

IV. FISCAL STANCE OVER THE CYCLE: THE ROLE OF DEBT, INSTITUTIONS, AND BUDGET CONSTRAINTS

Introduction

This chapter describes the extent to which fiscal policy has been a stabilising or destabilising influence on economic activity in the OECD area over the last two decades, and investigates some of the institutional factors which may have led to the observed outcome. The concerns motivating the chapter relate to the fact that discretionary fiscal interventions may be pro-cyclical, as in the case of fiscal tightening during downturns especially. In part, this may be because of unsustainably high government indebtedness. But pro-cyclicality could also be due to implementation problems or to the institutional framework in which policies are designed and managed, including some rules-based approaches to fiscal stability, which may hamper the symmetrical operation of built-in stabilisers over the cycle.

Fiscal stance may respond pro-cyclically to the business cycle...

Against this background, the chapter begins by assessing the extent to which the stance of fiscal policy has been pro- or counter-cyclical in the OECD area and for individual countries during 1980-2002, with pro-cyclicality defined as periods when fluctuations in cyclically-adjusted budget balances moved inversely with the output gap (towards surplus in downturns and vice versa). It then uses pooled cross-country and time-series data to assess the extent to which built-in stabilisers have been offset by discretionary action and how the institutional framework in which policies are designed and implemented may have affected policy outcomes. The institutional factors investigated include the type of fiscal rule adopted,¹ the size of the tax burden, public expenditure rigidities, the political cohesion of government, and electoral systems and cycles.

... and institutions may contribute to that outcome

The main conclusions to emerge from this chapter are:

- Sustainability problems, associated with indebtedness, seem to be a key determinant of whether fiscal stance is pro-cyclical during downturns. Abstracting from debt-sustainability issues, fiscal stance tends to be predominantly counter-cyclical in bad times, but with some evidence in the OECD area of discretionary pro-cyclical easing in upturns.
- The very institutional features of the policymaking process which make for high automatic short-term stabilisation, such as a large public sector and a

Summary of conclusions

1. The *OECD Economic Outlook, No. 72* (December 2002) provides an overview of the main provisions of fiscal rules in member countries, including the date of enactment. See Chapter V, “Fiscal Relations across Levels of Government”, for an overview of fiscal rules at the sub-national level in the OECD area and selected non-member countries.

high tax burden, may also at the political level lead to more pro-cyclical fiscal policy. High tax ratios allow for greater automatic stabilisation, but tax cuts implemented during upturns may reduce the scope for counter-cyclical easing in subsequent downturns.

- The constraints imposed by the Maastricht Treaty (MT) and, later, the Stability and Growth Pact (SGP) do not seem to have created a discernibly pro-cyclical bias during downturns in the Economic and Monetary Union (EMU) area as a whole.
- Fiscal tightening during downturns is somewhat less likely to occur in the presence of expenditure rigidities. This is the case when, for example, payroll outlays, which are harder to retrench than capital spending, account for a large share of government spending and when the government is a sizeable employer relative to the private sector.
- Political institutions also matter, and undesirable pro-cyclical retrenchment seems less prevalent in countries with more politically fragmented governments and electoral systems based on proportional representation, rather than plurality (*i.e.* “first-past-the-post” regimes). Electoral cycles have a role to play and pro-cyclical retrenchment appears to be less common in election years.

Trends in fiscal stance over the cycle

Fiscal stance has differed considerably among OECD countries...

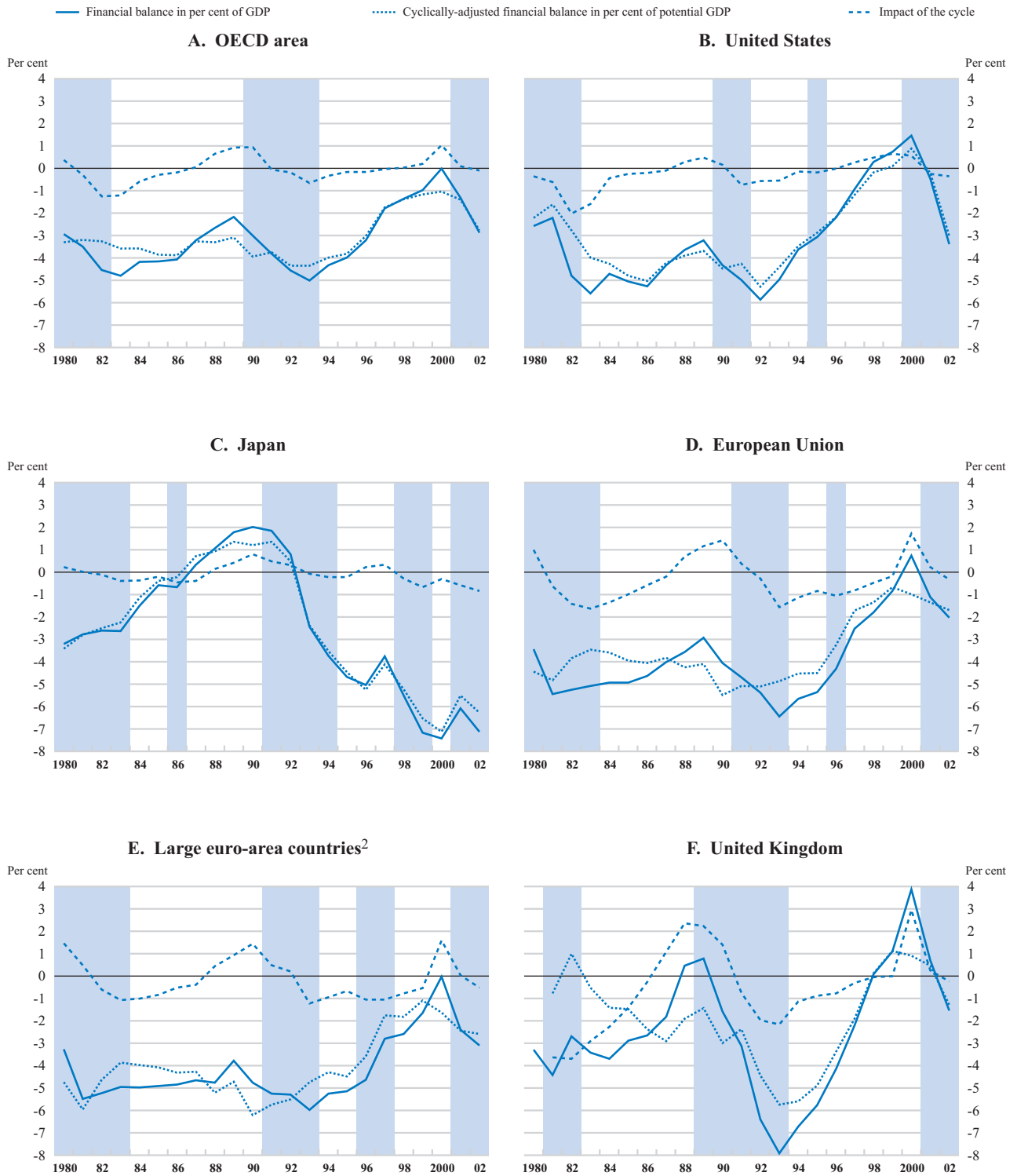
The area-wide general government budget balance has exhibited considerable cyclical variation since the early 1980s, with its cyclically-adjusted component fluctuating narrowly around –4.0 per cent of GDP until the early 1990s and moving considerably towards balance thereafter (Figure IV.1, Panel A). Since 2000, there has been a sharp downward swing in both actual and cyclically-adjusted balances. Regional differences behind these aggregate movements have remained significant. In particular, the experience of Japan contrasts with the reduction in the US deficit over the same period and the collective fiscal consolidation effort in the run-up to the 1997 qualification date for entry to the single currency in Europe (Panels B-D). Since 2000, the discretionary relaxation of fiscal stance has been particularly marked in the United States, and to a lesser extent in the United Kingdom (Panel F). It has been less dramatic in continental Europe, but began earlier – in 1999 – in the large euro area economies (Panel E).

