Part IV

Fiscal policy in good times
Summary

In spite of the unanimous view among economists and policy makers that pro-cyclical fiscal policies should be avoided, counter-cyclical fiscal policies are far from being the norm in most countries. What is most surprising is that the available evidence seems to indicate that in most advanced countries pro-cyclical behavior is an issue that mostly arises in good times, when the economic activity is above potential or when growth is above trend. This is somehow puzzling, since while in bad times a trade-off could emerge between the objective of output stabilization and that of budgetary discipline, the two objectives go hand in hand in good times.

The direct consequence of a pro-cyclical behavior of fiscal policy is an unnecessary amplification of GDP fluctuations. Furthermore, the prevalence of pro-cyclical behavior in good times is responsible for a considerable share of the current stock of debt in EU countries. When budgetary frameworks aimed at containing deficits are in operation, pro-cyclical fiscal policy in good times is often the cause of fiscal retrenchments occurring during periods where cyclical conditions are weak. This issue was particularly evident in the EU over the past decade. The failure of many countries to run a prudent budgetary policy at the cross-road of the decade when output was above potential and growth above trend translated in some cases in budgetary adjustment carried out in the periods of negative output gap following the downturn occurred in 2001.

Different reasons are at the ground of pro-cyclical fiscal policies in good times. First, the inevitable difficulty of forecasting and measuring the cycle in real time, coupled with the well-known implementation lags of fiscal policy. Second, there are so-called "political economy" explanations, i.e., a suboptimal structure of incentives and mechanisms in policy-making. Pressure groups, spending ministries, local governments are likely to step up their spending requests exactly when resources are more abundant. Voters will normally expect to share in budgetary surpluses accumulated during good times via tax cuts. If governments lack effective commitment instruments not spend budgetary windfalls arising from strong cyclical conditions, the result would be frequent budgetary loosening in good times.

The analysis carried out in this part of the Report confirms the findings of previous studies that episodes of pro-cyclical fiscal policy were frequent in euro-area countries in the past decades. During years where output was above potential, the fiscal stance was pro-cyclical in about 50 percent of the cases. Evidence of pro-cyclical behavior is found using both a definition of good times based on the level and on the year-on-year change in the output gap. The picture, however, is quite different depending on the period considered. While during the run-up to EMU pro-cyclical ity took place mostly during bad times, after the completion of EMU budgetary corrections in bad times became less common, but there was a greater incidence of pro-cyclical policies in good times.

Quantitative analysis provided in this part of the Report shows that there is evidence of a pro-cyclical bias of fiscal policy in good times also controlling for the major factors that affect the fiscal stance and that such bias emerges especially when output is above potential but also during upswings in economic activity, namely, when growth is above trend. The separate analysis of government revenues and expenditures reveals that the pro-cyclical bias is mainly related with the behavior of expenditures, which appear to grow faster in periods of positive output gap. An explanation could be identification and implementation lags. Expenditure plans are based on growth forecasts. Such forecasts are likely to be optimistic especially after protracted periods of growth above trend, i.e., when the output gap is positive. Strong pressures to spend budgetary windfalls accruing in good times would be an aggravating factor.

A comparison between the values of the output gaps estimated in real time and those computed ex-post reveals that measurement errors are potentially a serious issue. In about 1/3 of the cases there was a real-time
wrong assessment of the sign of the output gap of euro-area countries over the period 1995-2003. This evidence militates against a mechanistic use of real-time output gap figures in the identification of good and bad times. Further analysis shows, however, that errors in measuring the cycle in real time are not the main explanation for the observed pro-cyclical behaviour. The analysis shows that measurement errors may explain to some extent pro-cyclicality in bad times, but the same may not hold for pro-cyclical behaviour in good times. Furthermore, the stance was more strongly pro-cyclical when the output gap was large and positive: another piece of evidence pointing against the view that pro-cyclical episodes in good times were unintentional.

A possible response to the pro-cyclical bias of fiscal policy is setting up national-level rules and institutions that permit governments to credibly commit not to surrender to the pressures to raise spending or cut taxes in good times. Expenditure frameworks aimed at capping the growth of expenditure over a medium-term framework can address the tendency for expenditure to grow faster in good times. Revenue rules that determine ex-ante which share of revenue windfalls will be saved or the establishment of rainy-day funds can strengthen the commitment of governments not to spend or give away via tax cuts better than expected budgetary outcomes materialising in good times. "Fiscal councils" providing technical inputs in fiscal policy-making, including via high-quality independent macroeconomic forecasts and a thorough estimation of the budgetary impact of policy measures could permit a better working of the rules aimed at addressing the pro-cyclical bias.

The analysis in the report supports the view that expenditure rules could be an effective instrument to curb the pro-cyclical bias. It is shown that the countries endowed with effective expenditure frameworks were characterised, other things being equal, by a more moderate growth of expenditure especially in good times. This translated into a lower frequency of episodes in which the behaviour of expenditure was pro-cyclical. While this frequency was about 80 percent in countries without expenditure frameworks or with only weak frameworks, in countries with strong expenditure rules a pro-cyclical behaviour of expenditure in good times is observed in less that 60 percent of the cases.

Overall, the analysis in the report reveals that pro-cyclical policies in good times are far from being an exception. A durable correction of the pro-cyclical bias could be achieved by setting up adequate rules and institutions at the national level. A strengthened institutional framework for budgetary policy at national level would in this sense be consistent with the reformed Stability and Growth Pact, which puts enhanced emphasis on the need for countries to step up adjustment efforts in good times to achieve their medium-term budgetary objectives. Efforts to make progress on this front should not be delayed. There is mounting evidence that good times are going to be there again. Growth in the euro area is recovering and output may return above potential in a majority of countries in the near future. Member States need to avoid the mistakes of the past and be ready to make the best use of such an opportunity to combine an appropriate use of fiscal policy as a stabilisation tool with progresses towards achieving their medium-term budgetary objectives.
1. Introduction

This part of the report discusses the issue of procyclicality of fiscal policy. Much has been debated about a possible pro-cyclical bias in bad times induced by budget balance rules. The focus here will be rather on procyclical behaviour in good times. There are several reasons for this choice. First, the evidence shows that procyclical behaviour in good times was quite common in EU countries, especially after the final stage of EMU. Second, while procyclical behaviour in bad times can be the unavoidable price to pay when countries need to ensure a prompt correction of budgetary imbalances, procyclical policies in good times not only destabilise output but also worsen countries fiscal positions and may be the cause of subsequent fiscal retrenchments in bad times. Third, there appears to be a bias towards fiscal loosening in good times related with the strong pressures to raise spending or cut taxes which governments are faced in the presence of budgetary windfalls. Such pro-cyclical bias has a structural nature and needs to be addressed with a structural response.

The bottom line of the following analysis is as follows. Both government revenues and expenditures contributed to the emergence of procyclical policies in good times, with a particularly significant contribution of expenditures that appears to grow considerably faster during periods in which output is above potential. In general, procyclical policies in euro-area countries do not seem to be the outcome of unintentional mistakes related with an incorrect reading of current cyclical conditions. Fiscal expansions in good times appear rather to be the fruit of deliberate decisions, with the episodes of strongest loosening in periods of positive and large output gaps.

A response to the pro-cyclical bias can come from strengthened national-level rules and institutions. Multiyear expenditure frameworks can curb the tendency for expenditures to grow faster during good times. Revenue rules and the establishment of rainy-day funds can strengthen the commitment by governments to save windfall budgetary gains arising in good times. "Fiscal councils" providing technical inputs in fiscal policy making can be helpful to ensure an effective use of the rules aimed at addressing the pro-cyclical bias. The analysis that follows shows that expenditure rules can indeed be an effective instrument: countries with stronger expenditure rules were characterised by slower growth of expenditures especially during good times and by a lower frequency of episodes in which expenditure policy was used in a procyclical fashion.

Part IV of the report is structured as follows. Chapter 2 reviews the main theoretical arguments against a procyclical conduct of fiscal policy and surveys the existing studies analysing how the fiscal stance behaved over the cycle in practice. Explanations for the observed recurrence of procyclical fiscal policy in good times are discussed. Chapter 3 takes a close look at the behaviour of the fiscal stance in the EU. The analysis focuses on euro-area countries over the 1980-2005 period. The analysis considers separately different sub-periods and different definitions of good and bad times. Econometric analysis is performed to analyse the determinants of the fiscal stance in good and bad times separately for budget balances, government revenues and expenditures. The analysis of the cyclical behaviour of the fiscal stance is examined by referring also to good and bad times defined on the basis of real-time rather than ex-post data. Chapter 4 discusses alternative ways to address the procyclical bias via the establishment of national-level budgetary rules and institutions. Original analysis using questionnaires submitted to the Working Group on the Quality of Public Finances attached to the Economic Policy Committee is performed with a view to investigate the link between national level fiscal rules and the cyclical behaviour of the fiscal stance.
2. The cyclical behaviour of the fiscal stance

2.1. Introduction

This section discusses the broad issue of how fiscal policy should behave in theory over the cycle and what actually happens in reality. In spite of recommendations from all economic schools against pro-cyclical fiscal policy, existing analyses indicate that a pro-cyclical use of discretionary fiscal policy is quite common. While pro-cyclical fiscal policy in bad times may easily find a rationale in the inevitable trade-off between cyclical stabilisation and the need to contain budgetary imbalances, the explanations for pro-cyclical policy in good times are less obvious. A loose fiscal stance in good times may not only be due to difficulties in tracking correctly the cycle and to the well known issue of identification and implementation lags of fiscal policy, but also to weak control mechanisms over the budget, which may result into fiscal authorities surrendering to the pressure for tax cuts or expenditure increases when resources are more abundant.

