

Symmetric fiscal reactions over the cycle require $\eta^P = \eta^N = c$, with c a given constant. In our simulations we assume that $\eta^P = \eta^N = 0$, *i.e.* that fiscal variables do not react to cyclical developments. Setting $c=0$ allows to shield the results from the influence of the particular cyclical position of each country in the final year considered in the simulation.[13] The simulation exercise also assumes that all other coefficients are invariant to the value of ηs.

Both simulations are computed recursively based on the following equation:

$$d_t = (1 + r_t)d_{t-1} + p_t + s_t \qquad (17)$$

where p_t is the primary balance simulated on the basis of coefficients in Table 3 (column B) and r_t and s_t are actual values of average debt cost and stock-flow adjustment recorded in each year.[14] In this way, we end up with a predicted value of debt in the final year (*i.e.* in 2004) in each of the two scenarios.

Table 7 reports the debt variation actually observed in the sample (first column) and the accumulation due to cyclical asymmetry in fiscal variables (second column),

––––––––––

[13]   We run simulations assuming other plausible values for *c* (ranging between –1 and +1): asymmetry always determines excess debt accumulation and is positively correlated with the size of the budget elasticity to the output gap.

[14]   The stock-flow adjustment includes the impact of nominal GDP growth on the debt-to-GDP ratio as well as differences between the change in debt and the deficit arising within the Maastricht statistical framework (these are due to different accounting criteria, valuation effects and transactions coverage).

<div align="right">

Table 6

</div>

Fiscal Reaction Functions for the Primary Expenditure Components, Revenue and the Primary Balance[1]

	A - 16, Transfers in cash	B - 16, Wages	C - 16, Other primary expenditure	D - 16, Revenue	E - Implied Primary balance fiscal reaction from (A), (B), (C) and (D)
	Fixed effect	**Fixed effect**	**Fixed effect**	**Fixed effect**	
a Constant	11.540	11.780 ***	15.166 ***	37.801 ***	0.685
	(0.355)	(0.235)	(0.326)	(0.621)	
a1 Dummy for 1992	2.337 ***	–0.170	2.293 ***	2.706 ***	1.753
	(0.446)	(0.314)	(0.393)	(0.776)	
b Lagged Primary Balance	0.257 ***	0.093 ***	0.193 ***	–0.087	0.629
	(0.043)	(0.029)	(0.041)	(0.067)	
c Lagged Debt	0.056 ***	0.011 *	0.048 ***	0.123 ***	–0.008
	(0.011)	(0.006)	(0.009)	(0.016)	
c1 Lagged Debt after 1992	–0.022 ***	–0.002	–0.030 ***	–0.027 **	–0.028
	(0.006)	(0.004)	(0.006)	(0.013)	
d Change in Interest Exp.	–0.074	0.141	0.144	–0.103	0.314
	(0.171)	(0.127)	(0.166)	(0.283)	
e Lagged Interest Exp.	0.106	0.077	–0.272 ***	0.124	–0.213
	(0.089)	(0.057)	(0.065)	(0.132)	
f Positive Output Gap	–0.058	–0.036	–0.068	–0.013	–0.149
	(0.102)	(0.063)	(0.088)	(0.174)	
g Negative Output Gap	–0.284 **	–0.146	–0.158 *	–0.183	–0.406
	(0.115)	(0.090)	(0.095)	(0.185)	
h asymmetry index $\phi=d-e$	0.227	0.110	0.090	0.170	0.257
	(0.188)	(0.126)	(0.161)	(0.299)	
Sargan test					
2nd order autocorrelation					
No. of observations	400	400	400	400	

[1] *, **, *** = significance at 10, 5 and 1 per cent respectively. Robust standard errors in brackets. Sample countries: Austria, Belgium, Denmark, Finland, France, Greece, Germany, Ireland, Italy, Portugal, Spain, the Netherlands, the United Kingdom, Sweden. Period: 1970-2004.

measured as the difference between debt accumulation in the two simulations based on asymmetric and symmetric ηs as described above. For EU countries, on average, debt accumulation due to asymmetric fiscal policy amounts to about one third of debt variation observed over the simulation period (one fourth for the euro area). The impact is relevant in all countries.

The impact of cyclical asymmetry in fiscal variables can also be gauged by estimating by how much the average deficit is inflated by asymmetry compared to a baseline where the cyclicality of fiscal variables is symmetric. The third column in Table 7 summarizes the results of such an exercise: over the period considered the average balance, both in the euro area and in the EU, is estimated to have been almost 0.3 percentage points of GDP worse every year because of cyclical asymmetry.

5   Conclusions

This paper set out to verify the presence of asymmetry in the reaction of fiscal balances to positive and negative cyclical conditions and identify which budgetary items account for it. To this end, we derived estimating equations for the primary balance and for selected budget components from a modified version of the stylised framework developed in Balassone and Francese (2004). The framework was put to test on a sample of fourteen EU member states over 1970-2004.

We found significant cyclical asymmetry in fiscal variables. The primary balance deteriorates in bad times without a corresponding offsetting improvement in good times: the elasticity to negative and positive output gaps is estimated at –0.41 and –0.17, respectively. Unless, contrary to what is usually assumed, automatic stabilizers are not symmetric, this asymmetry must come from discretionary policy. In this case, and provided our regressions control satisfactorily for other factors affecting fiscal balances, discretionary policy would appear to be offsetting a significant share of the working of automatic stabilizers.[15]

Numerical simulations show that, over the period considered, cyclical asymmetry inflated average deficit levels and contributed significantly to debt accumulation. The average primary balance of EU countries over 1970-2004 is estimated to have been 0.3 percent of GDP worse in each year than it would have been under symmetry. This accounts for about one third of debt accumulation observed over the same period.

We find no evidence that European deficit and debt rules affected the cyclical behaviour of fiscal variables. However, the introduction of such rules is found to be correlated with a sizeable reduction in long-term deficit and debt levels for countries with significant imbalances before 1992.

––––––––––

[15]   Estimates by international organisations of automatic budgetary elasticity to the cycle average about 0.5 for EU countries. See Bouthevillain *et al.* (2001).

Table 7

Asymmetry Impact on Debt Accumulation and Overall Deficit
(percent of GDP)

		Actual debt variation	Debt variation due to asymmetry [1]	Asymmetry impact on average overall deficit [1]
Belgium	1970-2004	31.8	5.8	0.16
Germany	1970-2004	47.8	6.0	0.17
Greece	1988-2004	42.1	3.9	0.23
Spain	1970-2004	33.9	8.5	0.24
France	1979-2004	44.4	6.0	0.23
Ireland	1985-2004	–71.8	9.9	0.49
Italy	1980-2004	47.6	5.1	0.20
Netherlands	1975-2004	14.9	6.0	0.20
Austria	1976-2004	37.5	4.7	0.16
Portugal	1977-2004	33.1	11.0	0.39
Finland	1975-2004	38.5	15.8	0.53
Denmark	1971-2004	29.5	7.1	0.21
Sweden	1970-2004	23.9	9.2	0.26
United Kingdom	1970-2004	–37.1	8.4	0.24
Euro-area countries [2]		27.3	7.5	0.27
EU countries [2]		22.6	7.7	0.27

[1] Computed using the estimated coefficients in Table 3 (Column B).
[2] Unweighted average.

    Our estimates suggest that cyclical asymmetry comes from the expenditure side of the budget, mostly reflecting the behaviour of transfers in cash. This is a composite spending category. It includes rigid components, not expected to react to cyclical conditions, such as pensions. But it also includes spending programs specifically designed to react to the economic cycle, such as unemployment benefits. Finally, it includes items which can be manoeuvred discretionally, though to different extents. It may be the case that these discretionary spending increase in bad times to provide shelter against recessions, but the new outlays become entrenched thereafter and therefore are not reduced with the following expansion. Alternatively, it may be the case that discretionary spending substitutes for automatic stabilizers as cyclical conditions switch from negative to positive. Finally, the possibility that automatic stabilizers themselves are not symmetric could be explored. Whether

asymmetry arises out of political economy reasons, genuine mistakes in assessing cyclical conditions or because of, say, unemployment persistence is open to debate.[16]

Whatever the sources of cyclical asymmetry, our results lend some support to the introduction of expenditure rules. Committing to a predetermined rate of growth of expenditure can curb the tendency to increase public spending in good times while leaving the automatic stabilizers on the revenue side free to operate. An expenditure rule of this type can be relatively easily disseminated to the public and monitored, provided that the control aggregates are clearly specified.[17] Expenditure targeting – whether formally incorporated in a rule or not – has been playing a role in the fiscal framework of an increasing number of countries.[18]

It is important to ensure that the procyclical bias is not transferred to the revenue side of the budget – as of course procyclicality can arise from the revenue side – and that there is a long-term anchor to fiscal policy. During boom periods for instance, governments might be tempted to cut taxes or increase tax expenditures, even while sticking to expenditure rules (this occurred for instance in a number of EU members over 1999-2001). This suggests that expenditure ceilings cannot be set in isolation from provisions regarding revenue policy. More generally, expenditure targeting per se does not correct a structural tendency towards excessive deficits. A constant rate of growth of expenditure can be consistent with a gradual deterioration of the fiscal balance if revenues do not keep the same pace as expenditure. An anchor in terms of budget balance is therefore essential.

----

[16] A variety of economic, financial and political economy factors can lead to fiscal policy being procyclical and asymmetric. According to one view, the roots of procyclicality lie in policy discretion and in the importance of competing electoral constituencies. A key argument is that constituencies and lobbies compete for their share of public resources, and a "common pool" problem arises. Since budgetary competition increases in good times, spending grows more than proportionally relative to the increase in revenue (Lane and Tornell, 1999). Another explanation of procyclicality stems from the premise that, while the government has the means to engage in countercyclical policy, it ends up not doing so due to an inaccurate assessment of the economic cycle. Indeed, analyses of the cyclicality of fiscal policy based on real-time macroeconomic data usually do not find strong evidence of cyclical asymmetry (see, e.g., Momigliano and Golinelli, 2006). However, difficulties in assessing macroeconomic conditions cannot explain why procyclicality tends to be asymmetric. Moreover, the evidence of systematic bias towards optimism in official forecasts of output growth is at odds with the notion that overspending in good times arises from inadequate information about the state of the cycle (Danninger *et al.*, 2004).

[17] A variety of issues arise in the implementation of expenditure rules. These include the choice of the expenditure aggregate to be targeted (items included, institutional coverage, level of disaggregation), the time horizon, the underlying macroeconomic assumptions and the valuation criteria. See, for instance, the discussion in IMF (2007) and the references therein.

[18] Expenditure rules are used, among others, in Finland, the Netherlands, Sweden, Switzerland, the United Kingdom, and the United States.

REFERENCES

Alesina, A. (1987), "Macroeconomic Policy in a Two-party System as a Repeated Game", *Quarterly Journal of Economics*, Vol. 102, No. 410, pp. 651-78.

Artis, M. and M. Marcellino (1998), "Fiscal Solvency and Fiscal Forecasting in Europe", CEPR, Discussion Paper, No. 1836.

Balassone, F. and M. Francese (2004), "Cyclical Asymmetry in Fiscal Policy, Debt Accumulation and the Treaty of Maastricht", *Temi di Discussione*, Banca d'Italia, No. 531.

Ballabriga, F. and C. Martinez-Mongay (2002), "Has EMU Shifted Policy?", European Commission, Directorate General for Economic and Financial Affairs, Economic Paper, No. 166.

Blanchard, O., J.Q. Chouraqui, R.P. Hagemann and N. Sartor (1990), "The Sustainability of Fiscal Policy: New Answers to an Old Question", OECD, Economic Study, No. 15, pp. 7-36.

Bohn, H. (1998), "The Behaviour of US Public Debt and Deficits", *Quarterly Journal of Economics*, Vol. 113, No. 3, pp. 949-63.

Bouthevillain, C., P. Cour-Thimann, G. van den Dool, P. Hernandez de Cos, G. Langenus, M. Mohr, S. Momigliano and M. Tujula (2001), "Cyclically Adjusted Budget Balances: An Alternative Approach", European Central Bank, Working Paper, No. 77.

Buti, M. and A. Sapir (1998), *Economic Policy in EMU: A Study by the European Commission Services*, Oxford, Clarendon Press.

Buti, M., D. Franco and H. Ongena (1998), "Fiscal Discipline and Flexibility in EMU: The Implementation of the Stability and Growth Pact", *Oxford Review of Economic Policy,* Vol. 14, No. 3, pp. 81-97.

Danninger, S., M. Cangiano and A. Kyobe (2004), "The Political Economy of Revenue-forecasting Experience from Low-income Countries", International Monetary Fund, Working Paper, No. 05/02, Washington (D.C.).

Galí, J. and R. Perotti (2003), "Fiscal Policy and Monetary Integration in Europe", *Economic Policy*, No. 37, pp. 535-72, October.

Gavin, M. and R. Perotti (1997), "Fiscal Policy in Latin America", *NBER Macroeconomics Annual*, pp. 11-61, Cambridge (MA), MIT Press.

Hercowitz, Z. and M. Strawczynski (2004), "Cyclical Ratcheting in Government Spending: Evidence from the OECD", *Review of Economics and Statistics*, Vol. 86, No. 1, pp. 353-61.

International Monetary Fund (2007), "Promoting Fiscal Discipline over the Cycle", forthcoming Occasional Paper.