... with a pro-cyclical bias in some cases

While fiscal adjustment has been counter-cyclical for extensive periods in the OECD area, notably from 1993 to 2000, it has also acted somewhat pro-cyclically in some cases, as evidenced by the periods when cyclically-adjusted budget positions were moving in opposite direction to the cyclical component of the budget balance.² This was true for the United States during 1982-86 and for the large European economies for most of the period up to 1993. By contrast, the period of retrenchment in the 1990s took place when output gaps were closing in the United States and Europe, reinforcing the cyclical buoyancy of revenues. However, fiscal stance in the larger euro area economies was pro-cyclical in 2000, becoming counter-cyclical in 2001.

2. Fiscal stance is counter-cyclical when it contributes to cushioning the economy from business cycle fluctuations. Pro-cyclicality occurs when, in an upturn, spending rises and/or revenue decreases, leading to a fall in the budget balance.

Figure IV.1. Fiscal stance over the cycle¹



1. The shaded areas identify cyclical downturns, defined as the years in which changes in the output gap relative to the previous year are non-positive.

2. France, Germany and Italy.

Source: OECD.

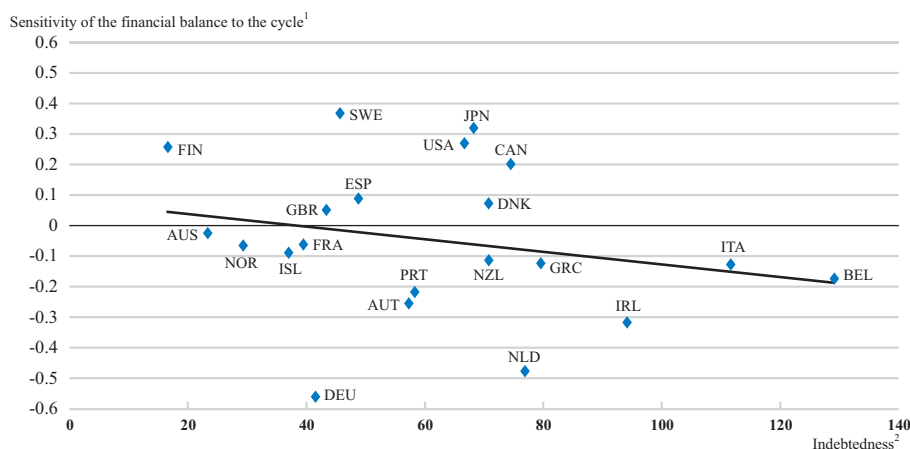
*Individual country experiences
are diverse*

Turning to individual country experiences, fiscal stance has been counter-cyclical in about half of the countries examined (Figure IV.2). In these countries, located in the upper quadrant, year-to-year fluctuations in the output gap were positively correlated with year-to-year changes in the cyclically-adjusted budget balance during 1981-2002.³ However, for those countries in the lower quadrant, which include nine of the members of the EMU, a rise in the output gap was typically accompanied by expansionary fiscal policies, while falling output gaps were associated with a restrictive fiscal stance.

*High debt may have reduced
the scope for counter-cyclical
response*

There seems to be a relationship between the sensitivity of the cyclically-adjusted budget balance and government indebtedness, suggesting that fiscal policy might be conditional on long-term fiscal sustainability. As the dynamics of debt accumulation become, or come to be perceived as, unsustainable, fiscal consolidation may become necessary, regardless of the economy's position in the business cycle.⁴ This consolidation may not necessarily be destabilising. Fiscal retrenchment in a downturn may conceivably be expansionary because it puts the debt dynamics on a sustainable path.⁵

Figure IV.2. Fiscal stance over the cycle and indebtedness



1. Correlation between changes in the cyclically-adjusted budget balance and in the output gap between 1981-2002 (1982-2002, for Canada; 1987-2002, for New Zealand).

2. Public debt stock in per cent of GDP in 1990 (1993, for New Zealand).

Source: OECD.

3. These raw correlations, although illustrative, may be affected by measurement errors arising from the fact that cyclically-adjusted budget balances are not observed directly but are calculated on the basis of the estimated sensitivity of tax revenue and certain expenditure items to the business cycle. The biases due to measurement errors can be mitigated in the more formal multivariate analysis below.
4. In this respect, Auerbach (2002) argues that fiscal policy in the United States has become more sensitive over time to both the business cycle and pre-existing fiscal imbalances, since a rising public debt has led to a progressive tightening of fiscal stance. This assessment is shared by Wyplosz (2002), who discusses the effect of indebtedness on the cyclicity of fiscal policy in selected OECD countries. Likewise, Ballabriga and Martinez-Mongay (2002) show that, for the EMU countries during 1979-98, indebtedness was indeed associated with greater pro-cyclicality.
5. There is a growing body of empirical evidence that a corrective fiscal contraction in a downturn may become expansionary, and hence counter-cyclical. For example, Giavazzi *et al.* (2000), as well as Alesina and Ardagna (1998), among others, show that fiscal contractions may be expansionary in indebted countries and that the composition of adjustment, via tax increases and/or expenditure cuts, affects the expansionary potential of fiscal retrenchment.