2.2. Prescriptions from theory

The budget balance varies over the cycle for two main reasons. First, the working of automatic stabilizers. Government revenues and, to a lesser extent, government expenditures vary with the level of economic activity as a result of existing fiscal legislation. These variations are "automatic", do not need any additional policy to take place, and are such that the budget balance follows the economic cycle: tax revenues are higher in booms, while unemployment compensations and other social expenditure are lower. The working of automatic stabilisers is thus counter-cyclical: fiscal policy behaves in such a way to counter cyclical developments. Second, discretionary action by governments. As opposed to automatic stabilisers, discretionary policies may induce a variation in the budget balance that may be either pro or counter-cyclical.

The use of discretionary fiscal policy as a tool to stabilise output has often given rise to controversy. Economists in the Keynesian tradition are generally in favour of active discretionary policies aimed at containing fluctuations of economic activity. In Keynesian theories, fiscal policy activism finds its rationale in widespread real and nominal rigidities that hamper a prompt adjustment of prices and delay the adjustment of output towards potential.

New classical macroeconomics rather favours a cyclically neutral fiscal stance. Such recommendation finds its foundation in the tax-smoothing principle, which advocates avoiding large changes in the tax burden over time in order to limit the dead-weight losses of taxation.98 Moreover, the effectiveness of counter-cyclical discretionary activism is put in question on the basis of the so-called Ricardian equivalence.99 Overall, according to the prescriptions from new classical macroeconomics fiscal policy should act counter-cyclically but mainly via the operation of automatic stabilisers.


99 The basic argument underlying Ricardian equivalence is that the economic agents would anticipate future increases in taxes resulting from any present-day increases in borrowing. This would render expansionary fiscal policies ineffective as the economic agents save any additional income (stemming from reduced taxes or increased transfers) rather than spend it (an analogous argument can be made for contractionary policies). On the topic see, e.g., Barro (1974). Overall, the forward looking behaviour of economic agents tend to reduce the effectiveness of discretionary fiscal policy on output. Cases in which fiscal policy had an impact on economic activity contrary to what standard Keynesian macroeconomics would have predicted have also been found, as highlighted by episodes of "expansionary fiscal consolidations" (see, e.g., Giavazzi, Jappelli, Pagano, and Benedetti (2005), European Commission (2003), Giudice, Turrini, and In't Veld (2004)).
Fiscal activism moved in and out of fashion over the past decades. After a broadly positive attitude by economists and policy-makers towards discretionary fiscal policy for stabilisation purposes in the '50s, '60s and early '70s, a more pessimistic view became common. This change in attitude was partly associated with the stricter constraints on the use of fiscal policy as a demand management tool ensuing from large and rising budgetary imbalances, and partly was the result of accumulated experience showing the practical limits and pitfalls of discretionary fiscal policy. In recent years, a more balanced consensus view is emerging. There is increasing recognition that fiscal policy could be de facto the only macroeconomic stabilisation left in many situations where exchange rates are kept fixed, given the stricter constraints faced by monetary policy resulting from increased capital mobility. A fortiori, this argument applies to monetary unions. Moreover, although the practical problems with discretionary fiscal stabilisation related with identification and implementation lags are now fully recognised in the academic and policy making community, there is also awareness that in some cases automatic stabilisers may not be sufficient by themselves to counter large and persisting cyclical imbalances.

Overall, there was always consensus that pro-cyclical fiscal policy should be avoided. However, this judgement is subject to a fundamental asymmetry. While the objective of output stabilisation and that of debt stabilisation go hand in hand by running counter-cyclical policies in good times, a trade-off may emerge in bad times. Since fiscal activism to sustain economic activity in bad times comes at the cost of widening deficits and possibly destabilising debt, a sound structural fiscal position is a pre-requisite for running deficits and possibly destabilising debt, a sound structural fiscal position is a pre-requisite for running counter-cyclical policies in bad times. Conversely, a counter-cyclical fiscal stance in good times, by improving the budgetary position, sows the seeds for a supportive fiscal stance in bad times. In this respect, there is consensus that the lack of fiscal adjustment in good times is responsible of a considerable share of debt accumulation in many advanced economies and that the budgetary consolidation episodes that were carried out in periods of negative output gaps in several EU countries in recent years could have been avoided had the fiscal stance not been pro-cyclical in the good time periods at the cross-road of the decade.

2.3. Broad evidence

Although normative arguments plead against the pro-cyclical use of discretionary fiscal policy, the evidence indicates that episodes of pro-cyclical fiscal policy are far from being an exception. The issue became particularly evident in the euro area in recent years. Graph IV.1 reports figures for the year-on-year changes in the cyclically-adjusted primary balance (CAPB) taken as a measure of the fiscal stance and output gaps over the period 1996-2005 for the euro-area aggregate. The graph shows that in periods of negative output gaps changes in the CAPB were normally positive, denoting a pro-cyclical fiscal tightening in bad times. Conversely, in years when output was above potential, fiscal policy was loosened, thereby taking a pro-cyclical stance in good times.

The common prima-facie approach to obtain information on the behaviour of the fiscal stance over the cycle is to put in relation a measure of fiscal stance (generally the change in the CAPB) with cyclical indicators (normally the output gap) as in Graph IV.1. Although helpful, such an approach does not permit to gauge to what extent the observed stance of the fiscal policy was motivated by the stabilisation purpose or rather by other reasons. A more careful analysis of the behaviour of fiscal authorities would also attempt at isolating the main factors that affect the behaviour of fiscal authorities, in primis the need to keep debt under control. In recent years, it has become common practice to analyse the determinants of discretionary fiscal policy through the estimation of 'fiscal rules' summarizing the behaviour of fiscal authorities. The purpose of such analytical exercises is that of identifying a limited set of macroeconomic determinants that explain developments in measures of discretionary fiscal policy. In most of these analyses the primary CAB is used to capture the discretionary component of the budget, which is assumed to depend upon cyclical conditions (the output gap) and the starting fiscal conditions (the level of debt and of the CAPB).


One difficulty in the estimation of fiscal reaction functions is that of the endogeneity of the output gap. The idea underlying fiscal reaction functions is that the budget balance depends on the cycle. However, the reverse is also true, i.e., the stance of fiscal policy affects economic activity. To get rid of this circularity, estimation methods that permit to isolate the variation in the output gap which is independent of the current fiscal policy of the country concerned are necessary. The easiest solution is to use the

101 See also European Commission (2002) on the use of discretionary fiscal policy in currency unions.

102 Balassone and Francese (2004) estimate that pro-cyclical discretionary measures in good times explain almost one fourth of the total increase in the debt/GDP ratio in industrial countries over the 1977-2000 period.


104 One difficulty in the estimation of fiscal reaction functions is that of the endogeneity of the output gap. The idea underlying fiscal reaction functions is that the budget balance depends on the cycle. However, the reverse is also true, i.e., the stance of fiscal policy affects economic activity. To get rid of this circularity, estimation methods that permit to isolate the variation in the output gap which is independent of the current fiscal policy of the country concerned are necessary. The easiest solution is to use the
that after the introduction of the EU fiscal framework. Moreover, most existing studies do not support the view that fiscal authorities acted in general in such a way to counter cyclical imbalances via discretionary measures. Third, for euro-area countries, the evidence does not appear to be strongly related to cyclical indicators. Second, fiscal policy appears generally pro-cyclical in advanced economies the cyclical behaviour of the fiscal stance depends on specific periods and country aggregates. Third, for euro-area countries, the evidence does not support the view that in the past decades fiscal authorities acted in general in such a way to counter cyclical imbalances via discretionary measures. Moreover, most existing studies do not support the view that the response of budget balances to the cycle. This difference in results is due to several factors, relating to the country and time coverage of the sample, the source of data (e.g., different methodologies for computing output gaps and adjusting budget balances for the cycle) and the approach chosen in the estimation.