Kaminsky, G.L., C. Reinhart and C. Végh (2004), "When It Rains, It Pours: Procyclical Capital Flows and Macroeconomic Policies", NBER, Working Paper, No. 10780, Cambridge (MA), National Bureau of Economic Research.

Lane, A. and P. Tornell (1999), "The Voracity Effect", *The American Economic Review*, Vol. 89, No.1, pp. 22-46.

Larch, M. and M. Salto (2003), "Fiscal Rules, Inertia and Discretionary Fiscal Policy", European Commission, Directorate General for Economic and Financial Affairs, Economic Paper, No. 194.

Momigliano, S. and R. Golinelli (2006), "Real-time Determinants of Fiscal Policies in the Euro Area", *Journal of Policy Modeling*, Vol. 28, pp. 943-64.

————— (2007), "The Cyclical Response of Fiscal Policies in the Euro Area. Why Results of Empirical Research Differ So Strongly?", mimeo.

Orphanides, A. (2001), "Monetary Policy Rules Based on Real-time Data", *American Economic Review*, Vol. 91, No. 4, pp. 964-85.

Nordhaus, W.D. (1975), "The Political Business Cycle", *Review of Economic Studies*, No. 130, pp. 169-90.

Talvi, E. and C. Végh (2000), "Tax Base Variability and Procyclicality of Fiscal Policy", NBER, Working Paper, No. 7499, Cambridge (MA), National Bureau of Economic Research.

THE DUTCH FISCAL FRAMEWORK
AND THE ROLE OF THE CENTRAL PLANNING BUREAU

Frits Bos[*]

According to the IMF and OECD, the Dutch fiscal framework is rather unique, and its design and implementation are highly recommendable. This paper describes this framework and the role of the CPB. Major features of the Dutch fiscal framework are the trend-based fiscal framework with real net expenditure ceilings for the whole term of government, the role of independent organisations, like the CPB, Statistics Netherlands and the Netherlands Court of Audit, and the intermediary role of the national advisory group on budgetary principles.

1   Introduction

For years, the IMF and OECD have been stressing the importance of national fiscal rules and institutions. They provided standards for good practice and gave overviews of best practice.[1] In the annual country reports by the IMF and OECD, the national fiscal frameworks are always discussed in view of these standards and best practices.

According to the IMF and OECD, the Dutch fiscal framework is in many respects unique and highly recommendable. This applies to e.g. the medium-term expenditure ceilings, the use of independent macroeconomic estimates in the budgetary process, the analyses and estimates by the CPB about Dutch public finance and the role of Statistics Netherlands, the Netherlands Court of Auditors and the national advisory group on budgetary principles.

At present, medium-term expenditure ceilings are only used in few countries, e.g. the USA, New Zealand, Finland, Sweden and the Netherlands. However, IMF and OECD regard such expenditure rules as a very effective and efficient tool for managing public finance. Anderson and Minarik (2006, pp. 193-94) even argue that expenditure rules are on balance superior to deficit-based rules, like the general government budget balance used by the EMU. Anderson and Minarik therefore advocate that the EMU-government deficit rules should be complemented by national expenditure rules.

According to Wyplosz (2002, p. 9), rules do not suffice for sound fiscal policy, because "they tend to be rigid and artificial (arbitrary debt or deficit limits, golden rules based on thin air and falsifiable accounts), which makes them ultimately impossible to defend in the face of public opinions". Institutions are therefore essential for combining a credible commitment to long-run debt stability

_____

[*]   CPB (Netherlands Bureau for Economic Policy Analysis).

[1]   IMF (2001a), IMF (2001b), IMF (2005), OECD (2002).

with sufficient short run flexibility. He discusses a constitutional approach (a limit on debt or deficit in the constitution like in the states of the US) and three approaches relying on independent outside institutions.

In the Netherlands, independent national institutions are also very important for fiscal policy. However, the Dutch approach is in several respects quite different from those discussed by Wyplosz. For example, the CPB work does not give explicit guidance on fiscal policy targets; this is the task of the national advisory group on budgetary principles. This national advisory group on budgetary principles is actually a mix of an inside and outside institution, as it includes representatives from the most involved Ministries and from independent expert institutions (CPB and the Central Bank).

This paper provides an overview of the Dutch fiscal framework and its role in managing public expenditure.[2] Attention is paid to the preparations for the next government (e.g. the analyses by the CPB of election platforms and coalition agreements) and the fiscal framework during the term of government (e.g. how are unexpected windfalls and setbacks and changes in political plans managed?).

In Bos (2007b), an overview is presented the history of the Dutch fiscal framework since 1814. This historical perspective is important for understanding the current framework:

- It shows that the current framework has a long and typically Dutch tradition. For example, since 1945 the CPB plays an important role as independent expert on economic and fiscal policy. This role fits well in the Dutch tradition of consultation and coalition governments.

- It illustrates the tensions between official fiscal rules, changing economic circumstances and political pressure; bookkeeping tricks can then help to circumvent official fiscal rules.

- It sheds light on the process of institutional learning, e.g. the failures and successes about how to manage rapidly increasing public expenditure and to organize cut-back management when necessary.

- It shows that some specific circumstances are much less unique than commonly thought, e.g. high public debt, stagnating economic growth and substantial temporary non-tax revenues (revenues from Indonesia, Marshall aid and natural gas revenues).

- It demonstrates the important role of changes in the opinions of politicians and economists; several times this amounted to old insights rediscovered or becoming relevant again.

----

[2]   Alternative overviews are provided by IMF (2006), Postma (2006), Tijsseling and van Uden (2004) and Berndsen (2001).

2   Major principles of the current fiscal framework

Minister of Finance Zalm supplemented the European norms with a national policy of trend based budgeting. Since 1994, the major features of this policy[3] are:

- Net real expenditure ceilings for the whole term of government (four years);
- One main decision-making moment a year;
- A focus on reducing public debt.

Furthermore, there are also some supplementary fiscal rules and principles:

- A monitor for the ex ante micro tax and social security burden. This monitor shows the expected changes in taxes and social security contributions in billion euros due to official changes in tariffs and regulations. Unlike the collective tax and social security burden, the monitor is not affected by non-policy factors, e.g. purely administrative changes, general changes in consumption patterns or changes in the labour participation of women.
- An investment fund mainly financed via 40 per cent of the natural gas revenues (FES-fund); the remainder of the natural gas revenues are to be used for debt reduction.
- A signal value for the general government deficit of 2 or 2.5 per cent of GDP. Surpassing this signal value implies that additional measures are to be taken and that the expenditure ceilings do not apply anymore. This may result in pro-cyclical policy.
- The use of incentives and cost/benefit analysis for reorganizing and controlling public expenditure.

The combination of cautious macroeconomic assumptions and a long-term real expenditure ceiling limits the risk of budgetary turmoil resulting from economic setbacks. On the income side of the budget automatic stabilizers are allowed to work freely.[4] Income setbacks can be compensated for in the budget balance and do not immediately require intervention by reducing expenditure or increasing taxes. The introduction of one main decision-making moment a year was intended to create a more stable and less hectic budgetary decision-making process, as was the case in the time path approach for reducing deficit (1983-93, see Bos, 2007b).

The framework is set with reference to a target for the fiscal balance based on longer-term budgetary sustainability considerations. The CPB analyses of short-term, medium-term and long-term developments in Dutch public finance are the backbones of this framework.

---

[3]   Cautious macroeconomic assumptions was also a feature. However, since February, the new government has decided to prefer trend based estimates (see Bos, 2007b, textbox "Cautious economic assumptions?", p. 49).

[4]   During the period 1998-2002, also a windfall formula for tax and social security contributions was applied. In case of an general government deficit of less than 0.75 per cent of GDP, 50 per cent of the windfall was to be used for deficit reduction and 50 per cent for additional tax relief. If the general government deficit is more than 0.75 per cent of GDP, then 75 per cent of the windfall was to be used for deficit reduction and 25 per cent for additional tax relief.

FES and the use of cost/benefit analysis in the budgetary process

The Economic Structure Improvement Fund (FES) was established in 1993. Government investments in infrastructure had fallen from about 3 per cent in 1970 to 1.5 per cent of GDP in 1993. By earmarking via the FES about 40 per cent of the natural gas revenues for financing "additional investments of national significance", the structure of the Dutch economy should be improved. Another FES-revenue, but of secondary importance, is the interest on public debt saved due to the sale of equity of public corporations.

The Betuwelijn, a railway line from Germany to the Rotterdam harbour, was the first major project financed by the FES. It also initiated the reintroduction of cost/benefit analysis at the CPB.[a] At that time, the Dutch government was not at all happy with the CPB's conclusion that such a publicly financed railway line would not be a good idea. Nevertheless, the Betuwelijn has been constructed and at present transporters are not even willing to pay compensation for using the railway line. In 2004, an official parliamentary commission (Commissie Duijvestein) published a very extensive report about what went wrong with big infrastructural projects, like the Betuwelijn and the High Speed Railway between Amsterdam and Belgium. However, lessons have been learned and for some years now, the financing of projects via the FES is scrutinized by a cost/benefit analysis. This has also stimulated the use of cost/benefit analysis for infrastructural projects not financed via the FES. All these analyses (see e.g. Dijkman and Verrips, 2002) should comply with the new national guidelines on cost/benefit analysis, e.g. with respect to the social discounting rate, the risk premium and the inclusion of indirect effects (see Eijgenraam et al. 2000 and CPB, 2003a).

Since 1993, the FES has disbursed more than 31 billion euro. In the beginning, the FES-investments mainly focused on transport and mobility, e.g. roads, railways and channels. However, now also expenditure on knowledge, innovation and the environment are financed via the FES.

Recently, changes in the oil prices doubled natural gas revenues in some years. These windfall gains were not good for political calm and drastically stimulated the urge for spending. In a very short term, the CPB had to make cost/benefit analyses of a wide range of new projects. The new official advisory group on budgetary principles recommended therefore that the FES-funding level should be decided at the start of the new government's term. The FES-investments should be embedded in medium-term investment agendas, the projects should be selected with the aid of cost/benefit analysis which have to be proofed by the CPB or an independent scientific committee. The coalition agreement of the new government has accepted these proposals.

---

[a] In 1954, under the supervision of Tinbergen, a cost/benefit analysis was made of the Delta works. After budget cuts in the early eighties, such project appraisals were scrapped at the CPB.

European norms for actual deficit and debt

The Treaty of Maastricht in 1992 implied that monetary policy became a responsibility of the European central bank and that national fiscal policy should comply with the European norms of actual deficit and debt. Deficit should not exceed 3 per cent of GDP and debt must be below 60 per cent of GDP or be declining towards the 60 per cent norm at a satisfactory rate. According to the Stability and Growth Pact, the budget balance should be close to balance or in surplus in the long run.

As a consequence, the national concepts on public finance were replaced by the new European concepts based on the national accounts. This had several practical implications:

- A change in concepts. For example, according to the national account's concept of budget balance, revenue and expenditure like taxes and interest payments should be recorded on a transactions basis. Financial transactions like loans and the sale of equity are irrelevant and the government includes not only the state and social security funds, but also municipalities, provinces and many other non-market units mainly financed and controlled by the government.

- The concepts can not be changed anymore over time by the government.

- A link to national accounts statistics and therefore a new role for Statistics Netherlands and a more limited role of the Ministry of Finance. The official figures reported to the European Commission and European Central Bank should be consistent with those reported by Statistics Netherlands. In the end therefore, Statistics Netherlands is responsible for translating the general European concepts into operational concepts for the Netherlands and to make the best estimates for these operational concepts.

The transition towards European concepts does not imply that bookkeeping and bookkeeping tricks have become irrelevant. Like all national concepts of taxable income, the European concepts on public finance can affect actual behaviour (e.g. stimulate leasing of capital goods to reduce the deficit or stimulate the sale of public equity in order to reduce public debt) and the specific institutional arrangements chosen.[a] Furthermore, they are not optimal from an economic-theoretic point of view (e.g. not forward looking and ignores financial assets and implicit liabilities like future pensions) and may not well take account of the current economic situation in the Netherlands. They are the outcome of political negotiations in view of the circumstances in Europe in 1992 and the purposes of the criteria, *i.e.* to provide signals that countries are willing and able to live with the discipline required by EMU (see Bovenberg and De Jong, 1996, p. 18).

———————

[a] On the merits and limitations of the EMU-targets of government deficit and debt, see also Bos (2003a, Chapter 8) and Bos (2007a).