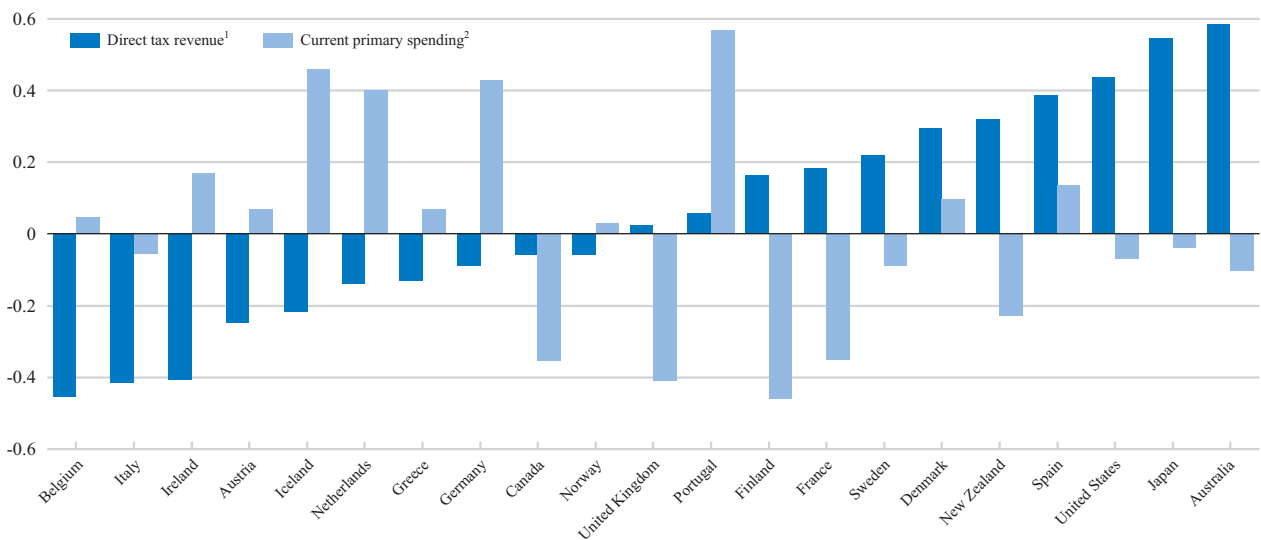
Decomposing the shifts in fiscal stance into their revenue and expenditure components indicates that both tax cuts and tax increases can contribute to pro-cyclicality (Figure IV.3). Changes in direct tax revenue (adjusted for the cycle) tend to correlate negatively with changes in the output gap in many countries. Public reaction to high tax ratios means that there is a strong incentive for funds generated during upturns to be used to make tax rate cuts as economies approach their cyclical peaks. Tax cuts in the upturn are also facilitated by mistaking the permanence of revenues yielded by income-elastic taxes. These may be overestimated, for example, in the presence of sharp movements in asset and real estate prices. Since 2000, and in parallel with the rise in the mid-1990s, revenues have fallen below the levels that might have been expected from the cyclical downturn, particularly in the United States, and some European Union (EU) member countries, such as the United Kingdom.

Tax cuts are often at the heart of pro-cyclicality...

No clear international picture emerges with respect to the relationship between movements in public spending and the business cycle. On the one hand, falling expenditure/GDP ratios may be a feature of cyclical upturns in several countries. And for the OECD area as a whole, cyclically-adjusted current primary spending tended to fall as output gaps rose during the 1990s, possibly helped by the influence of fiscal rules (Figure IV.4, Panels A, B, D and F). On the other hand, in the euro area, lower interest rates may have created room for governments to reduce the pace of primary spending retrenchment, or even to increase primary outlays at the end of the late 1990s boom – a pro-cyclical tendency (Panel E). In the current downturn, a counter-cyclical rise in primary current spending (adjusted for the cycle) is evident in the United States, Japan, and the United Kingdom. Because government primary spending is relatively inflexible, instances of pro-cyclical expenditure retrenchment are rarer, and are usually focused on public investment, which tends to suffer more adversely than current outlays in periods of fiscal duress, being easier to cut back.

... with expenditure retrenchment facilitated by cyclical upturns

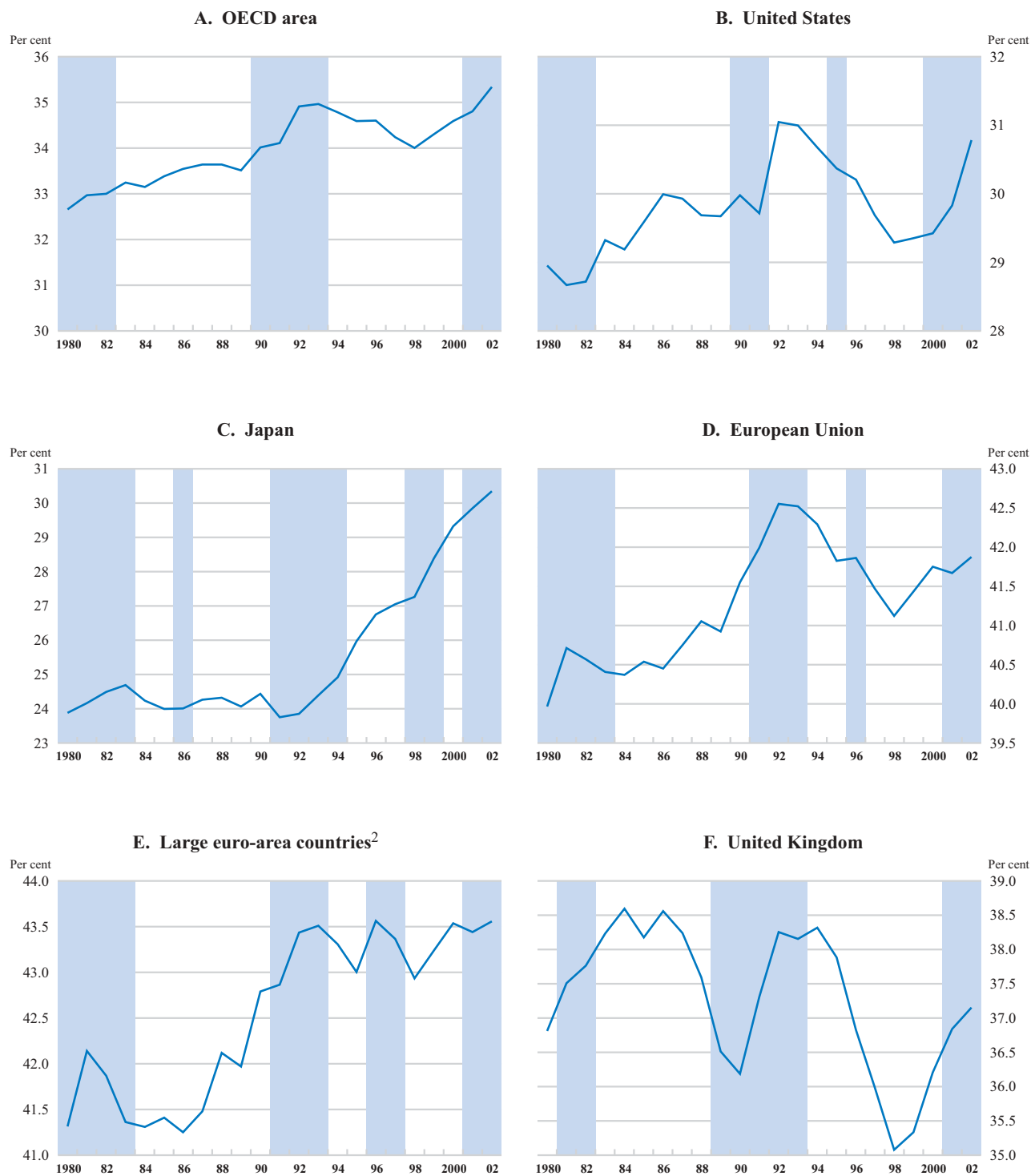
Figure IV.3. Sensitivity of revenue and expenditure to the cycle