In spite of such differences, a counter-cyclical response of discretionary fiscal policy to the cycle in good times is seldom found, while some studies report evidence consistent with counter-cyclical behaviour in bad times.

output gap taken with one lag as an explanatory variable. The most common solution is to use an instrumental variable estimator and to use as explanatory variable the variation of the output gap related with the chosen instruments, generally the lagged output gap and measures of the international cycle. A different route is that of using GMM methods, like the Arellano-Bond estimator.

Evidence on both advanced economies and developing countries is reported for instance in Gavin and Perotti (1997) and Alesina and Tabellini (2005). Talvi and Vegh (2005) focus on developing countries only.

Gali and Perotti (2003) show that in most OECD countries the response of the fiscal stance to output gaps become more counter-cyclical starting from the early ‘90s. (the signing of the Maastricht Treaty), fiscal policy became more pro-cyclical. However, there are indications that pro-cyclical behaviour in good times has become more common after the completion of EMU. A number of studies also attempt to analyse whether the response of fiscal authorities to cyclical developments was symmetric over the cycle or rather different depending on whether good or bad times were prevailing. The evidence from this series of studies is not clear-cut. As evidenced in Table IV.1, some analyses report that the response of fiscal authorities to the output gap was not qualitatively different in good and bad times while in other studies significant differences are found. Moreover, results differ also for what concerns the sign of the response of budget balances to the cycle. This difference in results is due to several factors, relating to the country and time coverage of the sample, the source of data (e.g., different methodologies for computing output gaps and adjusting budget balances for the cycle) and the approach chosen in the estimation.

In spite of such differences, a counter-cyclical response of discretionary fiscal policy to the cycle in good times is seldom found, while some studies report evidence consistent with counter-cyclical behaviour in bad times.

107 See, e.g., Gali and Perotti (2003), European Commission (2004a, 2004b), IMF (2004). A greater stabilisation role for fiscal policy at national level in monetary unions is one of the explanations put forward to explain a reduced rather increased pro-cyclical behaviour after the introduction of the EU fiscal framework (Gali and Perotti (2003)).


109 Most studies use as the dependent variable capturing discretionary fiscal policy the CAPB in level or in change (Forni and Momigliano (2004)). In some studies, however, the overall budget balance is used instead (Balassone and Frangese (2004), Manasse (2006)). The specification of the explanatory variables in the fiscal reaction function also varies somehow across studies. For instance, normally fiscal reaction functions include lagged budget balance measures as an explanatory variable, but there are exceptions (e.g., OECD (2003)).

110 A significant countercyclical reaction, both in good and bad years, is reported only in Golinelli and Momigliano (2006). This study, which refers to the years starting from 1988, uses real time estimates for cyclical conditions and initial deficits and controls for the impact of the European fiscal rules on the behavior of countries in excessive deficits and for elections. Elections appear to induce a more expansionary stance, but only in good times.
## Table IV.1. Discretionary fiscal policy in good and bad times: evidence from econometric estimation of fiscal reaction functions

<table>
<thead>
<tr>
<th>Study, sample, data source</th>
<th>Dependent and explanatory variables</th>
<th>Estimation method and instruments</th>
<th>Response of the fiscal stance to the output gap in good times</th>
<th>Response of the fiscal stance to the output gap in bad times</th>
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<tbody>
<tr>
<td><strong>Good and bad times defined in terms of the level of the output gap</strong></td>
<td></td>
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<tr>
<td>Euro area 1971-2003 OECD analytical database</td>
<td>Lagged CAPB, output gap, lagged debt, ‘monetary gaps’</td>
<td></td>
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<tr>
<td>Balassone and Francese, (2004)</td>
<td>Overall balance</td>
<td>OLS, Arellano-Bond</td>
<td>Pro-cyclical (the overall balance does not react to the output gap indicating that the fiscal stance counter the automatic stabilisers)</td>
<td>Not statistically significant (a variation in the overall balance of the same order as that of automatic stabilisers)</td>
</tr>
<tr>
<td>14 EU countries 1970-2000 European Commission data</td>
<td>Lagged debt, lagged nominal balance, output gap</td>
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<tr>
<td>Cimadomo (2005)</td>
<td>CAPB</td>
<td>OLS, lagged output gap</td>
<td>Not statistically significant</td>
<td>Not statistically significant</td>
</tr>
<tr>
<td>Euro area 1981-2005 OECD Economic Outlook database</td>
<td>Lagged CAPB, lagged debt, lagged output gap</td>
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<tr>
<td>Manasse (2006)</td>
<td>Primary balance</td>
<td>Pooled and fixed effect OLS on piece-wise linear specification (specification obtained via algorithms in the MARS software)</td>
<td>Pro-cyclical</td>
<td>Pro-cyclical</td>
</tr>
<tr>
<td>Both Industrialised and Developing countries 1970-2004</td>
<td>Lagged output gap, lagged debt, lagged primary balance</td>
<td>IV using lagged output gap as instrument as alternative method</td>
<td></td>
<td>Not statistically significant in very bad times (output gaps&lt;2)</td>
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<td>IMF World Economic Outlook database</td>
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<tr>
<td><strong>Good and bad times defined in terms of the change of the output gap</strong></td>
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<tr>
<td>OECD (2003)</td>
<td>Change in the CAPB</td>
<td>Arellano-Bond estimator</td>
<td>Pro-cyclical</td>
<td>Counter-cyclical</td>
</tr>
<tr>
<td>21 OECD countries 1990-2002 OECD Economic Outlook database</td>
<td>Change in the CPB (output gap), lagged debt</td>
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<tr>
<td><strong>Output gap measured in real time</strong></td>
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<tr>
<td>Forni and Momigliano, (2004)</td>
<td>Change in the CAPB</td>
<td>OLS, lagged output gap, IV: own output gap, (average weighted) output gap of the other countries in the sample</td>
<td>Not statistically significant with real-time data</td>
<td>Counter-cyclical with real-time data</td>
</tr>
<tr>
<td>10 Euro area countries 1993-2003 OECD Economic Outlook database</td>
<td>Output gap, ‘Maastricht variable’, lagged debt, lagged CAPB</td>
<td>Arellano-Bond (alternative estimations method)</td>
<td>Not statistically significant with ex-post data</td>
<td>Not statistically significant with ex-post data</td>
</tr>
<tr>
<td>Golinelli and Momigliano (2006)</td>
<td>Change in the CAPB</td>
<td>OLS (no fixed effects), lagged output gap</td>
<td>Counter-cyclical with real-time data</td>
<td>Counter-cyclical with real-time data</td>
</tr>
<tr>
<td>11 Euro area countries, 1988-2006 OECD Economic Outlook database</td>
<td>Lagged output gap, lagged, lagged primary balance, “Maastricht variable” in cases where it is binding</td>
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</table>

Source: Commission services.
In summary, the available evidence suggests that, in spite of the prescriptions from economic theory and the broad agreement in the policy community against pro-cyclical fiscal policy, counter-cyclical behaviour was far from being the norm in advanced countries and notably EU countries in past decades. Overall, there is also no strong evidence in favour of the view that the use of discretionary policy was effective in stabilising output. Even more puzzling seems the evidence that pro-cyclical behaviour was quite common especially in good times. Although in good times there are no fiscal discipline-related constraints to budgetary policy in keeping a counter-cyclical fiscal stance, the data suggest that fiscal authorities may find other type of constraints that may explain frequent pro-cyclical behaviour.

2.4. The recurrence of pro-cyclical fiscal policy: in search of explanations

What could explain the fact that the fiscal stance is quite often pro-cyclical? In the case of pro-cyclical fiscal policies in bad times, explanations are not hard to find, in light of the already mentioned trade-off faced by fiscal authorities between exerting an impulse on aggregated demand consistent with cyclical conditions and keeping a robust commitment towards fiscal discipline. This trade-off is in some cases somehow solved ex-ante, via the introduction of numerical rules aimed at ensuring the respect of budgetary discipline, thus limiting the discretion of fiscal authorities with the use of discretionary policy with stabilising purposes when deficits are too high. In a nutshell, the main explanation for pro-cyclical fiscal policy in bad times is an unsound starting fiscal position, which requires a correction irrespective of the prevailing cyclical conditions. The reasons justifying the recurrence of pro-cyclicality in good times are more subtle. Two broad set of explanations are generally identified. A first set relates to problems in correctly measuring cyclical conditions. A second set of explanations focuses on the effective functioning of fiscal policy-making, which may lead to results different from those advocated by normative economic theory.

Measurement issues

Identification and implementation lags could explain excessive growth of expenditure in good times. The execution of government expenditure plans follow budgetary decisions with some delay, so that expenditures at time \( t \) are generally based on growth forecasts made at time \( t-1 \) or \( t-2 \). Growth forecasts are generally influenced by current or recent growth developments. It follows that it is exactly when output gap is positive, i.e., after protracted periods of growth above trend, that expenditures are likely to grow faster. Moreover, due to the difficulty of predicting turning points in the cycle, the risk exists that expenditures grow fast also in correspondence with growth slowdowns.