**Gross debt is not a good yardstick
for the financial position of the Dutch government**

Gross government debt in the Netherlands declined from 176 per cent in 1948 to 38 per cent of GDP in 1977. During the Eighties gross government debt increased to over 70 per cent of GDP and started then to decline; at present, gross government debt is below 50 per cent of GDP. This is substantially below the debt criterion of the European Monetary Union. However, this criterion only takes into account explicit debt and does not provide a complete picture of the financial position of the government.[a]

**Gross Government Debt, Natural Gas Stock and Net Worth
of the Government in the Netherlands, 1948-2007**
(percent of GDP)
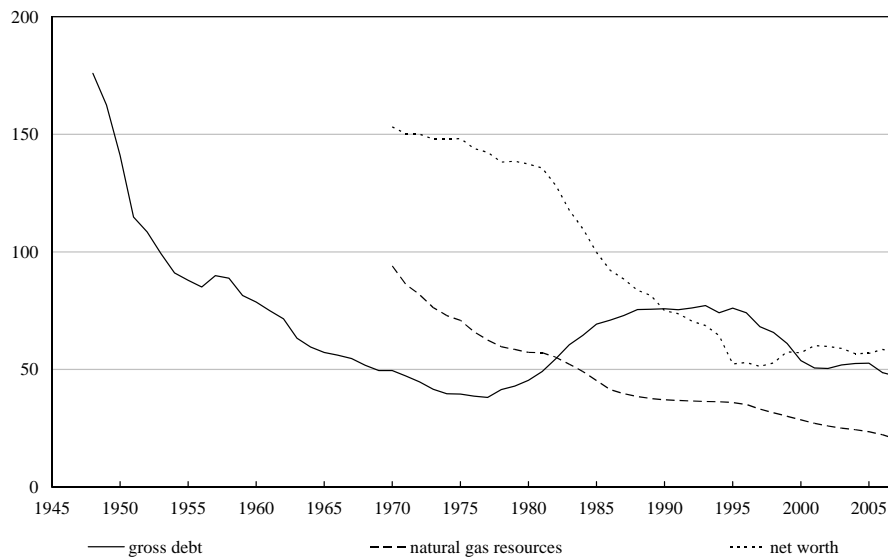
The major assets of the Dutch government are the natural gas stock, the fixed capital stock and the financial assets. The discounted value of the natural gas stock was 90 per cent of GDP in 1970. At present, it has declined to 20 per cent of GDP. The value of the fixed capital stock of the government, like infrastructure, buildings and computers, was 55 per cent of GDP in 1970. It increased to 74 per cent of GDP in 1983; since then it has decreased gradually to the current level of

———————
[a]   This was already noted at the start of the EMU. See, e.g., van Hoek and Zalm (1992).

about 60 per cent of GDP. The Dutch national accounts includes data on the financial assets of the Dutch government since 1990. In 1983 the value of these financial assets was 45 per cent of GDP. Mainly due to the sale of equity and the redemption of the loans to housing corporations, this has declined to 24 per cent of GDP.

If these assets are also taken into account, a totally different picture of the financial position of the Dutch government results. During 1970-77 gross government debt decreased with more than 10 per cent of GDP. At the same time, the value of the fixed capital stock increased over 10 per cent of GDP. However, this was overshadowed by the decrease in the value of the natural gas stock. As a consequence, net worth of the government decreased 7 per cent of GDP. In the period 1978-93 the size of government debt doubled by an increase of 38 per cent of GDP. Government's net worth decreased much stronger, due to a decrease in the gas stock (–26 per cent of GDP) and the financial assets (–9 per cent of GDP in the period 1990-93). Since 1994 Dutch gross government debt decreased with 27 per cent of GDP. This substantial decrease in debt is more than compensated by a decrease in the natural gas stock and other property: net worth decreased 14 per cent of GDP.

Analyses of the sustainability of government finance are based on discounting future expenditure and revenue and taking account of present net worth. Following these analyses, sustainability is achieved by anticipating the forthcoming costs of ageing by an increase in net worth. In particular due to the exhaustion of Dutch natural gas reserves, this is not the same as reducing government debt.

The trend based fiscal framework, budget cuts, economic recovery and some specific factors, like the increased labour market participation of women and the rapid drop of interest rates on public debt (see also Bos, 2006a), resulted in a drastic reduction of public expenditure and debt: public expenditure fell from 57 per cent in 1993 to 46 per cent of GDP this year and public debt was reduced from 77 per cent in 1993 to 47 per cent of GDP this year. However, the improvement in the net financial position of the Dutch government was much less favourable (see text box "Gross debt is not a good yardstick for the financial position of the Dutch government").

2.1   Public debt and sustainability

Mid-1990's, Dutch politicians explicitly addressed the issue of sustainability by creating two funds: the FES-fund and the old age state pension fund. These should help to ensure sustainability of Dutch public finance in view of the

exhaustion of natural resources and the expected rise in old age state pensions due to ageing. However, the solutions offered were only formal solutions, as they did not affect the official targets for general government balance and debt (for more details, see Bos, 2007b).

However, some years later, official medium-term policy targets for deficit and debt were explicitly linked to calculations on the sustainability of Dutch public finance. Following the seminal work by Auerbach, Gokhale and Kotlikoff (1991), the CPB started to calculate generational accounts for the Netherlands (see, e.g., Ter Rele, 1998, Van Ewijk *et al.*, 2000 and 2006). These calculations demonstrated that current policy arrangements (taxes, public expenditure on social security, education and health care, subsidies, etc.) in the Netherlands are not sustainable.

Under unchanged polices, the ageing population will lead to a sharp and structural increase in public expenditure, in particular on state pensions and health care. Government revenue from taxes on funded pensions will also increase, but not enough to cover the extra expenditure and the falling revenues from natural gas. As a consequence, in the long run without policy adjustments public debt will explode and Dutch public finance will be out of control. Adjusting policy in time is efficient (tax smoothing limits the distortion on the labour and capital market) and intergenerationally fair. Major solutions are increasing labour participation, adjusting the ageing-related public expenditure (old age state pensions and health care) and saving for later by raising taxes or by cutting other public expenditure.

The forward looking approach of generational accounting is the new paradigm for Dutch public finance.[5] Some recent figures can illustrate the importance of this paradigm-switch for the Netherlands. According to the most recent CPB estimates, without policy change, the general government budget balance in 2011 will be a surplus 1 per cent of GDP. However, this is not sufficient for sustainability: the Dutch sustainability gap is then about 2½ per cent of GDP.

In order to monitor changes in sustainability, actual and structural general government budget balance, *i.e.* the actual balance corrected for cyclical fluctuations, are very misleading. For this purpose, the concept primary structural government balance is commonly used, *i.e.* structural budget balance minus interest payments. Current interest payments are ignored, as in the long run interest payments and debt have only a limited impact on the sustainability of public finance.

The CPB has decided to use an alternative concept for monitoring sustainability: robust budget balance.[6] It differs in two respects from primary structural budget balance. It is equal to structural budget balance corrected not only for interest payments, but also for interest en dividend revenues and revenues from natural gas. In primary structural balance, interest payments are left out, but interest receipts and revenues from dividend are still included. As a consequence, changes in

―――――――

[5]   Two years ago, the forward looking approach has been extended with an analysis of the redistribution of current Dutch policies over the life-cycle (Ter Rele, 2005).

[6]   See Ewijk *et al.* (2006).

Figure 1

**Robust Government Balance, Robust Primary Structural Balance
and Structural Balance in the Netherlands, 1992-2007**
(percent of GDP)
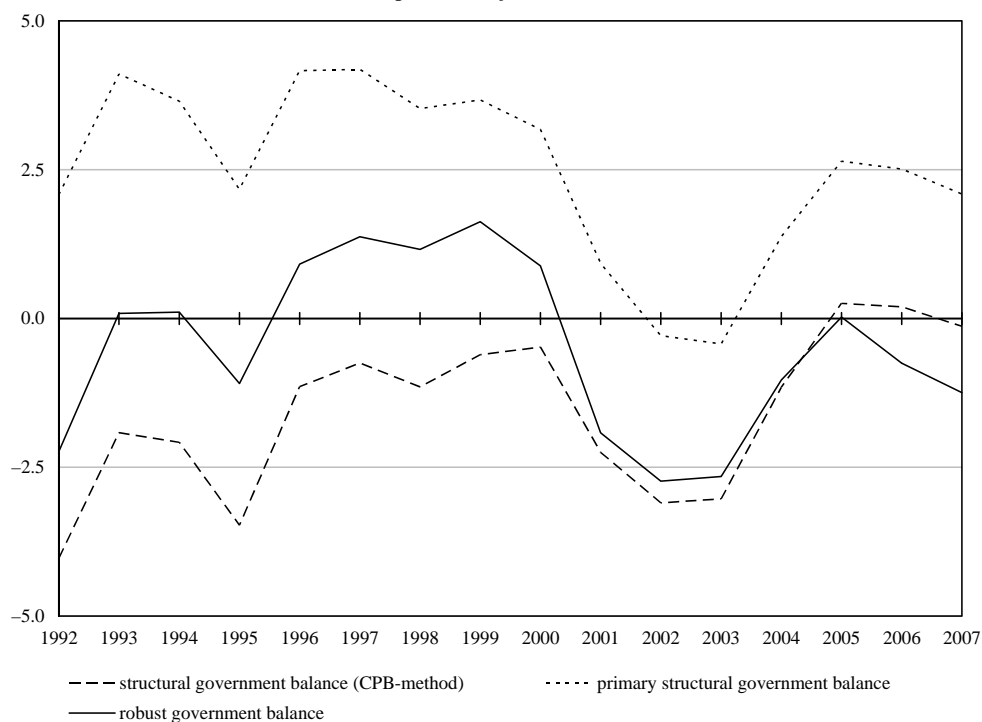
Source: CPB Macroeconomic Outlook 2007, p. 29.

the financial portfolio of the government, e.g. reducing government debt by selling public equity stock, change the primary balance. However, such changes are irrelevant for assessing sustainability as they reduce revenue (interest and dividend received) by approximately the same mount as expenditure (interest payments).

The second difference with primary structural balance reflects specifically Dutch circumstances. In about 25 years, Dutch natural gas reserves are expected to be exhausted. Temporary windfalls in natural gas revenues, e.g. due to changes in the oil prices, will not help to make Dutch public finance sustainable. For monitoring changes in the sustainability of Dutch public finance, also changes in the natural gas revenues are therefore ignored.

Using robust balance − and not the structural balance or the primary structural balance − really matters. For the past fifteen years, it gives quite a different picture of the changes in sustainability of Dutch public finance (see Figure 1).

Incentives as a tool for managing and controlling Dutch expenditure

In particular since 1990, the CPB is investigating the efficiency and effectiveness of the rules and institutions underlying Dutch public expenditure. Major studies have been published about social security arrangements, the health care system and education. Also the impact of immigration on Dutch public finance has been investigated. In 1997, embedded in a general analysis on the interplay of institutions, trade-offs, performance and trends, a comprehensive comparison of German and Dutch economic institutions was published (CPB, 1997). The use of explicit incentives has become one of the major issues of the Dutch public service modernisation agenda. CPB studies have investigated the usefulness of performance contracts and performance pay in various (semi-)public sectors, e.g. the social benefit administration, the police force, the education sector, universities, physicians and the major technical research institute in the Netherlands (TNO).

Incentives have now become a major tool for reorganizing Dutch public expenditure. Policy measures taken include, e.g.:

- official minimum wages have been constant in real terms since 1980; this means a substantial saving on social benefits related to this minimum wage, e.g. social assistance and state pensions. It also implies a greater incentive for looking for paid work instead of receiving social assistance;

- scholarships have become a grant conditional on the performance of students;

- since 1994, paid sickness leave has gradually become less a responsibility of the government and more that of the employer. Employers do not have to pay social security contributions for paid sickness leave, but should finance the paid sickness leave of their employees during the first two years. The purpose is to stimulate employers to reduce sickness of their employees and in this way also disability benefits;

- municipalities could claim most of their expenses on social assistance from the state. However, since 2004, they receive a fixed budget which is linked by the CPB to the macroeconomic developments. As a consequence, municipalities have now an incentive to reduce the number of social assistance benefits. This new policy was very successful, as social assistance benefits hardly increased in 2004 and 2005 despite a substantial increase in unemployment.

---

3 The budgetary process, expenditure ceilings and the role of the CPB

3.1 Introduction

Major elements of the current trend based fiscal framework, like the link to calculations on sustainability of Dutch public finance, the role of cost/benefit

Table 1

The Road to a New Medium-term Framework

One year before the elections	CPB estimates of the Dutch economy and public finance in the medium and long term, assuming no changes in policy
One year before the elections	Report by the official advisory group on budgetary principles
5 months before the elections	New CPB estimates of the Dutch economy and public finance in the medium term, assuming no changes in policy
2 months before the elections	CPB analysis of the election platforms
After the elections	CPB analysis of coalition agreement
Some months after the elections	The new medium-term framework based on new CPB estimates for the Dutch economy

analysis and the introduction of incentives, have been discussed in Section 2. In this section, the focus will be on the budgetary process, the expenditure ceilings and the role of the CPB.

3.2 *The road to a new medium-term framework*

One year before the elections, the road to a new coalition agreement and medium-term framework starts. The CPB makes provisional estimates of the Dutch economy and public finance in the medium term. These estimates are later updated and supplemented with an analysis of Dutch public finance in the long run.

All these estimates serve as inputs for the official advisory group on budgetary principles. The government makes explicit which topics should at least be addressed by the advisory group. In about half a year, this group writes a report evaluating past budgetary performance and making recommendations for the next period of government. The Ministry of Finance serves as the secretary of the advisory group. The CPB provides the estimates on the economy and public finance and is often asked to take a further look into some specific issues, e.g. conduct an analysis of the consequences of alternative assumptions and principles.

In the run-up to the general elections, the CPB publishes an analysis of the economic effects of election platforms.[7] The CPB conducts this analysis at the request of the political parties in question. In November 2006, eight election

————

[7] On the merits and limitations of this analysis, see the papers in Graafland and Ros (2003).

platforms were analysed (see CPB, 2006). This was the sixth occasion since 1986 that such an evaluation of election platforms has been made.

The CPB study makes it possible to compare the parties' election platforms on economic aspects. Key elements of the analysis are the implications for public finance, macroeconomic developments and purchasing power.[8, 9] As far as the budgetary effects are concerned, the CPB devotes attention to the implications of the proposed measures for the revenues and expenditures of the public sector as a whole (general government budget balance, debt and sustainability in the long run).