1. Correlation between changes in cyclically-adjusted direct tax revenue and in the output gap between 1981-2002 (1982-2002, for Canada; 1987-2002, for New Zealand). A negative correlation indicates pro-cyclicality.
 2. Correlation between changes in cyclically-adjusted current primary spending and in the output gap between 1981-2002 (1982-2002, for Canada; 1987-2002, for New Zealand). A positive correlation indicates pro-cyclicality.
 Source: OECD.

Figure IV.4. Expenditure over the cycle¹

— Cyclically-adjusted primary current expenditure in per cent of potential GDP



1. The shaded areas identify cyclical downturns, defined as the years in which changes in the output gap relative to the previous year are non-positive.

2. France, Germany and Italy.

Source: OECD.

Overall, on the basis of the country experiences reported above, over the past two decades – a period spanning about two full business cycles – the stance of fiscal policy has been characterised by episodes of both counter- and pro-cyclicality. These appear to be dependent on sustainability considerations, particularly with respect to government indebtedness. Restoring longer-term sustainability seems to have played an important role in determining whether fiscal stance is output-stabilising in an immediate sense.

Overall, fiscal stance is conditioned by longer-term considerations

Factors determining pro- or counter-cyclicality

This section tests more formally the extent to which counter- or pro-cyclicality, and asymmetries in fiscal stance between booms and downswings, have been affected by strategic, institutional and political-economy factors. These include high taxes, public sector size and expenditure rigidities, and indebtedness. They also embrace the type of fiscal rule adopted (if any), institutional factors such as the political composition of government, and electoral regimes and cycles. The methodology is described in the Appendix, and is based on regressing movements in the cyclically-adjusted primary balance – measuring discretionary action – on cyclical fluctuations in the primary balance. The intuition is that, if the estimated correlation is negative, built-in stabilisers are being offset by discretionary action, which is pro-cyclical. To test the extent to which fiscal policy responds to sustainability factors, the debt/GDP ratio is incorporated in the equation, while the influence of institutional factors can be gauged by dividing country samples and/or periods according to discrete characteristics. Being based on pooled cross-country and time-series analysis, using a sample of 21 OECD countries during 1980-2002, the aim of the exercise is to highlight OECD-wide trends, rather than individual country experiences.

The effects of debt and institutions can be measured more formally

The results, presented in the Appendix and summarized in Table IV.1, are reported in terms of the sensitivity of fiscal stance to cyclical fluctuations in the budget balance (*i.e.* the percentage-point change in the cyclically-adjusted primary budget balance associated with a percentage-point change in the cyclical component of the primary budget balance), controlling in each case for the effects of debt on fiscal stance. An important initial finding is that discretionary shifts in fiscal stance tend to be asymmetrical over the cycle. They are counter-cyclical in downturns and there is evidence of pro-cyclicality in upturns, when a one percentage-point increase in the cyclical component of the primary balance is estimated to be accompanied by a relaxation of the cyclically-adjusted balance of about 0.2 percentage point of trend GDP.

Counter-cyclicity is normal in downturns...

While these results indicate a bias towards policy easing in both upswings and downturns, they also suggest the existence of a “sustainability motive” in fiscal policy associated with the need to control public indebtedness. Each percentage point increase in the debt/GDP ratio is estimated to lead to an average year-to-year increase in the cyclically-adjusted primary balance of about 0.06 per cent of GDP. The coefficient seems quite small, but movements in the debt/GDP ratio can be substantial – the experience of Ireland and Australia is that the debt/GDP ratio can

... after controlling for indebtedness

Table IV.1. **Sensitivity of fiscal stance to the cycle**

For each percentage-point movement in the cyclical component of the primary balance, the cyclically-adjusted primary balance changes by (in percentage points):^a

	Sensitivity	Fiscal stance
Baseline		
Upturns	-0.2	Pro-cyclical
Downturns	0.2	Counter-cyclical
Fiscal rules: MT/SGP		
Downturns before 1992	-0.5	Pro-cyclical
Downturns between 1992-98	0.2	Counter-cyclical
Downturns after 1999	0.4	Counter-cyclical
Tax cuts		
Downturns following tax cuts in previous upswing	-0.2	Pro-cyclical
Downturns without tax cut in previous upswing	0.2	Counter-cyclical
Expenditure rigidity		
Downturns in countries/years with high public employment share	0.3	Counter-cyclical
Downturns in countries/years with low public employment share	-0.2	Pro-cyclical
Downturns in countries/years with high public investment share	-0.2	Pro-cyclical
Downturns in countries/years with low public investment share	0.3	Counter-cyclical
Political cohesion		
Downturns in countries/years with government majority in the legislature	0.1	Counter-cyclical
Downturns in countries/years with government minority in the legislature	0.4	Counter-cyclical
Downturns in countries/years with high political fragmentation	0.7	Counter-cyclical
Downturns in countries/years with low political fragmentation	-0.5	Pro-cyclical
Electoral systems and cycles		
Downturns with an electoral regime based on proportional representation	0.4	Counter-cyclical
Downturns with an electoral regime based on plurality	-0.4	Pro-cyclical
When election year coincides with a downturn	0.3	Counter-cyclical
Downturns not in an election year	0.2	Counter-cyclical

a) Based on the estimated coefficients reported in Appendix Tables IV.1-3. The sensitivity parameters in downturns are reported relative to the estimated coefficients in upturns.