Related to the issue of identification lags, there is the issue of satisfactorily measuring the cycle in real-time. Governments may be willing to engage into counter-cyclical fiscal policies, but they simply lack the tools to do that adequately because they have an imperfect reading of the current cyclical conditions. The estimation of output gaps in real time is subject to substantial uncertainty, mainly related to revisions in the estimates of potential output. In case of a mistaken reading of the cycle, pro-cyclical policies may result ex-133

Measurement issues

111 Quite at the opposite, Fatas and Mihov (2003) analysing a sample of 91 countries find that the discretionary fiscal policies have in general increased, rather than reduced, output volatility.

112 An additional reason for pro-cyclicality in bad times are financing constraints: countries that rely heavily on foreign borrowing to finance their deficits may find it more difficult to obtain such finance in periods where the economy in undergoing recessions, due to lost confidence by international investors. However, although this explanation seems relevant for middle income and developing countries (Alesina and Tabellini (2005)) it is much less for advanced economies.

113 Although the dynamics of government expenditure depend on the specific expenditure item considered, several assumptions have been formulated in the literature for what concerns the medium-term dynamic behaviour of aggregate primary cyclically-adjusted expenditures (see, e.g., Hugues Hallet et al. (2003)). It is often assumed that governments target a constant ratio of expenditure over potential GDP. In this case, expenditures are planned on the basis of expected potential growth. Alternatively, fiscal authorities could target the budget balance. In this case, expenditures would grow on the basis of the expected growth of revenues. In both cases, the growth of expenditures would be broadly in line with expected GDP growth.

114 One needs to notice however that in case of long implementation lags and the economy undergoing a severe downturn, the strong expenditure increase planned during a period with positive output gap could end up being executed in years characterized by a negative output gap, so that the expenditure policy could turn up being counter-cyclical in bad times rather than pro-cyclical in good times.

115 Several reasons underly the uncertainties in real-time output gap figures. First, when potential output is obtained by means of moving averages, measuring potential output for time \( t \) at time \( t \) requires disposing of GDP forecasts for subsequent periods: \( t+1 \), \( t+2 \), etc. Due to forecasting errors, the estimate of potential output in real time may need to be revised afterwards. Second, real-time estimates of GDP are inevitably subject to revisions because the construction of GDP for the current year is based on limited information. Third, GDP series may be modified backward due to statistical revisions. Among the first analyses of the magnitude of real-time errors in the estimation of the output gap (for the US) see Orphanides and van Norden (2002). Analyses referred to the EU include Camba-Mendez and Rodriguez-Palenzuela (2001) and Ruenstler (2002).

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post while ex-ante the intention was to keep a counter-cyclical stance.

"Genuine uncertainty" on real-time output gap figures can explain why fiscal policy is generally not counter-cyclical. However, such an explanation fails to explain why there are often stronger signs of pro-cyclicality in good rather than in bad times. If errors are simply due to lack of information, then one should expect measurement errors to be symmetrically distributed over sufficiently large samples: the probability of assessing that times are "bad" when they are not should be roughly equal to the probability of assessing good times when ex-post data indicate instead weak cyclical conditions. A possible explanation of such bias could be found in a tendency by governments to inflate the growth projections underlying their budgetary programmes, which has been documented for some EU countries over the past decade.\textsuperscript{116} Upward-biased growth forecasts result into an inflated real-time estimate of potential output and then into a downward-biased output gap level: fiscal expansions meant to be counter-cyclical in bad times may end up being pro-cyclical in good times.\textsuperscript{117}

**Political economy**

A different set of reasons for the observed pro-cyclical behaviour of fiscal policy is often referred to as "political economy" explanations. The political economy arguments underlying the deficit bias are well-known and are reviewed in Part III in this report. Short-sighted governments may underestimate the longer term negative consequences of deficits; pressure groups, when competing for government resources neglect the repercussions of their decisions on overall public finances (common pool problem). The result is a tendency for deficits to build up. As long as a deficit bias is present irrespective of cyclical conditions, pro-cyclical policies could emerge.

More interestingly, recent theoretical work has shown that the deficit bias associated with the common pool problem can get worse during good times, thus leading to a growth of deficits above normal. A reason could be the so-called "voracity effect": since competing pressure groups will devote a greater effort to obtain a share of government expenditure the higher is the total amount of resources available, spending is likely to grow more than proportionally with the increase in revenues.\textsuperscript{118}

Alternative arguments refer to the revenue side rather than the expenditure side of the budget. In order to curb pressures to increase spending in good times, forward-looking governments may decide not to allow the accumulation of any budgetary surpluses in the first place, preferring to cut taxes instead.\textsuperscript{119} Analogously, governments may cut taxes in good times as a consequence of the pressures by the electorate to benefit from budgetary windfalls.\textsuperscript{120}

### 2.5. Some implications for policy

The arguments that can explain pro-cyclical fiscal policies in good times listed above also indicate possible solutions to address the pro-cyclical bias. These solutions mainly consist of improved institutional settings underpinning national fiscal policy making. Independent forecasting agencies and fiscal councils with an advisory role may be helpful in limiting a possible tendency by governments to inflate the growth forecasts underlying budgetary plans.

The procedures for the approval of the budget could be reformed in such a way to contain the influence of pressure groups on budgetary outcomes. Numerical ceilings on expenditure could prevent excessive spending increases during good times. The accumulation of rainy-day funds and the introduction of rules that define ex-ante the use of the extra revenues accruing to the government during good times could contribute to contain both spending increases and tax cuts in good times. These possible solutions for the issue of pro-cyclical policies are further discussed in section 4 of this part of the report.

\textsuperscript{116} Such findings are reported for instance in Strauch, Hallerberg and Von Hagen (2004), Larch and Salto (2005), Moulin and Wierts (2006).

\textsuperscript{117} Of course, it is not always easy in short time series (such as those of the record of stability and convergence programmes) to distinguish to what extent optimistic growth forecasts are due to a bias by fiscal authorities or to an objective difficulty in predicting growth slowdowns.

\textsuperscript{118} This argument is formalised in Tornell and Lane (1999).

\textsuperscript{119} Argument provided in Talvi and Vegh (2005).

\textsuperscript{120} An argument along this lines is developed theoretically in Alesina and Tabellini (2005).
3. The stance of fiscal policy in EU countries during good and bad times

3.1. Introduction

This section takes a closer look at the behaviour of fiscal policy over the cycle in EU countries in recent decades. The analysis will focus on the reaction of the discretionary component of fiscal policy. Consistently, what will be put in relation to measures of the cycle are budgetary variables net of their cyclical component.

Although the vast majority of existing analyses considers good and bad times as periods in which actual output is, respectively, above or below ex-post measures of potential output, in practice there is less than full agreement among policy makers regarding when fiscal policy should pay greater attention to avoiding a procyclical stance. In light of this consideration, in the following analysis there will an effort to discuss the stance of the fiscal policy in the EU with respect to alternative definitions of good and bad times.

There will also be an attempt to take a step further to disentangle which side of the structural budget, revenues or expenditures, react to cyclical developments, in which way, and for which reasons. As will appear clear in the following analysis (chapter 4 of this part of the report) this distinction is relevant to better understand the implications of national-level rules for fiscal discipline on the output-stabilisation function of fiscal policy.

The analysis covers the period 1980-2005 and in most cases the focus will be on data for euro-area countries. This permits to concentrate the analysis on a relatively homogenous set of countries and to better compare results from those from other existing studies, that are focused on the euro area in most cases.

3.2. Defining good and bad times

3.2.1. In search of an operational definition

In spite of wide consensus in principle against a procyclical stance of fiscal policy, disagreement may occur in practice among experts and policy makers as to when exactly fiscal policy should better be tightened or loosened for stabilisation purposes.

A first key conceptual distinction is whether good and bad times are defined according to the economic cycle or rather as periods where budget balances are, respectively, better and worse than expected. In the first case, the notion of good and bad times is relevant both for the purpose of keeping a fiscal stance consistent with the stabilisation of economic activity and for ensuring the adherence of budgetary results to plans. In the second case, the notion of good and bad times is instead not necessarily strictly linked to the economic cycle. Better (worse) than expected budgetary results could be the outcome of economic activity performing above (below) expectations, but there could be other reasons. There could be unforeseen developments in interest rates that unexpectedly improve budgetary results (see Box IV.1). Alternatively, unexpected changes in the elasticity of revenues with respect to output could take place. This could happen for several reasons. First, a non-negligible share of temporary revenue fluctuations is related to property taxes likely to be affected by swings in real and financial asset prices which may not necessarily follow the same pattern as economic cycles.121 Second, lags in

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121 At the end of the 1990s, the boom in equity and real estate prices increased revenues substantially in a number of developed countries (notably the US, but also several EU countries), while depressed equity markets at the end of 2001 explained, in a symmetrical fashion, part of the abrupt fall in revenues. This may lead to the occurrence of ‘unexpected’ budgetary changes, as discussed for instance
the collection of revenues may uncouple the revenues collected and then budget balances from current output. A further reason is related to changing average tax schedules: as output grows, the link between revenues and budget balances changes since the income of households and corporations move into higher tax brackets. In the remainder of the analysis the focus will be on a definition of good and bad times related to the economic cycle. This is the definition which bears more interest from the viewpoint of the implications of fiscal policy for stabilisation purposes and is the one normally used in existing analyses. However, alternative definitions of good times based on higher than expected revenues or budget balances will also be discussed since this is the notion which is often used in the definition and implementation of national-level fiscal rules aimed at defining ex-ante how fiscal policy should behave in good times.