"Charting choices" is not only useful for voters, maybe not even in the first place. As soon as the results of the CPB analysis are published, the political parties use these results to defend their policy proposals. It is not unusual for politicians to bombard each other with CPB figures during election debates.

The study comes in handy after the election, during the formation of a new coalition agreement. In the Netherlands, parties usually form governments on the basis of wide-ranging coalition agreements. The coalition agreement plays an exceedingly important role during the government's term in office. It sets out the result of the give and take among the coalition partners on many policy issues. It is also the starting point for discussions on the government's decisions whether or not new developments demand a policy response.

The CPB study offers an initial overview of the economic and financial implications of the parties' proposals. It is therefore a good starting point for negotiating the terms of a coalition agreement. This applies not only to the proposals of parties involved in the coalition agreement. In practice, the CPB overview serves as a data base on all kinds of policy measures that could be considered during the negotiations; in particular the budget cuts and extra revenue generating measures by other parties are a popular source of inspiration.

The CPB provides also an analysis of the coalition agreement. The previous analysis of the election platforms is therefore a great help to make such an analysis. When no entirely new policy measures are proposed, a standard analysis (*i.e.* check on the plausibility and feasibility of the measures proposed and their ex ante budgetary implications, macroeconomic effects and effects for purchasing power) can be made within some days.

---

[8]   The macroeconomic effects concern the implications for the Dutch economy, specifically those for structural GDP, employment in the private and public sector, consumption, wages, inflation and so on. The purchasing power effects cannot be easily expressed in a single figure, because the implications of the party programmes may differ widely between types of households. These effects are therefore expressed in a scatter diagram and by means of specific figures for different groups of households.

[9]   In the analysis of 2002, also the environmental implications were taken into account. However, due to the fall of the coalition government and the consequent calling of early elections, time pressure was too high to include this environmental analysis again. Five years ago also an analysis of the strengths and weaknesses of the reforms proposed for the health care sector was included. In November last year, for the first time an analysis was included on education, science and innovation. The proposals by the parties were classified, on the basis of empirical research, into promising, not promising and proposals that can not be judged along these lines on the basis of such research.

The Ministry of Finance ultimately calculates the medium-term framework. For example, the level of the real expenditure ceilings is fixed considering the coalition agreement and the most recent information about expenditure and revenue. Other Ministries, in particular those on social affairs and health care, may also have a clear opinion on the development of the expenditure of their Ministry. Estimates by the CPB, in particular those on social security, taxes and health care, serve as a critical benchmark for fixing the medium-term framework.

This process for deciding on a new coalition agreement implies that policy measures are checked in an early stage on their feasibility and consequences on the national economy and public finance in the medium term and long run. Before the elections, the policy measures proposed by all major political parties are analysed. In drawing up the coalition agreement, also the policy measures in the successive drafts are analyzed.

3.3   The annual budgetary process

The annual budgetary process is summarized in Table 2. The CPB plays two important roles in this process. First, it provides the macroeconomic estimates, e.g. of economic growth, prices and wage rates, for the budget. These estimates play also an important role in wage negotiations for the public and private sector. Secondly, it provides elaborate estimates on Dutch public finance (see Table 3 for an overview of the standard tables and Bos, 2003b for a more extended explanation). As a consequence, there is always a critical benchmark for the estimates on Dutch public finance by the Ministry Finance. An essential feature of the CPB estimates is that they can be based on the most recent budgetary information and decision-making, even when this information is not yet officially published.

In general, for the annual debate with the government about the budget in September, several opposition parties ask the CPB to analyse also their alternative budgetary proposals. The CPB analysis of their plans serves as a check (e.g. are they realistic?) and give also an indication of their short run economic effects in terms of economic growth, inflation, general government budget balance and purchasing power of various groups of households.

3.4   The expenditure ceilings

The Dutch expenditure ceilings are commonly misunderstood. Examples of such misunderstanding are:
- the expenditure ceilings are based on conservative estimates of public expenditure;
- the expenditure ceilings assume gradually increasing or decreasing changes in public expenditure;
- the expenditure ceilings are fixed in terms of GDP;

<div align="right">**Table 2**</div>

The Annual Budgetary Process
(t is the budget year)

Due dates	Activities
November *t*–2	Budget circular from Ministry of Finance to line ministries to start internal preparations
January/ February *t*–1	Provisional "Central Economic Plan" by CPB to ministries containing updated macroeconomic and public finance estimates for the budget year and beyond.
February *t*–1	Line ministries send policy letters to Ministry of Finance indicating spending priorities and likely budgetary developments
March/April *t*–1	Preparation of recalibrated multiyear expenditure framework, with proposed shifts in allocations/cutbacks brought to cabinet by Ministry of Finance, based on policy letters
March *t*–1	"Central Economic Plan" published by CPB on the basis of unchanged policy
April/May *t*–1	Decision by cabinet on expenditure side of the budget. Sent out by Ministry of Finance to line ministers in "Totals letter"
May/June *t*–1	Detailed negotiations between Ministry of Finance and line ministries on composition of their budgets
Early June *t*–1	"Provisional Macro Economic Outlook" by CPB to ministries; this contains updated estimates on the Dutch economy and public finance; this incorporates new fiscal decisions
June *t*–1	"Spring memorandum": parliament is informed on outline of current years budgetary plans and on budget execution in first quarter
August *t*–1	Further fine-tuning of budget on the basis of provisional macroeconomic outlook provided by CPB to ministries and decision-making on the income side of the budget
3rd Tuesday September *t*–1	Submission of State budget to parliament together with CPB's Macroeconomic outlook (MEV)
September *t*–1	Discussion of State budget in second and then in first chamber of parliament. First general political and macrofiscal discussion, then discussions per budget chapter. Input for general discussion also CPB analysis of budgetary proposals opposition parties
Before end December	Approval by both chambers of parliaments of all budget chapters

<div align="right">**Table 3**</div>

CPB Standard Tables for Monitoring and Analysing Dutch Public Finance

Table	Explanation
Key-figures Dutch public finance	Public revenue, expenditure, government balance and debt as percentage of GDP
	Some other information, e.g. annual change in employment in general government, change in wage rate in general government, ratio of inactive versus active
	Footnotes indicate quantitative impact of major incidents and institutional changes; this is essential for proper interpretation
Public expenditure by function	Public expenditure by function as a percentage of GDP, volume changes (percent) and price changes (percent), GDP volume and price change
Volumes of major social benefits	Absolute number of social benefits for major regulations, e.g. old age act, sickness act, disablement act, unemployment act and social assistance
Public expenditure and the expenditure ceilings	A comparison in billion euros of the expenditure ceilings drawn up at the start of the government and the most recent estimate of the expenditure subject to the ceiling
Social security contributions	Overview of official tariffs, thresholds (income, 65+), maxima and deductible items (e.g. for working)
Micro-tax burden	An overview in billion euros of the changes in the micro-tax and social security burden due to policy; corrections are made for shifts between private and collective arrangements (e.g. health care and social security)
Tax and social security revenue	An overview of the major taxes and social security revenue as a percentage of GDP (e.g. wage tax, VAT and corporation tax)
	The annual change as percentage of GDP is broken down into changes due to policy and other changes (e.g. changes in economic growth, purely administrative changes in the collection of tax revenue)

- due to the use of expenditure ceilings, unexpected deteriorations in the general government budget balance can only occur due to unexpected reductions in tax and social security revenues, e.g. related to unexpected lower economic growth.

A major purpose of this section is therefore to address these misunderstandings; a more elaborate discussion can be found in Bos (2007b).

3.4.1 *Expenditure ceilings reflect the coalition agreement and realistic expenditure estimates*

The multiannual expenditure ceilings are determined at the start of a new term of government. They are not simple policy ambitions about the size of public

expenditure as a percentage of GDP without any clear and realistic underpinning. They are bottom-up calculated levels of expected public expenditure in constant prices. They reflect the coalition agreement and are intended to be realistic estimates of the expected expenditure.

Cautious economic assumptions about growth only affect these estimates to a limited extent. For example, current expenditure on education and police are mainly extrapolated on the basis of demography. Furthermore, higher volumes in unemployment benefits are partly compensated by a more modest development of wages. The major exception are therefore the expenditure on health care: the high income elasticity of health care (e.g. reflecting the luxury good character of health care) ensures that a lower assumption of economic growth implies also a lower estimate of health care expenditure.

For determining the expected social security benefits and health care under the expenditure ceiling, the CPB estimates serve as a critical benchmark. This helps to avoid (political) biases in determining the expenditure ceiling. Nevertheless, estimating the budgetary effects of new policy measures is subject to substantial uncertainty and estimation errors influence the margin for expenditure under the ceiling. For example, a new policy measure much more successful in reducing expenditure on social assistance benefits leads to an unintended additional margin for expenditure.

The coalition agreement may imply specific time patterns, e.g. first the sour of budget cuts and then the sweet of tax relief and extra expenditure. This could reflect political economy considerations (maximizing the votes for the next election), but may also be motivated by administrative arguments: it takes time to organize reforms and their benefits will arrive with substantial delay. Such previously agreed time patterns in government expenditure and revenue may unexpectedly imply a pro-cyclical policy.

3.4.2   *Delimitation, flexibility and possibilities for substitution*

In 2006, net expenditure under the ceilings amounted to 38 per cent of GDP. Three different ceilings are distinguished: net state expenditure narrowly defined (18 per cent of GDP), expenditure on social security and labour market affairs (11 per cent of GDP) and expenditure on health care (9 per cent of GDP).

<div align="right">**Table 4**</div>

Expenditure Ceilings and General Government Budget Balance, 2006
(percent of GDP)

State taxes and social security contributions	38.4
Net expenditure by the state narrowly defined	18.4
General transfer to municipalities and provinces	2.7
Revenues of old age fund	−0.7
Other revenues (e.g. fines, school fees, dividend, interest received)	−1.4
Other net expenditure (e.g. wages, transfers to schools, interest payments)	17.8
Expenditure on social security and labour market	10.8
Expenditure on health care	8.5
Total net expenditure under the expenditure ceiling	37.7
Net other expenditure	0.6
Natural gas revenues	−1.5
Old age fund (minus)	0.7
FES-expenditure on infrastructure and innovation	0.4
Social assistance in cash for health care	0.5
Other (e.g. cash versus accrual, local government, administrative costs health care)	0.4
General government budget balance	0.2

      The ceilings do not only cover expenditure, but also some revenue, like fines, school fees, dividend of the central bank and state corporations and interest received. This implies that extra expenditure under the ceiling could be financed via raising some of these revenues and that set backs in these revenue should be compensated by reducing expenditure. The IMF questions the merits of including such revenues under the expenditure ceiling.

In principle, three different budget sectors with specific expenditure ceilings for each sector are distinguished. However, since 1994, shortages at one ceiling (notably health care) were several times compensated by surpluses at other ceilings.

To some extent, shortages and surpluses can also be shifted in time. For example, departments are allowed to shift 1 per cent of their expenditure to the successive year. Furthermore, the expenditure under the ceiling are mostly recorded on a cash basis. As consequence, by advancing or postponing payments and receipts, e.g. with respect to infrastructure, expenditure under the ceiling can be managed.

Since 2002, there is a clause that cyclical windfall in expenditure under the ceilings should not be spent. However, these windfalls were not precisely defined; as a consequence, the clause could be used by the Minister of Finance in a discretionary and flexible way.

Public health care expenditure are a major challenge for the expenditure ceilings. They are a major item of public expenditure, have been increasing rapidly for many years and may also grow more than expected when drawing up the expenditure ceiling. This rise in public health care expenditure can be reduced by shifting between public and private expenditure, e.g. by reducing the standard health care package. In the Ministry of Finance's monitor of the tax burden, this is not regarded as an increase of the tax burden. Such solutions for health care expenditure exceeding the ceiling are thus allowed. But in the CPB concept of tax burden used for monitoring and analysing Dutch public finance, such solutions are nevertheless presented as an increase in the tax burden.

The expenditure under the ceiling might also be 'controlled' by substitution with tax expenditure (see Hemels and Ros, 2006). However, in principle, the ceilings are corrected for such institutional changes. Furthermore, new tax expenditure could be signalled by a separate monitoring of such expenditure. In the period 1994-2001, there was no explicit monitoring or evaluation of tax expenditure. The Budget of 2001 contained a first set of criteria for tax expenditure. In the Budget of 2003, new explicit criteria were introduced for tax expenditure, e.g. is the purpose SMART (Specific, Measurable, Agreed, Realistic and Timebound), why is government intervention required and why is tax expenditure the preferred tool?

Since 1999, the budget contains a separate chapter on tax expenditure; this includes an overview of the major tax expenditure, e.g. income tax reduction for specific groups, VAT differentials and tax reduction for employers for employees with parental leave or long-term unemployed. According to the most recent overview in the budget, tax expenditure as a percentage of GDP was 2 per cent in 2006. However, some experts argue that several major items of tax expenditure are ignored, e.g. the different treatment of pension savings *vis-à-vis* other savings,[10] the personal income tax deductibility of interest on mortgages, labour tax credit, child tax credit and the tax credit for bread winners (*i.e.* for households where only one of

---

[10]   Contributions to supplementary pension schemes are tax-deductible, but the pension payments in due course are taxed.

the parents earns labour income). This does not serve a proper allocation: unexpected increases in major items of expenditure like health care and education are restricted by expenditure ceilings, while unexpected increases in major items tax expenditure are not restricted at all and even fully ignored.