Source: OECD.

be reduced by 4-5 percentage points of GDP per annum, which implies a lower underlying cyclically-adjusted primary balance of about 0.3 percentage point of trend GDP.

Pro-cyclicality may also be due to budget errors

Before turning to the possible institutional and political economy sources of pro-cyclicality, it should be noted that fiscal stance may turn out to be pro-cyclical, even when it is not intended to be so. Budget forecasts and outturns may (and often do) differ, and revenue shortfalls and expenditure overruns are not uncommon during downturns, calling for remedial measures which may turn out to be pro-cyclical. Trend output, and consequently output gaps, may be measured erroneously, and standard procedures for calculating fiscal aggregates on a cyclically-adjusted basis may be deficient. Policymakers may therefore be unable, at the time, to distinguish bud-

getary changes of a structural nature from those which are driven by built-in stabilisers, and/or temporary, yet non-cyclical, fluctuations in revenue. In particular:

- Potential output growth may be overestimated, implying a higher output gap, a higher cyclical component of the deficit (or a lower cyclical component of the surplus), and an overestimation of the strength of the cyclically-adjusted balance and revenue base in the longer term. This may provide grounds for tax cuts during upswings which may turn out to be unsustainable.
- Tax elasticities may be overstated, in part because standard procedures for calculating cyclically-adjusted fiscal aggregates do not take into account factors that affect tax buoyancy, but are related to financial, rather than output, cycles.⁶ Movements in asset and housing prices are a case in point. The erroneous diagnosis of cyclical revenue increases as structural will inflate revenue forecasts, and subsequent shortfalls during downturns may only be remedied pro-cyclically.
- Budget-makers may resort to informal safety margins as a means to resist pressure for counter-cyclical activism, particularly during downturns. In the upturn, cyclical revenue gains may be underestimated to curb pressure for tax cuts at cyclical peaks. By the same token, in the downturn, a cyclical widening of the deficit may be overestimated to pre-empt calls for a fiscal stimulus. If these safety margins are unfilled, fiscal stance turns out to be less counter-cyclical than programmed.

Potential growth may be mis-estimated...

... temporary factors may be perceived as structural...

... and budgets may include informal safety margins

The role of medium-term fiscal rules

Certain types of fiscal rule, particularly those requiring actual, rather than cyclically-adjusted, budgets to be in balance, automatically damp cyclical fluctuations in the budget balance. They restrict the ability of the government to let automatic stabilisers work freely and symmetrically in tandem with fluctuations in economic activity, leading to pro-cyclical budgeting.⁷ Evidence for the United States, where the states have had a variety of balanced budget rules for a relatively long period, suggests that rules-induced pro-cyclicality cannot be ruled out, but it can be mitigated by accumulating “rainy day” funds in good times.⁸ Whether the budget rule is accompanied by an expenditure rule is also important. A nominal cap on expenditure growth may act to prevent a pro-cyclical upward drift in spending during upturns, as noted above. Conversely, the sharing of the tax take with sub-national levels of government may result in pro-cyclicality, particularly if sub-national governments account for a

If unadjusted for the cycle, fiscal rules may induce pro-cyclicality...

6. The OECD methodology for calculating cyclically-adjusted budget balances, most recently documented in Van den Noord (2000), does not take account of the effects of fluctuations in asset and real estate prices on tax buoyancy, which have been particularly pronounced since the 1990s.

7. It is difficult to construct a comprehensive taxonomy of fiscal rules, particularly of regulations on budget procedures and institutions, spanning a sufficiently long period, and to control for differences in the way compliance with these rules is monitored and enforced. Regardless of their main provisions and coverage, fiscal rules have only been introduced relatively recently in most countries, in the form of, sometimes quantitative, constraints on budget balances, borrowing, expenditure levels or rates of growth, and indebtedness.

8. Evidence provided by Sorensen *et al.* (2001) suggests that states that have relatively tight balanced-budget rules seem to have less pronounced swings in both revenue and expenditure over the cycle than states with less stringent fiscal rules. This is consistent with the evidence reported by Bohn and Inman (1996), which, although sensitive to the cyclical indicator used to gauge fiscal responsiveness, indicates that stringent fiscal rules encourage precautionary savings in good times, which can be used subsequently to finance counter-cyclical measures in bad times. By contrast, also using US state data, Alesina and Bayoumi (1996) argue that fiscal rules have indeed reduced flexibility in state-level fiscal policymaking without, however, having a bearing on the cyclicity of state fiscal policy.

large share of total government spending and revenue, and are not allowed to run budget deficits.

... but evidence from the EMU is inconclusive

The fiscal framework embedded in the Maastricht Treaty (MT) and the Stability and Growth Pact (SGP) has been under close scrutiny on the grounds that it may have created a pro-cyclical bias in EMU-wide fiscal stance. Evidence that the MT/SGP has induced pro-cyclicality under EMU has been inconclusive.⁹ However, the results summarised in Table IV.1 tend not to support the hypothesis of a pro-cyclical bias associated with the post-1992 period, both during 1992-98, corresponding to Phase II of EMU, when fiscal consolidation efforts were maximised to ensure qualification for Phase III, and thereafter. Indeed, discretionary shifts in fiscal stance, at least as far as the primary budget balance is concerned, seem to have become more counter-cyclical after 1992, and particularly from 1999 to 2002.¹⁰ Looking forward, to the extent that the aggregate EMU structural budget deficit is brought down from its current level of 1¾ per cent of GDP towards balance, fiscal rules would increase the scope for discretionary counter-cyclicality, although the principal purpose of such rules is to allow the operation of built-in stabilisers around a neutral fiscal stance. It has, nevertheless, been argued that the deficit ceiling enshrined in the MT/SGP may induce pro-cyclicality in the candidate countries for EU accession, where structural imbalances are typically larger than in EU countries and economic activity is more volatile.¹¹

Reaction to high tax ratios

Tax cuts may be ill-timed and hence hamper counter-cyclicality

Ill-timed tax cuts may result in pro-cyclical retrenchment. The reaction of public opinion to high tax ratios in most OECD countries puts pressure on governments to cut taxes, particularly at cyclical peaks, when the revenue windfall is highest. These cuts have resulted in pro-cyclical retrenchment following revenue shortfalls in some instances during the recent downturn. Based on the evidence provided in Table IV.1, the OECD experience suggests that tax cuts implemented during the upturn tend to inhibit the discretionary fiscal loosening in the subsequent downswing which is apparent among the countries where no tax reductions were made in the upswing. Fiscal policy remains discernibly counter-cyclical in downturns provided that there had been no tax cuts during the previous upturn.