The major difficulties with the identification of good and bad times are related to the inevitable uncertainty surrounding the cycle.\textsuperscript{123} This uncertainty has two major consequences. First, there is no trivial operational definition of good and bad times. Any operational definition needs to define an indicator (or set of indicators) and a range of values for such indicator corresponding alternatively to good and bad times. However, these are no obvious choices, in light of the fundamental uncertainty underlying the origin of the shocks to economic activity and their magnitude. The output gap is a commonly used indicator to track the cycle.\textsuperscript{123} However, inflation data (for instance, the difference between core inflation and trend core inflation) also enter the assessment of cyclical conditions, and additional leading indicators (e.g., industrial production, energy consumption, real estate and financial asset price indicators, confidence indicators, ...) could be useful especially in the assessment of the presence of a turning point in the cycle. Second, as already pointed out in section 2 of this part of the report, there is an inherent difficulty in forecasting and tracking the cycle in real time.\textsuperscript{124}

The level of the output gap provides information on whether the fiscal stance is likely to reduce or exacerbate any possible deviation of output from its potential level.\textsuperscript{125} The year-on-year change in the output gap is strictly correlated with the difference between actual and potential growth. It is also helpful to analyse whether economic activity is falling below trend (a downturn, characterized by a negative change in the output gap) or growing at rates above trend (an upturn: the output gap is rising). In most analyses, bad times are identified by positive values of the output gap, good times by negative output gap values. However, especially in the context of defining criteria for the conduct of fiscal policy over the cycle, characterised by well-known implementation lags, consideration could be given also to the change in the output gap.

This would help understanding whether fiscal policy would support or offset developments in economic activity already taking place due to the working of the cycle and would also facilitate early action.

Graph IV.2 helps to visualize the issue of the identification of good and bad times. The graph depicts the typical behaviour of actual and potential output over time. Potential output grows following a relatively stable trend, while actual GDP follows a more erratic growth path, broadly centred around that of potential output. Four zones can be identified, depending on whether output is above or below potential and whether it is growing above of below trend. In a first zone (zone A), the output gap is negative and falling; in zone B actual growth is higher than potential (the output gap is rising). However, inflation data (for instance, the difference between core inflation and trend core inflation) also enter the assessment of cyclical conditions, and additional leading indicators (e.g., industrial production, energy consumption, real estate and financial asset price indicators, confidence indicators, ...) could be useful especially in the assessment of the presence of a turning point in the cycle. Second, as already pointed out in section 2 of this part of the report, there is an inherent difficulty in forecasting and tracking the cycle in real time.\textsuperscript{124}
Graph IV.2. Distinguishing phases of the economic cycle on the basis of output gap changes and levels

Source: Commission services.

In most analyses, good (bad) times correspond to periods of positive (negative) output gap, thus being identified by zones C and D (A and B) in Graph IV.2. An alternative could be to identify good times as periods in which the output gap is both positive and rising (area C) and, symmetrically, bad times as periods with negative and falling output gaps (area A). A definition of this type would be more restrictive but would permit to isolate episodes less subject to be followed by a change in the output gap sign: a relevant feature in light of the implementation lags characterizing fiscal policy. Finally, in order to reduce the possibility of wrong real-time assessment of the sign of the output gap a definition could use a different benchmark, by considering for instance good times all periods characterized by positive and sufficiently big output gaps.

3.2.2. Measurement errors

Available studies conclude that revisions between real-time and ex-post output gaps can be substantial and impact therefore policy choices aimed at containing the amplitude of cyclical fluctuations (see section 2).

Table IV.2 reports information on the real-time errors in measuring output gaps in EU countries in the past decade obtained from Forni and Momigliano (2004). The table shows that the mean absolute real-time measurement error was bigger for output gap levels than for output gap changes. This is a regular feature observed also in other contexts. The real-time measurement error in case of output gap levels can be quite sizable: 1.4 percentage points of GDP on average, with 10 percent of cases in the sample with errors above 2.6. The magnitude of these errors is better understood when compared with statistics on the output gap series. The average ex-post output gap in the sample was equal to 0.07, with 80 percent of the values comprised between -2 and 2.3. Figures for one-year-ahead forecast errors are very close to those for real-time errors.

Information on real-time errors suggests that output gap measurement issues could be relevant but does not permit to assess whether real-time estimates or forecasts had any particular bias or whether measurement errors translated into a wrong assessment of the sign of the output gap.

Table IV.2. Errors in assessing output gaps ex-ante. Absolute value of differences between ex-ante and ex-post output gaps. EU-11, 1995-2003

<table>
<thead>
<tr>
<th>Absolute value of errors from real time estimation</th>
<th>Output gap level</th>
<th>Output gap year on year change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>1.4</td>
<td>0.8</td>
</tr>
<tr>
<td>10% percentile</td>
<td>0.3</td>
<td>0.1</td>
</tr>
<tr>
<td>Median</td>
<td>1.3</td>
<td>0.6</td>
</tr>
<tr>
<td>90% percentile</td>
<td>2.6</td>
<td>1.9</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>0.9</td>
<td>0.9</td>
</tr>
</tbody>
</table>


22 However, in the literature both levels and changes are found to assess budgetary behaviour over the cycle. A pioneer use of levels when assessing budgetary behaviours is found in Buti and Sapir (1998). A relevant example of using output gap changes is Fatas et al. (2003).

27 The Forni and Momigliano (2004) dataset on real-time output gaps is one of the most comprehensive for the EU. It covers the 1995-2003 period and the original source is OECD. Lorenzo Forni and Sandro Momigliano have kindly supplied their data for the analysis in this report and have given useful comments and suggestions. Their contribution is gratefully acknowledged.

128 To a very close approximation, the change in the output gap is equal to the difference between actual and potential growth. It is well known that, irrespective of the method used for computing potential output, there is less uncertainty on potential output growth rates than on levels.

129 Forni and Momigliano contains information also on one-year-ahead forecast output gaps. Forecast output gaps appear to be highly correlated to real-time output gaps (correlation coefficient 0.8). The size and distribution of forecast errors is thus similar to that of real-time errors.
As pointed out previously, an operational definition of good and bad times could adopt a more stringent benchmark to reduce the possibility of wrong real-time assessment of the sign of the output gap. Good times could be identified by a sufficiently positive output gap; bad times by a sufficiently negative output gap. On the basis of past values of ex-post and real-time output gap estimations, Table IV.4 permits to assess to what extent this could actually reduce the probability of wrong measurement of the output gap sign. Overall, there is an indication that a wrong assessment of the sign of the output gap due to real-time errors is less frequent the further away from zero is the estimate of the output gap. Of course, the choice of a more stringent benchmark value for the output gap for the identification of good and bad times implies a risk of restricting the attention especially to periods close to a turning point in the cycle. For instance, a very negative value for the output gap is likely to be observed when the cycle is close to its trough, and to be followed by growth above trend. In light of the long fiscal policy implementation lags, a loosening of the fiscal stance when the cycle is close to its peak may translate into a pro-cyclical expansion when the output gap turns positive again. To avoid this issue, data on output gap changes need to be evaluated in conjunction with output gap levels.

Table IV.4. Probability of a wrong real-time assessment of the output gap sign

<table>
<thead>
<tr>
<th>Real-time output gap value</th>
<th>Probability of error (%)</th>
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<tr>
<td>&gt;0.5</td>
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</tr>
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</tr>
<tr>
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<td>0.0</td>
</tr>
<tr>
<td>&lt;0.5</td>
<td>21.2</td>
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<tr>
<td>&lt;-1</td>
<td>14.1</td>
</tr>
<tr>
<td>&lt;-1.5</td>
<td>9.0</td>
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</table>


Part IV: Fiscal policy in good times

Box IV.1. Interest rate developments and the fiscal stance. Are "interest rate good times" coming to an end?

This box discusses the relation between the fiscal stance in EU countries since the early '90s and an alternative definition of good times, i.e., one defined in terms of the occurrence of budgetary windfalls associated with interest rate reductions. Overall, the reduction in interest expenditure that took place in the past decade as a result of a prolonged and continuous decline in nominal interest rates facilitated fiscal adjustment in most Member States. However, the relation between reduction in interest expenditure and the stance of fiscal policy in EU countries was considerably different before and after the completion of EMU.