An alternative substitute for expenditure under the ceiling are guarantees or cheap loans. The budget contains also an overview of these guarantees, e.g. for loans by public and private non-profit institutions. According to the Budget 2007, the financial risk of state guarantees was about 12 per cent of GDP in 2006.

3.5   Understanding the role of the CPB

The CPB plays an important role in the financial and economic decision-making process in the Netherlands (see also CPB, 2003b). The CPB's short-term, medium-term and long-term estimates of the Dutch economy and public finance are the backbone of the budgetary process. Political parties and the government ask the CPB to analyse the economic effects of their election platforms, coalition agreements and alternative budgetary proposals. Strategic economic thinking and decision making is influenced by CPB studies, e.g. general long-term scenario analyses and specific studies about the welfare state, education, innovation and health care. The decision-making process about major specific projects, e.g. on infrastructure, is guided by cost/benefit analysis by the CPB. The CPB is also represented in influential advisory groups, e.g. the Central Economic Commission, the Socio-Economic Council and the Official Advisory group on Budgetary Principles.

How should this dominant role be understood? What is the logic behind this role? How can the CPB serve as an independent expert, while being financed completely by the Dutch government? How can the quasi-monopolistic role of the CPB coincide with a good quality of the estimates and analyses?

The role of the CPB as advisor and arbitrator fits well in the Dutch tradition of consultation and coalition governments. Directly after the Second World War, the CPB had a good start (see Boogaard, 1998, Bos, 2006, pp. 232-37 and Passenier, 1994). The need for a joint strategy for economic recovery gave a clear role for the CPB estimates and analyses. Furthermore, the outstanding qualities of Jan Tinbergen both as economist and political advisor and as a moral authority contributed directly and indirectly to the appreciation of the CPB work.

Provided the CPB is independent and provides good quality estimates and analyses, then the dominant role of the CPB can be regarded as an efficient solution. It avoids unnecessary duplication of work and avoids discussions about which estimate is the best. It ensures continuity which is essential for both producers and users of policy advice. For example, for specific topics standard tables can be used. Continuity is essential for building up expert knowledge about Dutch institutions. It also important for generating specific skills and tacit knowledge essential for policy

advice, e.g. how to handle confidential inside knowledge and how to meet tight time schedules essential for coalition agreements.

The independence of the CPB is arranged in various ways. "First there is the formal structure, as laid down in the law of 1947. It is a very short and simple law, which regulated e.g. the appointment procedure of the members of the Board of Directors and the existence of the Central Planning Commission. The members of the Board of Directors are appointed for a long period by the Minister of Economic Affairs in consultation with seven other Ministers named in the law. So a broad support for those appointments is required. But more important than formal law are tradition and practice developed in Dutch social-economic life for forty years, which have strengthened the independent position of the Bureau. For the Bureau itself it is essential to maintain its independence. The position and prestige of the Bureau would be seriously weakened, if the general public or the oppositional parties would no longer trust its unbiased judgement. Also, checks and balances exist in the democratic system. For instance, when assessing the economic consequences of policy programmes of political parties, the Bureau works for several political parties. All assumptions and results are published and, in principle, can be verified. Also the model, the data and the results for the forecasting period are made available. Pressure put on the CPB by Ministers or Ministries evokes counter forces. The parliament and the press are quick in scenting trouble. The permanent Parliamentary Commission for Economic Affairs regularly invites the Director of the CPB to discuss recent publications of the Bureau. This Commission is also keen on any hint of pressure of the government on the Central Planning Bureau. And the free press is perhaps the best ally one can have to protect independence in an open democratic society" (Don and van den Berg, 1990, pp. 20-1).

This extensive quote from a nearly two decades old paper is still relevant. Three elements could be added:

- Yearly, the CPB receives advice regarding its work plan from two organisations: the Central Planning Committee, containing members from business and science, and the Committee for Economic Affairs, with official representatives of Ministries that are most closely involved in economic policy. The Committees' work provides an important external check on the policy relevance of the CPB work.

- About every five years, the policy relevance and scientific quality of the CPB work is assessed by visitation commissions (see e.g. CPB, 2003c). The Central Planning Committee advises on the composition of the visitation commissions.

- Substantial mobility of personnel, e.g. people moving between CPB and universities, ministries, trade unions, politics and the press. This ensures that the CPB is not an ivory tower and that there is outside the CPB a lot of inside knowledge about the merits and limitations of CPB work.

REFERENCES

Anderson, B. and J.J. Minarik (2006), "Design Choices for Fiscal Policy Rules", OECD, *Journal on Budgeting*, Vol. 5, No. 4, pp. 159-208.

Auerbach, A.J., J. Gokhale and L.J. Kotlikoff (1991), "Generational Accounts – A Meaningful Alternative to Deficit Accounting", NBER, Working Paper, No. 3589.

Berndsen, R.J. (2001), "Postwar Fiscal Rules in the Netherlands: What Can We Learn from the EMU", in Banca d'Italia (ed.), *Fiscal Rules*, proceedings of the Banca d'Italia Public Finance Workshop, pp. 367-80.

Bos, F. (2003a), "The National Accounts as a Tool for Analysis and Policy; Past, Present and Future", Ph.D. thesis, University of Twente.

————— (2003b), "CPB's New Standard Tables for Monitoring and Analysing Dutch Public Finance in the Short and Medium Term" ("De nieuwe CPB-tabellen over de collectieve sector"), CPB Memorandum 17.

————— (2006), "The Development of the Dutch National Accounts as a Tool for Analysis and Policy", *Statistica Neerlandica*, Vol. 60, No. 2, pp. 225-58.

————— (2007a), "Use, Misuse and Proper Use of National Accounts Statistics", National Accounts, Occasional Paper, No. 96, Statistics Netherlands.

————— (2007b), "The Dutch Fiscal Framework; History, Current Practice and the Role of the CPB", CPB, Documents, No. 150.

Bovenberg, L.J. and A. de Jong (1996), "The Ins and Outs of European Monetary Union", in *CPB Report 1996/3*, pp. 16-21.

CPB (1993), *Challenging Neighbours; Rethinking German and Dutch Economic Institutions,* Springer, Berlin and New York.

————— (ed.) (2003a), "Twee jaar ervaring met OEEI; de discussie over indirecte effecten" ("Two Years of Experience with Guidelines for Cost/benefit Analysis; The Discussion about Indirect Effects"), CPB, Special Publication, No. 46.

————— (2003b), "Through the Looking Glass; A Self-assessment of CPB" Netherlands Bureau for Economic Policy Analysis.

————— (2003c), *CPB in Focus*, report from the CPB Review Committee.

————— (2006), "Charting Choices 2008-2011; Economic Effects of Eight Election Platforms", CPB, Documents, No. 139.

Debets, R.M.L. (2004), "New Style Government Budget and Evaluation: Dutch Experiences", in I.C. Tijsseling and P.G.J. van Uden (eds.), *Made in Holland; Dutch Public Finance: Lessons and Experiences,* SDU Publishers, The Hague, pp. 73-84.

Don, F.J.H. and P.J.C.M. van den Berg (1990), "The Central Planning Bureau of the Netherlands: Its Role in the Preparation of Economic Policy", CPB.

Don, F.J.H. and J. Verbruggen (2006), "Models and Methods for Economic Policy; 60 Years of Evolution at CPB", *Statistica Neerlandica*.

Dijkman, H. and A. Verrips (2002), "Evaluating Government Investment Plans", *CPB Report 2002/3*, pp. 44-47.

Dutch Ministry of Finance (2007), *Wanneer de loketten sluiten; over twintig jaar IBOS*.

Eijgenraam, C.J.J., C.C. Koopmans, P.J.G. Tang and A.C.P. Verster (2000), *Evaluatie van infrastructuurprojecten; leidraad voor kosten-batenanalyse (OEEI)*, CPB, Special Publication, No. 22 (joint project by CPB and NEI).

Graafland, J.J. and A.P. Ros (eds.) (2003), *Economic Assessment of Election Programmes: Does it Make Sense?,* Kluwer Academic Publishers, Dordrecht/Boston.

Hemels, S.J.C. and A.P. Ros (2006), "Belastinguitgaven", in C.A. de Kam and A.P. Ros (eds.), *Jaarboek Overheidsfinanciën 2006,* SDU Publishers, The Hague.

IMF (2001a), *Code of Good Practices on Fiscal Transparency*.

————— (2001b), *Manual on Fiscal Transparency*.

————— (2005), *Guide on Resource Revenue Transparency*.

————— (2006), *Kingdom of the Netherlands: Report on the Observance of Standards and Codes – Fiscal Transparency Module, and the Aide-Mémoire Regarding the Fiscal Framework*, IMF, Country Report, No. 06/124.

IOFEZ (Interdepartementaal Overlegorgaan Financieel Economische Zaken) (2004), *Eindrapport VBTB-evaluatie; lessen uit de praktijk*.

OECD (2002), "Best Practices for Budget Transparency", OECD, *Journal on budgeting*.

Passenier, J. (1994), *Van planning naar scanning; een halve eeuw Planbureau in Nederland,* Wolters-Noordhof, Groningen.

Studiegroep Begrotingsruimte (Dutch Official Advisory Group on Budgetary Principles), *Various Reports*, Ministry of Finance, The Hague.

Ter Rele, H. (1998), Generational Accounts for the Netherlands, *De Economist*, Vol. 146, No. 4, pp. 555-84.

————— (2005), Measuring Lifetime Redistribution in Dutch Collective Arrangements, CPB, Documents, No. 79.

Tijsseling, I.C. and P.G.J. van Uden (2004), *Made in Holland; Dutch Public Finance: Lessons and Experiences,* SDU Publishers, The Hague.

van den Boogaard, A. (1998), "Configuring the Economy; The Emergence of a Modelling Practice in the Netherlands, 1920-1955", Thela Thesis.

Van Ewijk, C., N. Draper, H. Ter Rele and E. Westerhout (2006), *Ageing and the Sustainability of Dutch Public Finances*, CPB, Special Publication, No. 61, The Hague.

Van Ewijk, C., B. Kuipers, H. Ter Rele, M. van de Ven and E. Westerhout (2000), *Ageing in the Netherlands*, CPB, Special Publication, No. 25, The Hague.

Van Ewijk, C. and T. Reininga (1999), Budget Rules and Stabilisation*, CPB Report 1999/4*, pp. 14-20.

Van Hoek, T.H. and G. Zalm (1992), "Nationaal begrotingsbeleid in Europees perspectief", in J.A.J. Alders *et al.* (eds.), *Begrotingsbeleid en financiering Nederlandse staatsschuld, op weg naar de EMU; Economendebat 1992*, NIBE, Amsterdam, pp. 34-52.

Wyplosz, C. (2002), "Fiscal Policy: Institutions Versus Rules", CEPR, Discussion Paper, No. 3238.

Zalm, G. (1990), "Mythes, paradoxen en taboes in de economische politiek" ("Myths, Paradoxes and Taboos in Dutch Economic Policy"), oration as special professor in economic policy at the Free University in Amsterdam.

FISCAL CONSOLIDATION STRATEGY IN JAPAN: THE ROLE OF EXPENDITURE CONTROL

*Mikio Kajikawa**

Introduction

In order to achieve fiscal consolidation, each country sets a target using an index such as fiscal deficit, primary balance or debt to GDP ratio. In many cases, governments do not clarify concrete measures on how to attain the target when they set it. They do not state which tax to increase or which expenditure to reduce. Japan was no exception when it decided the fiscal target in 2001: a primary balance surplus for the central and local governments combined by the early 2010s. However, Japan took a step forward last year. The government decided that it would cut expenditures by approximately ¥11.4 to ¥14.3 trillion in fiscal 2011 in order to achieve the fiscal consolidation target. Moreover, the government specified the breakdown of the cuts for each expenditure item in the decision.

In this paper, I will briefly explain the development of fiscal consolidation in Japan and show the recent change in the components of expenditures: a decrease in government investment and an increase in social expenditure. Then, I will introduce two ideal types of expenditure, namely, project-type and program-type, and discuss expenditure control with respect to both types of expenditure.

1 Fiscal consolidation in Japan

1.1 Japanese fiscal target

In 2001, Japan set a target for fiscal consolidation in Basic Policies 2001: Japan will achieve a primary balance surplus for the central and local governments combined by the early 2010s. The primary balance as a percentage of GDP recorded its worst level of –6.0 per cent in 1999. However, the primary balance has improved as the government has made its utmost efforts and the economy recovered to restore tax revenues. The government has controlled expenditure through structural and fiscal reforms. The primary balance was –1.7 per cent of GDP in 2006 and will be –0.6 per cent in 2007. Now we are very close to the original fiscal target, but we have just achieved the first stage of fiscal consolidation. Japan's fiscal situation is still one of the worst among the advanced countries: debt is 148 per cent of GDP[1] and fiscal deficit is –3.6 per cent of GDP in 2007.

---

* Budget Examiner (Transport and Environment), The Budget Bureau, Ministry of Finance, Japanese Government.

[1] Long-term debt outstanding of central and local governments.