Public expenditure rigidities

Expenditure rigidity determines the cyclical profile of fiscal stance...

Downward rigidities in public expenditure, as well as ceilings on expenditure growth, constrain budget action and help determine its cyclical profile. It is difficult to divert resources away from mandatory spending, such as the wage bill, welfare benefits and pensions. Indeed, the OECD experience summarised in Table IV.1 suggests that the cyclical rise in the budget deficit during downturns has tended to be

9. Comparison of the pre- and post-1992 period has become the conventional way to assess empirically the role played by the MT/SGP in shaping the responses of fiscal policy to the cycle in the EMU countries. For example, whereas Wyplosz (2002) reports some evidence of pro-cyclicality in the EMU countries after 1992, Gali and Perotti (2003) do not support the claim that the stabilisation role of fiscal policy has been impaired in the EMU countries by the MT/SGP, particularly in the latest downturn.

10. This covers a period when the 3 per cent of GDP ceiling was exceeded by three members of the EMU (France, Germany and Portugal).

11. See, for example, Coricelli and Ercolani (2002).

complemented by discretionary shifts in fiscal stance in countries where the government is a large employer, making fiscal discretion counter-cyclical.¹² By the same token, where needed, pro-cyclical action is harder to implement when mandatory outlays account for a relatively high share of spending. The benefits for short-term stability that arise from expenditure being inflexible in a downward direction have, however, to be set against the fact that there is no evidence of corresponding counter-cyclicality in upturns, with the risk of resultant longer-term “ratcheting up” effects on aggregate public spending.

A budget item that has been seen by policy-makers as adaptable for short-term stabilisation purposes is public investment. Where the level of public investment is low and infrastructure is deemed deficient (e.g. Japan, Portugal and other recipients of EMU structural funds, and the United Kingdom), investment projects may be initiated in downturns in a counter-cyclical manner. Based on the results summarised in Table IV.1, the OECD experience suggests that, in general, those countries having a counter-cyclical discretionary fiscal stance during downturns have a low share of capital outlays in public spending – and hence the potential to increase such spending. This does not seem to be the case with countries which already have relatively high public investment levels. Again, there is no evidence of counter-cyclical use of the instrument in upturns. While cuts and deferrals in capital programmes might be achieved within a short time horizon, the longer-term planning profile of public investment makes it a difficult instrument to manage for stabilisation purposes throughout the cycle. And may even make for pro-cyclicality in the upturn.

... public investment playing a short-term reflationary role

Political cohesion: unified government versus fragmentation

Achieving and maintaining fiscal discipline geared at longer-term policy sustainability, while allowing for short-term fluctuations in fiscal stance, poses considerable political-economy challenges. In particular, the legislative oversight to which fiscal policymaking is subject may also affect policy decisions. At the risk of oversimplifying complex political processes, governments that do not have a solid majority in the legislature may be unable to reach agreement on, or secure approval of, unpopular discretionary measures. Although no single indicator can be a certain gauge of political strength, on the basis of the results summarised in Table IV.1, the OECD experience suggests that minority governments tend to have a more counter-cyclical fiscal stance in downswings than their majority counterparts.¹³ The OECD experience also suggests that, when governments are more politically fragmented, fiscal stance correlates more strongly with the business cycle-induced operation of built-in stabilisers, being on average more counter-cyclical.¹⁴ Again, this may be because the decision-making process tends to make consolidation measures more

Fiscal consolidation in bad times requires political cohesion

12. A similar conclusion applies when expenditure rigidity is proxied by the share of wages in current government spending. A possible explanation is that the government may have limited discretionary power over wage settlement in the public sector, because backward-looking formal or informal price indexation is pervasive in many countries, thereby strengthening real wage resistance to price shocks and making wage restraint harder to impose.

13. Although both coefficients are positively-signed and of similar magnitudes, in the case of low-majority governments, the coefficient is estimated less precisely and statistical significance is ensured at the 10 per cent level only.

14. There is some empirical evidence that changes in central government policies are less frequent and radical, the greater the number of players with a veto right over the enactment of government policies. See, for example, Tsebelis (1999). The findings reported in Table IV.1 remain valid if political fragmentation is replaced by an indicator identifying the number of veto players, with fiscal stance being more counter-cyclical in bad times, the higher the number of veto players.

difficult and time-consuming, requiring more political give-and-take, when the government and its base in the legislature are politically fragmented.¹⁵

Electoral regimes and cycles

Electoral systems affect the size and composition of public spending...

Reflecting the above, electoral regimes seem to have a bearing on the level and composition of government spending and deficits. Based on the evidence summarised in Table IV.1, fiscal policy tends to be more counter-cyclical during downturns in the OECD area in countries with electoral systems based on proportional representation (*i.e.* in which candidates are elected based on the share of votes received) than in regimes based on single-member constituencies, elected by “first-past-the-post” systems. This is consistent with a growing literature on how electoral institutions affect the sensitivity of fiscal stance to the business cycle. In parliamentary regimes with proportional representation, spending tends to be more counter-cyclical, persistent over time and asymmetrical over the cycle, reacting more strongly to negative, than positive, output shocks.¹⁶ Other factors may contribute, but a possible explanation is that more proportional electoral systems are more likely to generate coalition governments, which tend to be more politically fragmented and possibly responsive to popular pressures.¹⁷

... and pro-cyclical action is more prevalent after election years

In the same vein, electoral cycles tend to be correlated with fiscal policy outcomes. Country experiences differ significantly and are not easy to generalise but, overall, OECD evidence, summarised in Table IV.1, suggests that discretionary fiscal action tends to be counter-cyclical during downturns which occur in election years. The experience of many countries suggests that pro-cyclical retrenchment tends to be more prevalent following elections, perhaps reflecting the fact that the benefits of fiscal consolidation, as of a reformist agenda in general, take some time to come through.

15. See, for instance, Lane (2003).

16. See Persson and Tabellini (2003), for further discussion. Primary spending, and in particular spending on transfers to individual and households, tends to rise more in response to macroeconomic shocks in countries with more proportional electoral systems (Milesi-Ferretti *et al.*, 2002).