(i) 1992-1998: Using "good times" to speed up deficit reduction

During the period between the signing of the Maastricht Treaty and the completion of EMU, most EU countries embarked into a process of consolidation of their public finances. In Italy and Portugal, almost 5 percentage points of the improvement in nominal balances (and cyclically adjusted balances) was due to the reduction in interest rate expenditure to GDP ratio. Ireland and Belgium also benefited considerably from lower interest rate expenditure in that period. In all countries (except Portugal and Austria), the decline in interest rate expenditure was compounded with an improvement in the cyclically adjusted primary balances, leading to a rapid improvement in the nominal budget balances. The lack of a strong correlation between savings on interest expenditure and changes in the CAPB in the run-up to EMU (Graph IV.3a) can be interpreted as an indication that the fiscal challenge to meet the Maastricht criteria provided incentives to fully use the windfall expenditure savings related to the reduction in interest expenditures to speed up deficit reduction. There was no systematic redirection of savings in interest expenditure to other expenditure categories or tax reductions.

Graph IV.3. Correlation interest expenditure ratio and CAPBs

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<th></th>
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<tbody>
<tr>
<td><img src="image" alt="Graph a)" /></td>
<td><img src="image" alt="Graph b)" /></td>
</tr>
</tbody>
</table>

Note: Excluding Luxemburg and Spain (data deficiency)

Source: Commission services.

(ii) 1999-2005: Dissipating interest rate windfalls

During the period 1999-2005 the consolidation process stopped and budgetary developments took an opposite direction: deteriorations in the CAPB were widespread. Graph IV.3b shows that the deterioration in CAPBs were larger in countries which saved more on interest expenditures. This suggests that in this period interest windfalls were not used to speed up the adjustment towards safe medium-term budgetary positions but were rather spent or translated into tax cuts.

Some policy lessons

The improvement of deficit positions in most EU countries in the past decade does not always closely reflect the effort of fiscal authorities. While during the run-up to EMU "interest rate good times" were used to speed up the consolidation process, after 1998 the budgetary windfall arising from falling interest expenditures was spent or used to finance tax cuts. In perspective, increased focus on the development of the CAPB in addition to the CAB and nominal budget balances could improve the assessment of fiscal consolidation efforts and its effect on debt dynamics.

After an almost uninterrupted 15-year period, the good times in terms of declining interest rates on government debt seem to be over. This implies that a given improvement in structural budgetary positions will on average require a stronger effort in the future compared with the past decade. Some reversal of past interest rate developments would be a challenge for fiscal consolidation and would put upward pressure on debt/GDP ratios if it were not matched by improving primary balances.
3.3. The fiscal policy stance in good and bad times: a close look at the EU

The aim in this section is to analyse how the fiscal stance in EU countries related to the cycle in the past decades. Compared with existing work, the analysis aims at taking a step forward in several respects. First, alternative definitions of good and bad times will be considered. Following the discussion in the previous section, the baseline definition of good and bad times based on output being above or below potential will be complemented with an alternative definition based on the change in the output gap (downturns vs. upturns). Moreover, the analysis will focus on the behaviour of year-on-year changes in the cyclically-adjusted primary balance (CAPB) as a measure of the fiscal stance, but there will also be a separate analysis on cyclically adjusted revenues and cyclically-adjusted primary expenditures. Finally, it will be analysed whether the difference between the ex-ante and ex-post estimation of output gaps associated with real-time measurement errors matters for the behaviour of the fiscal stance over the cycle.

The analysis will mainly focus on euro-area countries (except Luxembourg) over the 1980-2005 period. This set of countries will be referred to, interchangeably as EU-11 or euro area in the remainder of the analysis. This data set permits to observe relatively homogenous countries over a representative time period. The source of public finance and output gap data is the AMECO countries over a representative time period. The source data set permits to observe relatively homogenous countries over a representative time period.

3.3.1. Basic evidence

A pro-cyclical (counter-cyclical) fiscal stance in good times would be characterized by a reduction (increase) in the CAPB, interpreted as a measure of the discretionary fiscal loosening (tightening). Each point in Graph IV.4 represents the situation of a particular country in a particular year in the CAPB change/output gap space. Observations falling in the top-right and in the bottom-left quadrant are interpreted as cases of pro-cyclical policy; in the top-left quadrant are found pro-cyclical episodes in bad times while cases of counter-cyclical policy in good times are in the bottom-right quadrant. The graph shows that the frequency of procyclical episodes does not seem to be very different from that of counter-cyclical ones. There is neither a very evident difference between the frequency of procyclical episodes in good and bad times. The regression line fitting the cloud of points in Graph IV.4, does not exhibit a high explanatory power, as evidenced by the value of the R square statistics. The linear coefficient linking the change in the CAPB with the output gap represents the response of the fiscal stance to the cycle. The estimated response appears to be on average negative but weakly so. This somehow contrasts with the more clear-cut evidence of pro-cyclicity emerging from aggregate euro-area data, reported in Graph IV.1, the explanation being that big euro-area countries run in general a more pro-cyclical fiscal stance during the past decade. Overall, this prima-facie evidence confirms the findings presented in most existing analyses: although there is an overall indication of pro-cyclicity, the relation between measures of the fiscal stance and the output gap across euro-area countries is not a strong one.


Synthetic information on the relation between the fiscal stance and cyclical conditions can be obtained by comparing the average change in the CAPB across the sample when the output gap is negative and when it is positive. Graph IV.5 performs this comparison for a sample with all EU-25 countries, euro-area countries only, and EU-10 countries only. The graph indicates on average a slight relaxation of the fiscal stance in good times and a tightening in bad times for the EU-25 sample, an indication of pro-cyclical behaviour both in periods when output is above and below potential. An analogous and more clear-cut picture emerges for euro-

131 The exclusion of Luxemburg is due to shorter available output gap time series. For this country there is also lack of data on trade weights necessary to construct the measure for the representative foreign output gap used to instrument the output gap variable in the econometric estimation of fiscal reaction functions.

132 This reduces to some extent the length of the time series for some countries (Greece, Spain, Ireland) for which data for the early 80s are available only in ESA79 accounting standards.

133 Strictly-speaking, the variation in the y-o-y change in the CAPB associated with a unit change in the output gap.

Part IV: Fiscal policy in good times
area countries, while for the EU-10 (i.e., the Member States of recent accession), the stance appears to be on average expansionary, especially in bad times.\footnote{This evidence contrasts somehow that provided in Coricelli and Ercolani (2002), which covers a subset of CEEC countries over the 1991-2000 period and used a different methodology for correcting budget balances for the cycle.}

This evidence seems to suggest that the pattern observed for euro-area countries is not exactly the same as that in New Member States. However, such conclusion needs to be qualified in several respects. First, the comparison is not fully homogenous, being the available sample of data on output gaps and cyclically-adjusted budgetary figures for EU-10 countries much shorter (the most recent information on these variables is for 1995). Second, the analysis does not permit to distinguish whether the the average change in the CAPB is due to isolated episodes of very big expansions or contractions or whether instead it is the result of recurrent behaviour. In order to disentangle these two aspects, Graph IV.6 reports the frequency of cases of pro and counter-cyclical fiscal policy in good and bad times for the same country sample as in Graph IV.5. The Graph shows that in general the frequency of pro and counter-cyclical episodes is roughly equal for EU-25 and EU-10, but confirms the result that in the euro area there was a prevalence of pro-cyclical policies in recent decades (see survey of previous findings in section 2). Indications of pro-cyclical behaviour both in good and bad times on average for euro-area countries are also found by defining good and bad times in terms of upturns and downturns, i.e., periods where the output gap improves or worsens (see Graph IV.10 below).

Graph IV.5. Fiscal stance in good and bad times (EU-25, EU-11, EU-10, 1980-2005)

A different question is whether the behaviour of fiscal authorities in euro-area countries was broadly the same over the years or whether there were evident changes. With a view to address this question Graph IV.7 and Graph IV.8 repeat the same type of analysis as in Graph IV.5 and Graph IV.6 but distinguishing this time the euro-area sample in different sub-periods.

Graph IV.6. Frequency of episodes of pro and counter-cyclical in good and bad times (EU25, EU11, EU10)

The sub-periods have been chosen in such a way to reflect the main developments in the EU fiscal framework. The first sub-period (1980-1991) includes the years preceding the Maastricht Treaty. The second sub-period (1992-1998) corresponds with the run-up to EMU.

Graph IV.7. Fiscal stance in good and bad times (EU11, 1980-2005, different sub-periods)

Finally, the third sub-period includes the years following the introduction of the euro and the SGP (1999-2005).