Table 1

Roadmap and Targets for Fiscal Consolidation

Phase	Term	Target
1	Fiscal 2001 - Fiscal 2006	-
2	Fiscal 2007 - early 2010s	Achieve a surplus in the primary balance for the central and local governments combined by Fiscal 2011 as a first step toward fiscal consolidation
3	Early 2010s - Mid 2010s	Reduce the debt-to-GDP ratio

Table 2

Targets for Expenditure Cuts
(trillion yen)

	Fiscal 2006	Fiscal 2011		Reduction (=a–b)
		Baseline (a)	Target (b)	
Social Security	31.1	39.9	38.3	–1.6
Personnel Expense	30.1	35.0	32.4	–2.6
Public Investment	18.8	21.7	16.1 to 17.8	–5.6 to –3.9
Other Expenditures	27.3	31.6	27.1 to 28.3	–4.5 to –3.3
Total	107.3	128.2	113.9 to 116.8	–14.3 to –11.4
			Fiscal Gap to be filled	–16.5

Figures are the total for the central and local governments combined based on SNA.

Last year, a Cabinet Decision (July 7, 2006, Basic Policies 2006) elaborated on the original fiscal target mentioned above.

First, the government defined the following three phases to show a roadmap of medium-term fiscal consolidation.

Second, the government made clear the amount and the breakdown of expenditure cuts in order to achieve a primary surplus in its Basic Policies 2006. It identified a fiscal gap of ¥16.5 trillion in achieving the target in 2011. In order to fill the gap, the expenditure cut will be ¥11.4 to ¥14.3 trillion. The cut in social security spending is about ¥1.6 trillion and the cut in public investment is ¥5.6 to ¥3.9 from the respective base lines.

1.2   *Fiscal projection*

In January 2007, the Cabinet Office presented a fiscal projection[2] up to 2011. According to the projection, Japan can achieve a primary surplus in 2011 only if Japan meets the following conditions:

a) Expenditures are cut to the maximum level, ¥14.3 trillion in 2011, the upper bound of the target in Basic Policies 2006.

b) High productivity growth supported by proper policies leads to a high potential growth in GDP. Deflation ends and the CPI picks up toward 2 per cent. As a result, the economy moves onto a growth path so that the nominal GDP increases toward 3.5 per cent or more over the coming five years.

This projection shows that the most stringent expenditure control together with high economic growth is necessary for fiscal consolidation.

2   Change in the components of expenditure

2.1   *Japanese trends*

The expenditure components have changed and are expected to keep changing in Japan. As the population is aging and social welfare programs develop, social expenditure has increased drastically. In Fiscal 1965, social security related expenditure by the central government was only 1.6 per cent of GDP, whereas it amounts to 4.1 per cent in fiscal 2007. On the other hand, expenditure on public works has been diminishing. It was 2.2 per cent of GDP in fiscal 1965 but it is only 1.3 per cent in fiscal 2007. These trends will continue in the coming years, as Japan makes its utmost efforts in line with the expenditure targets mentioned above.

2.2   *Trends in other advanced economies*

Table 3 shows recent trends in social expenditure and government investment (Ig) in the major economies. We can observe a rapid increase in social expenditures also in all other advanced economies. As a result, social expenditure consists of a very large portion of total government expenditure nowadays (see Table 4). Government investment tends to be on the decrease especially in Germany and Japan.

---

[2]   "Course and Strategy for the Japanese Economy: Reference Estimate by the Cabinet Office", January 18, 2007.

Table 3

Trends in Expenditures
(percent of GDP)

	Social Expenditure (Public)				Government Investment (Ig)			
	1990	**1995**	**2000**	**2003**	**1990**	**1995**	**2000**	**2004**
Japan	11.2	13.9	16.1	17.7	4.8	6.4	5.1	3.7
U.S.	13.4	15.4	14.6	16.2	2.4	2.3	2.5	2.5
Germany	22.5	26.6	26.3	27.3	2.2	2.2	1.8	1.4
U.K.	17.2	20.4	19.1	20.6	2.6	2.2	1.3	1.8
France	25.3	28.3	27.6	28.7	3.4	3.2	3.1	3.1
Italy	19.9	19.8	23.2	24.2	3.2	2.1	2.3	2.4

Source: Social Expenditure Database (OECD), National Account (OECD).

Table 4

Ratio of Social Expenditure to the Total Government Expenditure (2003)
(percent)

	Japan	**U.S.**	**Germany**	**U.K.**	**France**	**Italy**
Ratio	46.9	43.6	56.3	48.4	53.5	50.1

Source: Social Expenditure Database (OECD).

3   Expenditure control

3.1   *Project-type expenditure and program-type expenditure*

There exist many types of expenditure even though social expenditure weighs most in many advanced economies. Each expenditure has its own character. Control strategies are different for each type of expenditure. The economic effect and political implications differ in accordance with the type of expenditure. For the sake of simplicity, we can think of two ideal type expenditures and analyze the differences between the two. They are "project-type" expenditure and "program-type" expenditure.

"Project-type" expenditure is usually direct investment or consumption by the government in order to implement projects. Public works, such as construction of highways, airport or railways is a typical project-type expenditure. The government has a choice of which project to adopt in the budgeting process.

"Program-type" expenditure is a disbursement by the government to certain programs. The government has to accept the requirements of expenditure as long as they are based on an effective program. Program design is crucial in the budgeting process. Social security related expenditure such as medical care is typical of a program-type expenditure.

This typology is, in a sense, a simplification of the discussion. Many actual expenditures may not categorize into either of the two types. However, an analysis of the idealized expenditure type can help to understand the real budgeting process.

3.2   Implications and effects of expenditure control

3.2.1 Expenditure control process

The process of controlling expenditure is different for the two types of expenditure. Since the upper limit of disbursement can be set in the budgeting process for project-type expenditures, capping seems more effective. If you need to cut project-type expenditure, you can do so by slowing down the project or cutting the number of projects; for example, construct nine bridges instead of ten. On the other hand, if you wish to control program-type expenditures, you have to engage in program design. For example, you have to cut the level of medical support to a patient from 80 to 70 per cent. Once the program comes into effect, you cannot limit the number of people who are applicable to the program or you cannot cut the level of support to each recipient of the subsidy. If the program does not have a sunset clause, the expenditure will disburse automatically as the program proceeds year by year. Since the budget for program-type expenditure is just an estimation of the disbursement, we can only find out the actual expenditure after the disbursement is settled. In the budgeting process, we discuss control over program-type expenditure only on an estimated basis.

3.2.2 Economic effect

The economic effects are different for both types of expenditures. A reduction in public works decreases the aggregate demand of the economy directly and indirectly through the multiplier effect. This negative effect could be offset by the increase in private demand if the reduction crowd in the private investment. Table 5 shows the recent change in public and private investments in Japan. According to these figures, the decrease in public investment was compensated by the increase in private investment after FY2003. Although Japan is implementing considerable cuts in public works, the economy has been on the track of recovery. The increase in private investment is not necessarily the effect of the crowd-in, since the interest rate stayed at a very low level throughout this process. We are often tempted to employ project-type expenditures as a tool to stimulate the economy, since we can control the amount of expenditure more directly than program-type expenditures. In late 1990s, Japan expanded public works spending to overcome the recession unsuccessfully and piled up the huge debt.

Table 5

Public Investment and Private Investment in Japan
(percentage of change from the previous year)

	Fiscal 2001	**Fiscal 2002**	**Fiscal 2003**	**Fiscal 2004**	**Fiscal 2005**
Public Investment	–4.7	–5.4	–9.5	–12.7	–1.4
Private Non-residential Investment	–2.4	–2.9	6.1	6.3	5.7
GDP	–0.8	1.1	2.1	2.0	2.4

Source: National Accounts.

A reduction in program-type expenditure has more complicated effects on the economy than that in project-type. In April 2003, the government implemented the medical care system reform. The public support to medical expense for each member of the employees' medical plan was reduced from 80 to 70 per cent. In other words, the actual payment for each patient increased from 20 to 30 per cent just like a rise in price. Medical expense par capita decreased by 4.2 per cent in 2003 for those who belong to the reformed plan. The price signal which enhanced by the reform diminished the demand for medical services. The reform seemed to have the substitute effect in addition to the income effect. Despite the reform the national medical expense is still growing rapidly as the aging of the society proceeds. Therefore, Japan needs to implement further medical system reforms. Some programs, such as the unemployment insurance, function as a typical built-in stabilizer of the economy. It is difficult to employ program-type expenditures as a tool for discretionary fiscal policy.

3.2.3 Distributional effect

The effect of project-type expenditure is direct but limited regionally. The economies of some regions in Japan are more dependent on public investment. Cuts in project-type expenditures induce distributional effects among regions. In Hokkaido and Tohoku (northern rural area), the public investment to the area GDP is 7.3 per cent, while in Kanto (where Tokyo is) the rate is only 2.6 per cent. Cuts in public works weaken the income redistribution among the regions.

The effect of program type expenditure is nationwide, since any people in the nation are usually eligible for government programs. Programs, especially social programs, have income redistribution effect. Therefore, for example, a cut in pension program diminishes redistribution of income among the generations and a cut in social aid reduces that among income groups.

Table 6

Project-type Expenditure and Program-type Expenditure (Summary)

	Project-type Expenditure	**Program-type Expenditure**
Character	Investment to a Project by the Government	Disbursement based on a Program
Examples	Public Works	Social Security
Economic Policy	Discretionary Fiscal Policy	Built-in-stabilizer
Distribution Effect	Distribution among Regions	Income Distribution among Groups
Control Method	Capping in the Budgeting Process	Engage in the Program Design Process
How to Cut	Cut the Number of Projects Slow down the Project	Cut the Level or the Coverage of Assistance

3.2.4 Political implications

Aspects of political support are different for these two types of expenditure. For project-type expenditure, political pressure is strong at the stage of picking up the project. Requests come from the constituency where the project may be implemented. We can observe assembly members of both the ruling party and opposing party supporting the same projects in the same constituencies, even though the stance on nationwide public works are different between both parties.

On the other hand, requests for program-type expenditure come from the group of people who can benefit from the program. For example, an occupational group, an income class or a generation can be the originators of the request. Therefore, program design tends to lead the political debate among parties.

4   Conclusions

Expenditure control is essential in the fiscal consolidation process. Japan has made its utmost efforts to cut expenditures and the primary balance has improved since 2003. Japan will continue these efforts in coming years in order to achieve primary surplus by 2011. Control strategies are different for each type of expenditure. The economic effect and political implications differ in accordance with the type of expenditure. We have to pay attention to the nature of the each expenditure in implementing expenditure cuts. For the simplicity, I presented two ideal types of expenditure, project-type and program-type, and discuss the differences between the two in some aspects. For project-type expenditures, the expenditure cut can be implemented by slowing down the project or cutting the

number of projects. Capping in the budget is effective to control this type of expenditure. In general, beneficiaries of a project is limited regionally, therefore, political support and economic effects of a project is strong but limited to the region. On the other hand, we need to engage in the program design to cut program-type expenditures. Social programs often have redistribution effect among groups of people and the cut in the expenditure tend to cause political debate among parties. A cut in budgeting process is just an estimated difference between the baseline and the reviewed for the program-type. Social programs sometimes function as a built-in stabilizer and the actual expense depends on the economic situation. As the economic effect and political implications differ in accordance with the type of expenditure, we have to plan the suitable strategy to control each of expenditure.

REFERENCES

Ministry of Finance, Japanese Government, "Highlights of the Budget for FY2007", http://www.mof.go.jp/english/budget/budget.htm

Ministry of Finance, Japanese Government, "Current Japanese Fiscal Conditions and Issues to be Considered 2006", http://www.mof.go.jp/english/budget/budget.htm

Council on Economic and Fiscal Policy, Japanese Government, "Structural Reform and Medium-term Economic and Fiscal Perspectives, http://www5.cao.go.jp/keizai/index-e.html

Council on Economic and Fiscal Policy, Japanese Government, "Economic and Fiscal Reform 2006 (Basic Policies 2006)", http://www.keizai-shimon.go.jp/english/publication/pdf/060802_basic_policies_summary.pdf

COMMENTS ON SESSION IV
PUBLIC EXPENDITURE CONTROL

John Janssen[*]

Introduction

Let me start by thanking Daniele and his team for the invitation to this workshop, their organisation and hospitality. I would also like to thank Daniele for the opportunity to comment on two interesting papers in this session. My comments on the papers are from the perspective of a fiscal policy practitioner. I conclude with some general comments and observations on fiscal consolidations and the role of expenditure rules.

1   Comments on "Debt Retrenchment Strategies and Control of Public Spending" by Carine Bouthevillain, Laurent Paul and Jeanne Pavot

This paper provides a useful survey of the considerations behind the selection of a debt target. I agree strongly with the need to consider a broad range of factors and the importance of country specifics. These factors can include the nature of economic shocks, future demographic changes, the cost of debt servicing in relation to other government spending, and the structure of the government balance sheet. Importantly, these factors can alter over time as the structure of the economy changes (say in response to structural reform) and as new information comes to hand.

Nonetheless, the use of a "different or variable sustainable debt level" in the face of demographic change may be problematic. If population ageing is the result of long-lasting declines in birth rates and increases in life expectancy, then the gap between primary revenues and primary expenditures is likely to persist. Changes to spending and/or taxes will be needed at some point. This is a key result of the long-term fiscal projection exercises carried out in various countries including the United States, Australia and New Zealand.

The paper correctly concludes that tackling the primary fiscal balance is crucial and considers four case studies (*i.e.*, Canada, Spain, Sweden and Finland). I would reinforce the importance of "other structural reforms" and in particular, the positive fiscal dynamics created by lower structural unemployment and reduced unemployment spending. As a result, the section on "Patterns in public spending in Europe since 1972" would benefit from a closer examination of spending on

_____

[*]   New Zealand Treasury – P.O. Box 3724, Wellington, New Zealand.