17. Recent empirical research has shown that proportional representation is associated with a heavier tax burden and higher public spending, because it often leads to a larger number of parties in the legislature and consequently larger coalition governments and greater political fragmentation. See, for example, Austen-Smith (2000) and Perotti and Kantopoulos (2002).

Appendix: Fiscal stance over the cycle: evidence from panel analysis

The extent to which fiscal stance has been pro- or counter-cyclical can be assessed by regressing changes in the cyclically-adjusted primary budget balance – as a measure of discretionary action – against changes in the cyclical component of the primary budget balance.¹⁸ In particular:

$$\Delta B_{it}^s = a_0 + \gamma \Delta B_{it}^c + a_1 \Delta b_{it-1} + u_{it}, \quad (1)$$

where B_{it}^s is the cyclically-adjusted primary budget balance in country i at time t , B_{it}^c is the cyclical component of the primary budget balance, b_{it-1} is the lagged public debt stock (in per cent of GDP), u_{it} is an error term, and Δ is the difference operator.¹⁹

The interpretation of equation (1) is that if the estimated coefficient γ is negative, part of the cyclical fluctuations in the primary budget balance is offset by discretionary action, characterising pro-cyclical activism. A total offset is defined as $\gamma = -1$. This framework can also be used to test whether discretionary fiscal action has been asymmetrical over the cycle, to the extent that the estimated parameters differ between downturns and upturns. To this end, the cyclical component of the budget balance can enter equation (1) alone and interacted with a variable identifying business cycle downturns. Specifically:

$$\Delta B_{it}^s = a_0 + \gamma_0 \Delta B_{it}^c + D_{it} (\gamma_1 - \gamma_0) \Delta B_{it}^c + a_1 \Delta b_{it-1} + u_{it}, \quad (2)$$

where D_{it} is a dummy variable identifying cyclical downturns, which takes the value of “1” in downturns, when the output gap (actual minus potential) becomes more negative or less positive, or when it remains unchanged, and “0” when it moves in a positive direction.

In equation (2), the case where $\gamma_1 \neq \gamma_0$ denotes how asymmetrical fiscal stance is over the cycle. Also, if γ_0 is negative and less than 1 (*i.e.* discretionary action offsets some, but not all, of the cyclical fluctuation in the budget balance in the upturn, suggesting some pro-cyclicality) and γ_1 is positive, then there is counter-cyclicality in downturns, indicating an asymmetry of fiscal stance over the cycle.

Appendix Table IV.1 (baseline model) reports regression results for a panel of 21 OECD countries in the period 1980-2002, including all EU countries (except Luxembourg), Australia, Canada, Iceland, Japan, New Zealand, Norway, and the United States. Country selection was contingent on data availability. The baseline results suggest that, on average during upturns, a 1 percentage-point increase in the cyclical component of the primary budget balance is associated with a reduction in

18. Consistent with the usual practice by the OECD, as well as the empirical literature, discretionary action is measured by changes in the cyclically-adjusted primary budget balance.

19. Different methodologies can be used to evaluate the extent of fiscal pro- and counter-cyclicality. The traditional approach consists of regressing the recorded (or cyclically-adjusted) budget balance on the output gap to estimate the sensitivity of fiscal stance to the business cycle. The idea is that, as the output gap increases, so do revenues, and expenditures fall, reducing the budget deficit. Instead, the regressions reported below estimate directly the extent to which discretionary measures offset or exacerbate the business cycle-induced fluctuations in the budget balance. Recent research, particularly Wyplosz (2002), Milesi Ferretti, Perotti, and Rostagno (2002), Persson and Tabellini (2003), and Gali and Perotti (2003), has shed light on the links between institutions and the sensitivity of fiscal policy to the business cycle.

Appendix Table IV.1. **Fiscal stance over the cycle: baseline results, fiscal rules, and tax cuts**

Dep. Var.: Cyclically-adjusted primary budget balance^a

	Baseline	Fiscal rules	Tax cuts in upturn
Cyclical component of budget balance	-0.24 * (0.126)	-0.51 ** (0.223)	-0.22 * (0.126)
Cyclical component in downturn ^b	0.43 ** (0.184)		
Cyclical component in downturn (before 1992)		0.43 (0.363)	
Cyclical component in downturn (between 1992-98)		0.70 * (0.379)	
Cyclical component in downturn (after 1999)		0.94 ** (0.457)	
Cyclical component in downturn (no tax cuts)			0.44 ** (0.185)
Cyclical component in downturn (following tax cuts)			0.13 (0.368)
Lagged debt stock	0.06 *** (0.020)	0.06 *** (0.011)	0.07 *** (0.020)
No. of observations	384	209	384
Sargan test (overidentification, <i>p</i> -value)	0.21	0.98	0.23
First-order autocorrelation (<i>p</i> -value)	0.00	0.00	0.00
Second-order autocorrelation (<i>p</i> -value)	0.27	0.02	0.27

a) All models are estimated using the Arellano-Bond GMM estimator and include a common intercept and the lagged dependent variable (not reported). Standard errors are reported in parentheses. Statistical significance at the 1, 5, and 10 per cent levels is denoted by respectively (***), (**), and (*). The sample period is 1980-2002.

b) The downturn indicator is defined as a dummy variable taking value 1 for the years in which the change in the output gap relative to the previous year is non-positive and 0, otherwise.

Source: OECD.

the cyclically-adjusted primary balance by approximately 0.2 percentage point.²⁰ It also appears that, controlling for indebtedness, fiscal stance is counter-cyclical in downturns, suggesting a bias over the cycle. In downturns, the sensitivity of the cyclical component of the budget balance is 0.2 ($-0.24 + 0.43$). Moreover, rising indebtedness is associated with a strengthening of cyclically-adjusted balances, indicating that longer-term sustainability is a key determinant of the fiscal policy stance over the cycle. Each percentage-point increase in the public debt in relation to GDP in the previous year increases the cyclically-adjusted component of the budget balance in the current year by about 0.06 percentage point.²¹

20. The Arellano-Bond GMM estimator is used to take into account the likely joint endogeneity of the regressors (which are instrumented by their lagged values), heteroscedasticity in the data, and serial correlation of the error terms (because fiscal aggregates and budget institutions tend to be persistent over time). Other estimators, including pooled OLS and fixed and random effects, were also experimented with to test the robustness of the regression results.

21. Ancillary estimations (not reported) suggest that these findings are reasonably robust to: (i) different definitions of cyclical downturns; (ii) the exclusion of relatively small variations in the cyclically-adjusted primary balance, which may reflect forecast errors, rather than discretionary measures; and (iii) the exclusion of relatively small fluctuations in the output gap, which may not prompt counter-cyclical discretionary action.

Analysing the role of institutions and political economy factors

The analysis can be extended to shed light on whether the sensitivity of fiscal stance to the cycle is affected by institutions and political economy factors, particularly during downturns. To this end, equation (2) can be extended as follows:

$$\begin{aligned} \Delta B_{it}^s &= a_0 + \gamma_0 \Delta B_{it}^c + D_{it}(\gamma_1 - \gamma_0) \Delta B_{it}^c (1 - I_{it}) + \dots \\ &\dots + D_{it}(\gamma_2 - \gamma_0) \Delta B_{it}^c I_{it} + a_1 \Delta b_{it-1} + u_{it}, \end{aligned} \quad (3)$$

where I_{it} identifies a particular institution.

According to this equation, if $\gamma_2 \neq \gamma_1$ institutions affect the stance of fiscal policy over the cycle, and counter-cyclicality in the downturn is maintained in the presence of institution I_{it} if $\gamma_2 - \gamma_0 > 0$.

Appendix Table IV.2. Fiscal stance over the cycle: expenditure rigidity and political cohesion

Dep. Var.: Cyclically-adjusted primary budget balance^a

	Public employment	Public investment	Majority in legislature	Political fragmentation
Cyclical component of budget balance	-0.22 * (0.126)	-0.23 * (0.126)	-0.41 ** (0.164)	-0.46 *** (0.161)
Cyclical component in downturn (high public employment) ^b	0.50 *** (0.186)			
Cyclical component in downturn (low public employment)	0.00 (0.302)			
Cyclical component in downturn (high public investment)		0.23 (0.232)		
Cyclical component in downturn (low public investment)		0.54 *** (0.196)		
Cyclical component in downturn (majority)			0.53 * (0.288)	
Cyclical component in downturn (minority)			0.81 ** (0.336)	
Cyclical component in downturn (high fragmentation)				1.12 *** (0.305)
Cyclical component in downturn (low fragmentation)				0.23 (0.296)
Lagged debt stock	0.07 *** (0.020)	0.07 *** (0.020)	0.06 ** (0.024)	0.07 *** (0.024)
No. of observations	384	384	279	279
Sargan test (overidentification, <i>p</i> -value)	0.19	0.20	0.23	0.19
First-order autocorrelation (<i>p</i> -value)	0.00	0.00	0.00	0.00
Second-order autocorrelation (<i>p</i> -value)	0.31	0.31	0.11	0.09

a) All models are estimated using the Arellano-Bond GMM estimator and include a common intercept and the lagged dependent variable (not reported). Standard errors are reported in parentheses. Statistical significance at the 1, 5, and 10 percent levels is denoted by respectively (***), (**), and (*). The sample period is 1980-2002.

b) The downturn indicator is defined as a dummy variable taking value 1 for the years in which the change in the output gap relative to the previous year is non-positive and 0, otherwise.

Source: OECD.

Appendix Table IV.3. **Fiscal stance over the cycle**
electoral systems and cycles

Dep. Var.: Cyclically-adjusted primary budget balance^a

	Electoral system	Electoral cycle
Cyclical component of budget balance	-0.41 * (0.229)	-0.41 ** (0.165)
Cyclical component in downturn (proportional representation) ^b	0.77 ** (0.355)	
Cyclical component in downturn (plurality)	-0.32 (0.404)	
Cyclical component in downturn (election year)		0.68 ** (0.291)
Cyclical component in downturn (not election year)		0.56 * (0.305)
Lagged debt stock	0.06 ** (0.025)	0.05 ** (0.024)
No. of observations	264	279
Sargan test (overidentification, <i>p</i> -value)	0.17	0.23
First-order autocorrelation (<i>p</i> -value)	0.00	0.00
Second-order autocorrelation (<i>p</i> -value)	0.06	0.11

a) All models are estimated using the Arellano-Bond GMM estimator and include a common intercept and the lagged dependent variable (not reported). Standard errors are reported in parentheses. Statistical significance at the 1, 5, and 10 percent levels is denoted by respectively (***), (**), and (*). The sample period is 1980-2002.

b) The downturn indicator is defined as a dummy variable taking value 1 for the years in which the change in the output gap relative to the previous year is non-positive and 0, otherwise.

Source: OECD.

This procedure can be used to test for a variety of institutional and political economy factors. The main findings, which are summarised in Table IV.1 and discussed in greater detail in the main text, are presented in Appendix Tables IV.1-3. To the extent that institutional and political economy factors can be quantified, the indicators used in the regressions are as follows:

- **Fiscal rules.** To identify the pre- and post-MT/SGP periods in the EMU countries that have adopted the single currency, the periods before 1992 (prior to MT/SGP), between 1992-98 (Phase II of EMU), and after 1999 (corresponding to the launching of the single currency) are analysed separately.
- **Tax cuts during upswings.** The “following tax cuts” indicator takes the value of “1” if the ratio of current revenue to GDP had fallen at time *t-1* relative to the previous period, provided that time *t-1* is an upturn, and “0” otherwise.
- **Expenditure rigidities.** Two proxies for expenditure rigidity are used: the share of public employment in total employment and the ratio of public investment to current government spending. The “high public employment” (“low public employment”) indicator takes the value of “1” when the ratio of public employment to total employment is greater than or equal to (less than)

16.6 (sample median), and “0” otherwise. The “high public investment” (“low public investment”) indicator takes the value of “1” when the ratio of fixed capital outlays to current government spending is higher than or equal to (less than) 6.9 (sample median), and “0” otherwise.

- **Political cohesion.** The indicators are based on the World Bank’s Political Institutions database. The “majority” (“minority”) indicator takes the value of “1” when the fraction of seats in the legislature held by the government exceeds (is below) 50 per cent and “0” otherwise. The “high fragmentation” (“low fragmentation”) indicator takes the value of “1” when the probability that two deputies picked at random from among the government parties will be of different parties exceeds (is below) 50 per cent, and “0” otherwise.
- **Electoral systems and cycles.** These indicators are also based on the World Bank’s Political Institutions database. The “plurality” (“proportional representation”) indicator takes the value of “1” if legislators are elected using a “winner-takes-all”/“first past the post” rule (if candidates are elected based on the percentage of votes received by their party), and “0” otherwise. The “election year” indicator is constructed based on a variable available from the World Bank Political Institutions database identifying the number of years left in the current Chief Executive’s term in office. The indicator was redefined to take the value of “1” if the original variable had value “0,” and “0” otherwise.

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