E-mail: john.janssen@treasury.govt.nz

The views expressed are those of the author and do not necessarily reflect the views of the New Zealand Treasury.

unemployment. At a detailed level, I am interested in whether the Canadian audit to pinpoint efficiency gains and unwarranted expenditure was just a one off – and if so, why?

For a paper that is essentially about fiscal consolidation I would have expected more attention on the literature relating to so-called expansionary fiscal contractions.

Finally, the paper suggests that an expenditure rule scores favorably. This is in line with the discussion at the earlier sessions of the workshop and in particular, the conclusions in the paper presented by Anderson and Minarik.

2   Comments on "How Do Expenditure Rules Affect Fiscal Behaviour?" by Peter Wierts

This paper sets up a model that captures a range of institutional factors and the consequences of non-compliance to an expenditure rule so that: expenditure is increasing in target expenditure, the number of spending ministers, and decreasing in the strength of enforcement. The empirical implications of the model are tested with special consideration given to causality between rules and outcomes.

In terms of the model set up, one can think of potential enhancements such as including the relative strength of coalition partners and with more difficulty, the past experience of coalition partners. In the latter case, political fragmentation might be a function of the degree of experience each coalition partner has.

The role of more spending ministers in creating a spending bias is an interesting one. Absent a reduction in the number of ministers, one potential way to mitigate the bias might be to impose mechanisms that create closer budgetary examination of the "big spenders" and streamline the others. Another approach might be to group the various spending ministers into "themes" that allows closer examination while also assisting with cross-agency coordination and delivery of outcomes.

I agree with the importance of dealing with tax expenditures, as highlighted in the case study of the Netherlands. Amendments to the Public Finance Act in New Zealand have added annual reporting on tax policy changes. The Netherlands case study also raises important questions of how to deal with revenue windfalls – Kok-1 had a discretionary approach while Kok-2 had a fixed formula.

3   General comments

In terms of the debt retrenchment issues raised in the first paper, one is left wondering whether the "stars will ever align at the same time?" Fiscal consolidation seems to be motivated by a mix of sustainability concerns, financial market pressures, macroeconomic conditions, and a determined Finance Minister. A lesson

from the Brander paper on fiscal targets and consolidation in Israel is that it pays to be specific.

I take the view that fiscal rules and more comprehensive fiscal reporting can help to lock-in a fiscal consolidation, but other motivating factors are likely to play a role (e.g., the fiscal implications of population ageing, the deadweight cost of taxes, the benefits of tax smoothing).

Several commentators at this workshop have advocated a stronger role for expenditure rules to address the spending bias at its source and to enhance accountability. While an expenditure rule can provide an important complement, it is not clear that it removes the need to consider the target for the fiscal balance or how to deal with revenue windfalls and forecasting errors. Recent experience in New Zealand suggests that persistent revenue surprises will require a reconsideration of multi-year expenditure plans at some stage. Furthermore, in the context of population ageing, long-term expenditure rules may need to be specified so as to allow for changes in spending that result under tax-smoothing/pre-funding fiscal strategies.

**COMMENTS ON SESSION 4
PUBLIC EXPENDITURE CONTROL**

Bernhard Manzke[*]

According to the agreed division of labour among discussants, I will focus my comments on the paper by Fabrizio Balassone, Maura Francese and Stefania Zotteri, and the paper by Alfonso Arpaia and Alessandro Turrini. I found both papers and also the presentations very stimulating and well founded.

The two papers deal with quite different, almost contrary aspects of public expenditure policy: The paper by Balassone, Francese and Zotteri focuses on short-term aspects, namely the behaviour of fiscal policy in different cyclical states of the economy. The paper by Arpaia and Turrin,i instead, abstracts from cyclical fluctuations and concentrates on the relationship between cyclically-adjusted primary expenditure and potential growth. Therefore, I will deal with both papers separately.

1 Discussion of "Cyclical Asymmetry in Fiscal Variables" by Fabrizio Balassone, Maura Francese and Stefania Zotteri

The findings of this paper are especially relevant in the current situation where many countries have to guard against fiscal complacency. In my view it is important to show that often lax fiscal policies in good times are at the root of fiscal problems in the longer term. I begin with a brief discussion of the results, followed by some words on the policy implications and, finally, two questions.

The paper builds upon an earlier paper by some of the authors (Balassone and Francese, 2004). The main result of that earlier paper was that budget balances tend to deteriorate in contractions but do not improve symmetrically in expansions. Building upon these findings the primary objective of the presented paper is to identify the budget items responsible for this asymmetric behaviour of fiscal policy in good times and bad times.

The authors first confirm the results of the earlier paper concerning the primary budget balance: in good times the coefficient for the output gap is not significantly different from 0, while in bad times – that means whenever there is a negative output gap – it is –0.4. This means that the primary budget balance does not improve when the output gap rises, but it deteriorates when the output gap falls. The coefficients capture both the effect of automatic stabilisers and of discretionary policy related to the cycle. The authors therefore conclude that discretionary fiscal policy systematically offsets automatic stabilisers in good times.

_____

[*]   Deutsche Bundesbank.

Analysing which revenue or expenditure items are responsible for this result, they find that the expenditure side, especially cash transfers, is the driving factor. The revenue ratio, instead, does not change much in good or in bad times. The explanation offered by the authors is that discretionary spending increases in bad times but becomes entrenched thereafter. So discretionary action in bad times – which is not undone in good times – would be responsible for the asymmetry.

However, looking at the data a different explanation would also be possible in my view. In fact, looking at table 6, the coefficient for cash transfers in bad times is almost –0.3. This means that the ratio of cash transfers to GDP increases by around 0.3 percentage points if the output gap deteriorates by one percentage point. As the ratio of cash transfers to GDP increases in downturns because of the denominator effect and cash transfers moreover include the highly cyclical unemployment benefits, this is roughly in line with what I would expect from automatic stabilisers. In good times, however, the coefficient for cash transfers is close to zero. In my view, this implies that discretionary policy offsets automatic stabilisers in good times by increasing cash transfers. This interpretation of the results would also be more in line with the conclusion drawn for the overall balance that discretionary fiscal policy systematically offsets automatic stabiliser in good times. The results confirm the general feeling that lax fiscal policies in good times are at the root of fiscal problems in the subsequent downturn.

In terms of the stabilisation function of fiscal policy it is interesting to note that the ratios to GDP of the other expenditure items besides cash transfers seem hardly to react to cyclical conditions. While this behaviour is symmetric it also implies a procyclical policy stance as automatic stabilisers are undone by discretionary policy in good and bad times.

Turning to the impact of fiscal rules the authors find no evidence that the introduction of European fiscal rules in 1992 changed the asymmetry of fiscal policy. This might be not so surprising as the initial rules focused on upper limits for unadjusted deficits. Only with the adoption of the Stability and Growth Pact and the introduction of medium-term objectives defined in cyclically-adjusted terms a first step towards a more symmetric fiscal policy was introduced. However, a look at fiscal policy in the expansion around the turn of the century reveals that the asymmetric behaviour might not have changed much with the SGP. Actually, it was one of the objectives of the 2005 reform of the Stability and Growth Pact to tackle pro-cyclical policy in good times. It will therefore be interesting to rerun the exercise in a couple of years possibly focusing on euro area countries only instead of EU-14. This way it could be check whether the new rules have indeed been able to reduce the cyclical asymmetry of fiscal policy.

In my view, the paper tackles an important question for the design of fiscal rules. If we know which budget items are driving the asymmetric behaviour of fiscal policy it could be easier to detect the underlying reasons. As possible candidates for these reasons the authors mention political economy reasons, mistakes in assessing cyclical conditions or unemployment persistence. Knowing the source of the problem would in turn make it easier to develop fiscal institutions to counteract the

asymmetric behaviour. In this respect it would be interesting to see what components of the cash transfers are responsible for the results. After all cash transfers are a rather broad category, including anything from unemployment benefits and pensions to child benefits.

The authors recommend an expenditure rule as a complement to a deficit rule. While I tend to agree with this conclusion it could be a second best solution as it cures a symptom – asymmetric expenditure policy – but not necessarily the underlying cause. This bears the danger that the disease pops up at a different place (revenue side, creative accounting), as discussed yesterday and this morning in Wierts' presentation.

Let me conclude my comments on this interesting and stimulating paper with two questions: As fiscal policy is not symmetric over the cycle, the cycle itself might become asymmetric taking into account short-run growth effects of fiscal policy. Were these possible feedback effects from asymmetric fiscal policy on the cycle taken into account? As mentioned by the authors themselves, in the literature different definitions of good times are used. Have you checked whether the results change, if defining good times as years with growth above potential instead of years with a positive output gap would change the results?

2 Discussion of "Government Expenditure and Economic Growth in the EU: Long-run Tendencies and Short-term Adjustment" by Alfonso Arpaia and Alessandro Turrini

The paper by Alfonso Arpaia and Alessandro Turrini, which I also enjoyed reading very much, analyses the long- and short-run relation between cyclically-adjusted primary expenditure and potential output in EU countries.

Compared to the existing literature on the link between potential GDP and expenditure, the authors employ more sophisticated econometric techniques. Moreover, by using cyclically-adjusted data, the authors hope to contain the issue of reverse causality. They claim that the impact of government expenditure on GDP is mostly cyclical, so that no impact of cyclically-adjusted primary expenditure on potential growth is to be expected and the relationship can be interpreted as expenditure adjusting to potential GDP and not vice versa. I am not fully convinced that using cyclically-adjusted data fully solves the problem of reverse causality. After all, higher cyclically-adjusted expenditure ratios should lead to either higher revenue ratios which might have negative feedback effects on potential growth via increased distortions or to higher deficits and debt which also could be detrimental to potential growth.

Concerning the long-run relationship between cyclically-adjusted expenditure and potential GDP, the authors find that Wagner's law does not hold for the data set considered, as the long-run elasticity is slightly below one. Having read the previous paper, I was surprised by this result. The asymmetric behaviour of fiscal policy over the cycle seems to imply a ratcheting up of the expenditure ratio over time.

Therefore, I initially expected to see a long-run elasticity of above one. Indeed, looking at the sub-periods of 1970 to 1989 and 1990 to 2003 in Table 6 of the paper, this is actually the case. What puzzled me was that only for the whole period the long-run elasticity is slightly below one, but not for the individual sub-periods.

Concerning the short-run elasticity, the interpretation was not clear cut to me. The authors find an average adjustment time to the long-run relationship of three years and interpret this as the time fiscal authorities need to adjust public expenditure to a change in potential output. However, potential output usually does change abruptly and therefore it is not easy to understand why some countries need a number of years for relatively minor adjustments of cyclically-adjusted expenditure to the long-run relationship. A possible explanation could be real-time misperceptions of "true" potential GDP. Another possibility would be that discretionary fiscal policy itself is responsible for temporary deviations from the long-run relationship.

Concerning the policy conclusions drawn by the authors I first want to point out that I agree with many of them. Nevertheless, the high variability of the long-term elasticity over time and the high dispersion of the short-term elasticity over countries in my view make it advisable to be cautious with respect to lessons to be learned for the future. In particular, I would be cautious with regard to implications of the evidence on the speed of adjustment of expenditure for budgetary surveillance in the EU context. First, the adjustment speed observed in the past might neither be the maximum feasible nor the desirable speed for a country in excessive deficit. For the same reason the finding of large differences in adjustment speed between countries in my view is not sufficient to argue for country-specific adjustment efforts. Second, countries need not necessarily rely only on the expenditure side for the necessary fiscal adjustment. At least countries with lower revenue ratios could also resort to revenue increases.

Let me close by pointing out that the paper by Arpaia and Turrini is, in my view, an important contribution to the literature on the relationship between government expenditure and growth. An interesting question that remains to be answered by future research is what drove the observed reduction in the long-run elasticity. Is Wagner's law really not valid any longer? Or do governments still increase their impact on economic activity, but this does not show up in public expenditure as they increasingly rely on regulation and outsourcing of production to the private sector? Analysing developments for individual expenditure items as in the first paper might give first indications in this respect.

COMMENTS ON SESSION 4
PUBLIC EXPENDITURE CONTROL

Margit Schratzenstaller[*]

1 Discussion of "Fiscal Consolidation Strategy in Japan: The Role of Expenditure Control: The Role of Expenditure Control" by Mikio Kajikawa and "The Dutch Fiscal Framework and the Role of the Central Planning Bureau" by Frits Bos

Both papers to be discussed in what follows are dealing with the question how to control and to manage public expenditures so as to contribute to the long-term sustainability of public finances. Thus, the two papers address a policy issue that particularly during the past decade has emerged as one of the greatest challenges for policy-makers: particularly in face, firstly, of the future demographic pressures projected for all industrialised countries and creating pressures especially in the realm of social expenditures; and, secondly, of the high debt burdens and the correspondingly considerable interest liabilities many countries have. Not to let spending in these areas get out of control is one of the most essential preconditions for the improvement of the quality of public finances in general and of the quality of public spending in particular. Improving the quality of public expenditures is one of the guiding principles agreed upon, for example, by the European countries as part of the European Union's so-called Lisbon strategy to foster growth and employment, formulated in 2000.[1] Hereby the focus is on the restructuring of expenditures towards more spending in future-related areas, particularly education, research and development, and infrastructure, to help the EU make the most productive and competitive economic region in the world. The role of budgetary institutions in the reallocation of public funds towards more "productive" spending purposes is attracting growing attention within policy debates on the national, but also on the supranational level. In this vein the OECD, for example, recently published a report (OECD, 2005) pointing out the importance of medium-term expenditure frameworks, rules of budgetary discipline, the role of the minister of finance, and programme review. There is also considerable empirical evidence that improving the institutional quality of budget processes is tantamount to an improvement of fiscal performance (for a selection of empirical studies, see von Hagen, 2006).

The reports from Japan and the Netherlands how these two countries are trying to control public expenditures illustrate many of the aspects that have been discussed from a theoretical point of view in the course of this workshop by adding practical experience. Thus, they are of particular interest for countries considering the implementation of some kind of fiscal framework to improve the management of public spending, for example Austria.

This comment and the discussant's specific interest in the two papers are specifically motivated by the fact that the questions brought up in both papers are very topical in Austria currently. Here, more than two years ago an agreement was reached between all political parties represented in the Austrian National Parliament[2] to introduce a reform of the budgetary framework in the year 2007. The conclusion of this agreement was followed by the preparation of a detailed draft law. Basically, the envisaged new budgetary framework should consist of two main elements, which are to be implemented in two steps. Firstly, a medium-term fiscal framework with (in principle) fixed expenditure ceilings, which originally should be introduced in 2007. Secondly, performance-based budgeting, *i.e.* complementing the traditional input orientation of the budgeting process by also taking into account outputs and outcomes of budgetary measures, originally to be implemented in 2011. Both elements remind strongly of the Dutch fiscal framework, which in fact served as an influential example for the intended Austrian reform. However, the coalition government which was in office till autumn 2006 (consisting of the People's Party and the Freedom Party) and the Social Democrats as the largest opposition party were not able to agree on which parliamentary committee should deal with the draft law. Therefore it was not passed during the term of the last federal government. The new Grand Coalition between the Social Democrats and the People's Party governing since January 2007 has declared the reform of the budgetary framework one of their core reform projects (together with other reforms within the public sector, particularly a state reform and an administrative reform). Therefore the new federal government currently aims at implementing the budgetary reform by the years 2009 and 2013, respectively: provided that the coalition partners are able to solve several points of disagreement due to which the draft law is still pending.[3]

Before having a closer look at the two papers which are to be discussed in this comment, some of the most important arguments in favour of the introduction of spending rules are to be summarised (see, e.g., Angelo *et al.*, 2004).

Firstly, regarding the adequate fiscal policy for a given economic situation, spending rules are considered relatively flexible, particularly compared with a balanced budget rule. They do not prevent automatic stabilisers on the revenue side from working. Moreover, expenditure ceilings can be allowed to vary with the business cycle for cyclically-sensitive spending categories. Secondly, spending rules

---

[2]   Which are the People's Party, the Social Democrats, the Greens and the Freedom Party. Such an all-party-agreement was necessary because part of the reform would affect the Austrian Constitution and therefore require a two-third majority in the National Parliament, which the coalition then in office (the People's Party and the Freedom Party) would not have disposed of.

[3]   Currently there seem to be two major points of disagreement. The first one is the recommendation given in the new law that the new budgetary framework, which would only encompass the federal level, can also be applied by the states (*i.e.* the Bundeslaender), which meets with fierce resistance from the side of the states, which insist on their budgetary autonomy. The second one is the role of the Federal Minister of Finance who would be awarded more competencies *vis-à-vis* the other ministers within the new budgeting framework. Thus, by the way, the Austrian case can also serve as an example with respect to the question when and how new fiscal rules can be introduced at all; and particularly such rules which limit the discretionary power of politicians: basically it obviously all boils down to the question whether one really can expect that politicians are willing to tie their hands voluntarily.

support the pursuit of an anti-cyclical fiscal policy, by hindering politicians to use additional revenue in good times for the introduction of new spending programmes (and thus to act procyclically), and by forcing them instead to use such windfall gains for the reduction of public debt. Thirdly, spending rules make the whole budgeting process more rational, by limiting the influence of special interest groups, by requiring medium- and long-term planning of expenditures and spending programmes, etc. Fourthly, the medium- and long-term perspective enforced by spending rules supports the pursuit of longer-term spending priorities. And finally, spending rules increase political accountability, as violations of a spending rule are more transparent and can be traced back better than violations of, for example, a balanced budget rule.

2 "Fiscal Consolidation Strategy in Japan: The Role of Expenditure Control" by Mikio Kajikawa

The paper by Miko Kajikawa (Japanese Ministry of Finance) is about the medium-term path towards fiscal consolidation in Japan. The Japanese government aims at achieving a primary balance surplus for the general government by the year 2011.[4] During the ensuing five years, the debt-to-GDP-ratio, currently lying at about 150 percent, is to be reduced. To realise its target of a primary balance surplus, the government plans considerable expenditure cuts and therefore needs to control public spending very stringently. Hereby, the general long-term socio-economic background and development trends Japanese fiscal policy has to take into account equal those prevailing also in most other advanced economies. Japan, too, is confronted with an ageing population, so that social spending has expanded already in the past and can be expected to grow further. To curb total expenditures, government investment has been restricted in past years. Therefore, public finances in Japan seem not only to face the problem of decreasing sustainability. Rather, the structural shift in overall spending away from public investment towards social expenditures also seems to indicate a long-term deterioration of the quality of state expenditures: in the sense that spending categories that are comparatively less benefical for economic growth are gaining in importance at the expense of such public expenditures exerting a comparatively larger positive impact on economic growth.[5]

The paper focuses on an aspect often neglected in the theoretical, empirical and policy-oriented work on spending rules: namely, which concrete strategy should be pursued to control public expenditures, for example, to bring or to keep them below a fixed upper limit. Kajikawa draws attention to the important fact that there

---

[4]   The current initiative to restrict public expenditures is the last one in a number of more or less rule-based efforts to contain and to restructure, respectively, public spending in Japan; for an overview and critique of the diverse fiscal rules in Japan see von Hagen (2006).

[5]   See Schratzenstaller (2007) for an overview of numerous empirical studies on the growth effects of different spending categories.

is no "one size fits all"-approach to control public spending. Rather, different types of expenditures call for differentiated control strategies. This insight is crucial insofar as the neglicence of this point may be one explanation for the ineffectiveness of efforts to control public expenditures many governments experience in practice.

The author distinguishes between two ideal spending categories: project-type expenditures on the one hand and programme-type expenditures on the other hand. Project-type expenditures are expenditures connected with a specified single project, e.g. the construction of a highway. Programme-type expenditures are related to complex political programmes pursuing specific goals, for example providing a certain level of health care services.

The rules Kajikawa states with respect to these two expenditure categories are as plausible as they are simple at the same time. Project-type expenditures, on the one hand, can be restricted directly in the budgeting process, by making the decision to just cap them, *i.e.* to implement a certain project at a smaller scale or to not realise it at all. Restricting programme-type expenditures, on the other hand, cannot be achieved in the budgeting process itself, but requires politicians to engage in programme design – *i.e.* to effect structural reforms, for example directed at the health care or the pension system.

The paper raises, however, two important questions.

Firstly, particularly from the perspective of a federal country (like Austria), which typically consists of three layers of government (the federal level; the regional level, e.g. states; and the municipalities), the coordination of expenditures and expenditure control between the central and the subnational governmental levels is of crucial importance. Japan's fiscal target – a primary balance surplus by 2011 – refers to the general government, *i.e.* the central and the local level combined. This brings up particularly the following questions, which would have to be clarified not only in a federal country, but probably also in a unitary state: Who decides on the fiscal target for the existing governmental levels together? To what extent are the individual levels of state to contribute to the overall fiscal target? And are there any sanctions imposed if one of the governmental levels does not fulfil its obligations?

The second question refers to the fact that the roadmap devised by the Japanese government to achieve a primary balance surplus by the year 2011 is not legally binding. In my opinion, however, the successful implementation of the rules established for controlling project-type as well as programme-type expenditures requires absolutely unselfish and benevolent politicians who are neither concerned about the next elections nor about their own prestige and power. It is, however, doubtful whether politicians are solely concerned about the short- and long-term general welfare. Certainly the so-called Leviathan hypothesis according to which politicans and bureaucrats do not care about the welfare of their citizens at all, but only pursue their own interests and goals – which only partially or not at all coincide with the general interest – is exaggerated. However, it appears questionable whether politicians are really willing to completely and voluntarily forego, for example, bork barrel projects dedicated to their regional constituency the benefits of which are

smaller than the costs so that they would present themselves as natural candidates for expenditure cuts. Thus, it also seems doubtful whether the Japanese expenditure control rules really can work effectively without being complemented with binding fiscal rules. And to me it remains an open question how deviations from the roadmap towards a primary balance surplus will be enforced.

3   "The Dutch Fiscal Framework and the Role of the Central Planning Bureau" by Frits Bos

The paper by Frits Bos (Central Planning Bureau, CPB) elaborates on the Dutch experience with the introduction of a new fiscal framework; and this, most interestingly, from an insider perspective, as the CPB is one of the actors directly involved in the reformed budgeting process. This account is a rich source for all sorts of economists. First of all for those who are interested in the concrete and operational aspects of the fiscal framework that was introduced in the Netherlands in the beginning of the nineties and often serves as a very positive example for the successful and effective design of fiscal rules: not only within Europe, but also in the – critical – eyes of the International Monetary Funds, for example. Moreover, the paper is also of interest for thos who like to put the development of public finances and of fiscal policy in a long-term perspective: the paper definitely does view Dutch public finances in a long-term, one might even say in a historical perspective. And finally, it is not the least merit of this report to show how large the challenge to achieve sustainable and stable public finances over a long period of time really is and how quickly things can change: how fast, for example, a situation of sound public finances can deteriorate or even reverse completely.

Of particular interest to the discussant – for the reasons already mentioned above – is the part of the paper that is dealing in great detail with the reformed Dutch fiscal framework, potential practical problems, and needs for adaption. The following aspects and questions appear to be especially relevant:

- Firstly, the question of "cheating", *i.e.* of undermining the expenditure ceilings, by substituting direct expenditures by tax expenditures, of by substituting direct expenditures by cheap loans of by state guarantees: whether and how such evasion measures are taken into account when actual spending is monitored and when it is evaluated whether the existing expenditure limits were properly respected appears crucial to guarantee the effectiveness of expenditure ceilings.

- Secondly, the target that is aimed at by limiting public spending needs to be specified. The envisaged goal could lie in a wide range: from "only" complying to the debt targets (and, in the medium-term, the surplus targets, respectively) of the European Stability and Growth Pact to limiting or even reducing the size of the public sector in the long run.

- A third question is which role the structure of public expenditures, besides their sheer level, play, *i.e.* again the whole issue of the quality of public spending. This question appears to be linked to performance-based budgeting (the second

principal element of the Dutch fiscal framework): in this regard it certainly is useful to establish an explicit link between performance-based budgeting on the one hand and the medium-term fiscal framework with its expenditure ceilings on the other hand.

- Fourthly, the presentation of the Dutch fiscal framework brings up the question whether cyclically-sensitive expenditures should really be included in the expenditure framework. As already mentioned, the medium-term budgetary framework the Austrian government intends to implement would exclude certain cyclically-sensitive spending categories, such as unemployment benefits. As also argued above, this seems to make sense: the inclusion of expenditure items that are dependent on cyclical fluctuations would not allow automatic stabilisers on the expenditure side to come into force and would thus severely restrict the stabilisation function of the public budget in a way that might exacerbate cyclical fluctuations. Of course there is a trade-off between flexibility on the one hand and comprehensiveness (and therefore effectiveness) of the spending rule on the other hand which has to be taken account of when defining those spending categories that are to be assigned no fixed upper ceiling.

4   Conclusions

The comment will conclude with some general remarks.

- Firstly, the paper mentions the "Dutch tradition of consultation and coalition governments" when talking about the specific role of the CPB as one central actor in putting the Dutch fiscal framework into operation. This underlines – in the discussant's opinion absolutely correctly – the necessity to take into account the existing country-specific institutions, norms and traditions when a government tries to successfully implement and manage a certain fiscal framework: and it draws attention to the fact that there are specific institutional conditions for introducing and successfully applying a fiscal framework as it exists in the Netherlands, or to put it in other words: the Dutch fiscal framework – even though often referred to as a success story – for sure cannot be imposed onto other countries more or less unchanged. Rather such a transfer would have to consider the existing country-specific institutions and norms and would have to take care that the budgetary framework is adapted accordingly.

- Secondly, and related, there is the question whether such a fiscal framework could be also applied in a federal state, or if one of the general conditions for a successful implementation is a rather centralised state? Or, to phrase it differently: the question whether, to what extent and how the successful operation of such a fiscal framework as implemented in the Netherlands requires coordination between the individual layers of governments.

REFERENCES

Angelo, S., M. Marterbauer, I. Mozart, B. Rossmann, M. Schratzenstaller and N. Temple (2004), "Alternatives to the Stability and Growth Pact – Proposals for a New EU Fiscal Policy Regime", Vienna, Federal Chamber of Labour.

Sapir, A. (ed.) (2003), *An Agenda for a Growing Europe*, Oxford, Oxford University Press.

OECD (2005), *Reallocation: The Role of Budget Institutions*, Paris, OECD.

Schratzenstaller, M. (2007), "Wachstumsimpulse durch die öffentliche Hand", *WIFO Monatsberichte*, Vol. 80, No. 6, pp. 509-26.

von Hagen, J. (2006), "Fiscal Rules and Fiscal Performance in the European Union and Japan", *Monetary and Economic Studies*, Vol. 24, No. 1, pp. 25-60.