The data reveal that over time there has been a substantial change in the stance taken by fiscal authorities. The ‘80s were years in which most countries inverted the tendency for budget deficits to grow started in the ‘70s and where several countries undertook ambitious consolidation programmes to stabilise debt. This translated into a seemingly a-cyclical stance in good times and into apparently frequent cases of pro-cyclical fiscal policy in bad times. The run-up to EMU coincided with a tight fiscal stance irrespective of the cyclical position, so that pro-cyclicality concerned mostly bad times. A different picture emerges after the introduction of the euro. These years are characterised
by a generalised loosening of the fiscal stance with the result that pro-cyclical behaviour seems to pertain mostly to good times, as evidenced in previous analyses.\(^{135}\)

3.3.2. The cyclical behaviour of revenues and expenditures

To what extent were the episodes of pro-cyclical fiscal policy related to the behaviour of revenues and to what extent were they instead caused by expenditures? Graph IV.9 displays separately the average change in cyclically adjusted revenues and in primary cyclically-adjusted expenditures when output was alternatively positive or negative.\(^{136}\) The Graph shows that while expenditures were strongly raised in good times and reduced in bad times (thus behaving pro-cyclically both in good and bad times), the behaviour of revenues was not significantly different in periods of positive or negative output gaps.

<table>
<thead>
<tr>
<th>Graph IV.9. Change in the primary cyclically-adjusted budget balances and its components in good and bad times (EU11, 1980-2005)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Graph" /></td>
</tr>
<tr>
<td>Source: Commission services.</td>
</tr>
</tbody>
</table>

Conversely, results appear radically different using this notion of good and bad times for revenues and expenditures. In this case, the behaviour of expenditures seems almost unaffected by whether the economy is in an upturn or in a downturn, while revenues generally fall slightly in upturns and rise strongly in downturns.

<table>
<thead>
<tr>
<th>Graph IV.10. Change in the primary cyclically-adjusted budget balances and its components in upturns and downturns (EU11, 1980-2005)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Graph" /></td>
</tr>
<tr>
<td>Source: Commission services.</td>
</tr>
</tbody>
</table>

A better understanding of the previous results requires controlling for the main factors that could have affected the fiscal stance. Without controlling for other factors, the change in the CAPB provides a description of the fiscal stance, but is not sufficient to infer conclusions on which reasons underlie the observed behaviour of fiscal policy.

In such an attempt, the econometric estimation of fiscal reaction functions is helpful in isolating the impact of factors that have normally an influence on the stance of fiscal policy. Estimating separately fiscal reaction in periods of good and bad times permits to evaluate how these factors played differently over the cycle.

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135 E.g., IMF (2004).

136 Although a higher number of observations are available for revenues than for CAPBs and expenditures (due to missing observations on interest expenditures), the sample underlying the analysis presented in Graphs IV.8 and IV.9 keeps the same sample in case of CAPBs revenues and expenditures to improve comparability.
Table IV.5 a) presents the results from the estimation of fiscal reaction functions distinguishing good and bad times defined, alternatively, as periods of output above or below potential or periods exhibiting a rising or falling output gap (growth above or below trend). The sample is EU-11 over the 1980-2005 period. The dependent variable is the year-on-year change in the CAPB.\(^{137}\)

The explanatory variables are the lagged CAPB, the lagged debt, the output gap, and two dummy variables, taking value 1, respectively, after 1992 and after 1999. The CAPB and the debt level capture the fiscal stabilisation motive of fiscal authorities. The improvement in the CAPB is expected to be stronger the lower the starting level of the CAPB and the higher the debt (negative and positive expected sign expected, respectively, for these two variables). The output gap captures the output stabilisation motive. If fiscal authorities aim at stabilising economic activity, a rising output gap is expected to trigger a tightening in the fiscal stance (positive expected sign).\(^{138}\) Finally, the two dummy variables are aimed at capturing possible behavioural changes occurred in correspondence with, respectively, the signing of the Maastricht Treaty (1992) and the completion of the EMU project (1999). The constant term captures the portion of the fiscal stance not explained by the chosen explanatory variables. By performing separate regressions for bad and good times, looking at the constant coefficient permits to test for a pro-cyclical bias in good times. A pro-cyclical bias would be reflected into a smaller constant term in good times in the regressions for the change in the CAPB and the change in non-cyclical revenues, while a pro-cyclical bias acting on the expenditure side would translate into a higher coefficient in good times.

Results show that the coefficients of CAPB and debt levels have the expected sign, are significant, and have about the same value in good and bad times, however measured (Table IV.5 a)). The coefficient for the output gap is not significantly different from zero, and has roughly the same value irrespective of cyclical conditions (good or bad times). Looking at the constant term, there is evidence of a pro-cyclical bias in good times. The estimated constant term in the equation indicates, ceteris paribus, a looser fiscal stance in good times. This difference is large and statistically significant when the good times are measured in terms of the level of the output gap, but the same qualitative results are obtained by measuring good times in terms of an upturn in economic activity. Overall, the prima-facie evidence emerging from Graph IV.9 and Graph IV.10 is confirmed.

Table IV.5 b) repeats the same exercise using cyclically-adjusted revenues as dependent variable. The explanatory variables are the same as those used for the CAPB, with the exception that the starting level of the CAPB is replaced by that of revenues. This variable captures the objective of restructuring the revenue side of the budget: revenues are more likely to be cut (increased) the higher (lower) the starting revenue/GDP ratio. Results indicate that this coefficient was more strongly negative in good times, meaning that during periods of output above potential or upturns revenue restructuring was stronger. Looking at the constant term of the regressions, there are no strong signs of pro-cyclical bias.\(^{139}\)

The analysis on expenditures is reported in Table IV.5 c). There is evidence that structural measures on the expenditure side were mainly taken during good times, as evidenced by a larger negative coefficient for the expenditure and the debt variables. It was during good times that expenditure cuts with the aim of containing the growth of the public sector and stabilising the debt took place more intensely. The constant terms gives a clear indication of pro-cyclical bias. So, also controlling for the main determinants of expenditure policy there is evidence that expenditure growth is stronger in good times. Among the possible explanations, as discussed previously, there could be the strong pressures to spend the budgetary windfall gains accruing in good times.

A further reason could be identification and implementation lags in expenditure. Expenditures are planned on the basis of the expected growth of GDP. Since GDP forecasts are to some extent affected by past GDP growth developments, the share of expenditure on GDP is likely to be higher when the output gap is positive (i.e., after periods of growth above trend).\(^{140}\) Finally, there could be errors in estimating output gaps in real-time, an issue that is investigated in the following section.

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\(^{137}\) In analogy, for instance, with Forni and Momigliano (2004).

\(^{138}\) To address the endogeneity problem, the output gap variable has been instrumented with its own lag and the lag of a measure of foreign output gap constructed, for each country, on the basis of export shares towards the biggest three export markets.

\(^{139}\) This contrasts somehow with the descriptive prima-facie evidence in Graph IV.10. The results from the estimation of the fiscal reaction function suggest that the fact that revenues grow slower in upturns is probably not related to a pro-cyclical bias but rather to the fact that during upturns took place more intensively tax cuts aimed at reducing the tax burden.

\(^{140}\) The evidence reported in Strauch et al. (2004) on the recent EU experience seems consistent. GDP and budgetary forecasts reported in stability and convergence programmes tended to be more optimistic the higher the output gap at the time of forecast.
Table IV.5: The fiscal stance over the cycle: evidence from the estimation of fiscal reaction functions:


<table>
<thead>
<tr>
<th>Explanatory variables</th>
<th>Output below potential (OG&lt;0)</th>
<th>Output above potential (OG&gt;=0)</th>
<th>Downturn (ΔOG&lt;0)</th>
<th>Upturn (ΔOG&gt;=0)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>a) Dependent variable: Δ primary CAB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-0.356</td>
<td>-2.869***</td>
<td>-0.811</td>
<td>-1.427***</td>
</tr>
<tr>
<td></td>
<td>(0.59)</td>
<td>(0.81)</td>
<td>(0.52)</td>
<td>(0.60)</td>
</tr>
<tr>
<td>Lagged CAPB</td>
<td>-0.300***</td>
<td>-0.376***</td>
<td>-0.277***</td>
<td>-0.234***</td>
</tr>
<tr>
<td></td>
<td>(0.05)</td>
<td>(0.07)</td>
<td>(0.06)</td>
<td>(0.05)</td>
</tr>
<tr>
<td>Lagged debt/GDP ratio</td>
<td>0.023**</td>
<td>0.037**</td>
<td>0.027**</td>
<td>0.024**</td>
</tr>
<tr>
<td></td>
<td>(0.009)</td>
<td>(0.01)</td>
<td>(0.009)</td>
<td>(0.009)</td>
</tr>
<tr>
<td>Output gap</td>
<td>0.115</td>
<td>0.241</td>
<td>-0.065</td>
<td>-0.010</td>
</tr>
<tr>
<td></td>
<td>(0.13)</td>
<td>(0.21)</td>
<td>(0.07)</td>
<td>(0.06)</td>
</tr>
<tr>
<td>Dummy 1992</td>
<td>-0.148</td>
<td>0.992**</td>
<td>-0.137</td>
<td>0.263</td>
</tr>
<tr>
<td></td>
<td>(0.30)</td>
<td>(0.44)</td>
<td>(0.37)</td>
<td>(0.30)</td>
</tr>
<tr>
<td>Dummy 1999</td>
<td>-0.698**</td>
<td>-0.454</td>
<td>-0.523</td>
<td>-0.287</td>
</tr>
<tr>
<td></td>
<td>(0.32)</td>
<td>(0.41)</td>
<td>(0.34)</td>
<td>(0.33)</td>
</tr>
<tr>
<td>N. obs.</td>
<td>149</td>
<td>102</td>
<td>122</td>
<td>129</td>
</tr>
<tr>
<td>R sq. within</td>
<td>0.24</td>
<td>0.21</td>
<td>0.25</td>
<td>0.16</td>
</tr>
<tr>
<td>R sq. between</td>
<td>0.48</td>
<td>0.01</td>
<td>0.68</td>
<td>0.06</td>
</tr>
<tr>
<td>R sq. overall</td>
<td>0.19</td>
<td>0.06</td>
<td>0.21</td>
<td>0.05</td>
</tr>
<tr>
<td>b) Dependent variable: Δ cyclically-adjusted revenues</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>6.03***</td>
<td>4.876**</td>
<td>4.232**</td>
<td>6.395***</td>
</tr>
<tr>
<td></td>
<td>(1.47)</td>
<td>(2.06)</td>
<td>(1.36)</td>
<td>(1.68)</td>
</tr>
<tr>
<td>Lagged cyclically-adjusted revenues</td>
<td>-0.116***</td>
<td>-0.144**</td>
<td>-0.079***</td>
<td>-0.174***</td>
</tr>
<tr>
<td></td>
<td>(0.03)</td>
<td>(0.05)</td>
<td>(0.03)</td>
<td>(0.04)</td>
</tr>
<tr>
<td>Lagged debt/GDP ratio</td>
<td>0.001</td>
<td>0.008</td>
<td>0.003</td>
<td>0.019**</td>
</tr>
<tr>
<td></td>
<td>(0.008)</td>
<td>(0.01)</td>
<td>(0.007)</td>
<td>(0.009)</td>
</tr>
<tr>
<td>Output gap</td>
<td>0.260**</td>
<td>0.515**</td>
<td>0.136**</td>
<td>0.033</td>
</tr>
<tr>
<td></td>
<td>(0.11)</td>
<td>(0.20)</td>
<td>(0.05)</td>
<td>(0.05)</td>
</tr>
<tr>
<td>Dummy 1992</td>
<td>-0.121</td>
<td>0.652</td>
<td>-0.107</td>
<td>0.059</td>
</tr>
<tr>
<td></td>
<td>(0.25)</td>
<td>(0.40)</td>
<td>(0.26)</td>
<td>(0.25)</td>
</tr>
<tr>
<td>Dummy 1999</td>
<td>-0.516</td>
<td>-0.463</td>
<td>-0.900***</td>
<td>0.106</td>
</tr>
<tr>
<td></td>
<td>(0.28)</td>
<td>(0.38)</td>
<td>(0.25)</td>
<td>(0.28)</td>
</tr>
<tr>
<td>N. obs.</td>
<td>149</td>
<td>102</td>
<td>122</td>
<td>129</td>
</tr>
<tr>
<td>R sq. within</td>
<td>0.07</td>
<td>0.003</td>
<td>0.25</td>
<td>0.12</td>
</tr>
<tr>
<td>R sq. between</td>
<td>0.00</td>
<td>0.12</td>
<td>0.23</td>
<td>0.005</td>
</tr>
<tr>
<td>R sq. overall</td>
<td>0.05</td>
<td>0.07</td>
<td>0.21</td>
<td>0.02</td>
</tr>
<tr>
<td>c) Dependent variable: Δ cyclically-adjusted primary expenditure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>2.805**</td>
<td>6.517***</td>
<td>2.446*</td>
<td>5.064***</td>
</tr>
<tr>
<td></td>
<td>(1.28)</td>
<td>(1.72)</td>
<td>(1.42)</td>
<td>(1.47)</td>
</tr>
<tr>
<td>Lagged cyclically-adjusted primary expenditures</td>
<td>-0.033</td>
<td>-0.128***</td>
<td>-0.027</td>
<td>-0.102***</td>
</tr>
<tr>
<td></td>
<td>(0.03)</td>
<td>(0.04)</td>
<td>(0.03)</td>
<td>(0.03)</td>
</tr>
<tr>
<td>Lagged debt/GDP ratio</td>
<td>-0.019**</td>
<td>-0.016**</td>
<td>-0.016**</td>
<td>-0.008</td>
</tr>
<tr>
<td></td>
<td>(0.008)</td>
<td>(0.007)</td>
<td>(0.007)</td>
<td>(0.008)</td>
</tr>
<tr>
<td>Output gap</td>
<td>0.136</td>
<td>0.197</td>
<td>0.198***</td>
<td>0.052</td>
</tr>
<tr>
<td></td>
<td>(0.11)</td>
<td>(0.168)</td>
<td>(0.05)</td>
<td>(0.05)</td>
</tr>
<tr>
<td>Dummy 1992</td>
<td>0.135</td>
<td>-0.197</td>
<td>0.231</td>
<td>-0.149</td>
</tr>
<tr>
<td></td>
<td>(0.25)</td>
<td>(0.33)</td>
<td>(0.29)</td>
<td>(0.25)</td>
</tr>
<tr>
<td>Dummy 1999</td>
<td>0.267</td>
<td>0.116</td>
<td>-0.283</td>
<td>0.383</td>
</tr>
<tr>
<td></td>
<td>(0.269)</td>
<td>(0.31)</td>
<td>(0.27)</td>
<td>(0.27)</td>
</tr>
<tr>
<td>N. obs.</td>
<td>149</td>
<td>102</td>
<td>122</td>
<td>129</td>
</tr>
<tr>
<td>R sq. within</td>
<td>0.12</td>
<td>0.27</td>
<td>0.14</td>
<td>0.15</td>
</tr>
<tr>
<td>R sq. between</td>
<td>0.009</td>
<td>0.04</td>
<td>0.03</td>
<td>0.08</td>
</tr>
<tr>
<td>R sq. overall</td>
<td>0.07</td>
<td>0.12</td>
<td>0.07</td>
<td>0.13</td>
</tr>
</tbody>
</table>

Source:: elaborations on data contained in DG ECFIN AMECO database.

Notes: Estimations method: fixed effects, instrumental variables regression. The output gap is instrumented with its own lag and a lagged indicator of foreign output gap. The foreign output gap indicator is the export-weighted output gap of the 3 major export markets of each country. All fiscal variables are expressed as shares on potential output. Coefficient standard errors are reported in parentheses. *, **, and *** denote, respectively, significance at the 10, 5 and 1 percent level. Coefficients in bold are statistically different between good and bad times at the 10 percent level. Coefficients for country fixed effects are not reported.
3.3.3. Ex-ante vs. ex-post assessment of the cycle

As discussed in section 2, an explanation for the observed pro-cyclical behaviour of fiscal authorities could be errors in measuring the cycle. According to this explanation pro-cyclical policies could be attributed to real-time measurement errors in making Graph IV.11 and IV.12. The first graph presents the average change in CAPBs, cyclically adjusted revenues and primary cyclically-adjusted expenditures when output was above or below potential using both ex-post and real time data. The graph shows that, according to a real-time assessment of the cycle, the average fiscal stance was more pro-cyclical in good times compared with that assessed using ex-post data, while the opposite was true in bad times. The result is mostly explained by the behaviour of revenues: revenues fall much more in real-time good times than in ex-post good times, while they grow less in real-time bad times.

Graph IV.12 reports the frequency of episodes of pro-cyclical and counter-cyclical policies with output gaps estimated both ex-post and in real time. Consistently with the evidence presented in Graph IV.11, using real-time data pro-cyclical policies were slightly more frequent in good times and clearly less frequent in bad times.

In summary, the evidence seems to suggest that measurement errors could be an explanation to some unintentional pro-cyclical episodes that took place in bad times, while this does not seem to be the case for pro-cyclical behaviour in good times.

Although these results need to be interpreted with care, given the relatively short sample of real-time output gaps, several interesting questions emerge.

First, the results seem to indicate that a correct understanding of the current cyclical conditions do not necessarily make pro-cyclical revenue policies less likely.

A possible explanation can be as follows. The episodes that are classified as good times in real time are most probably those associated with a largely positive ex-post output gap (assessing wrongly the cycle is more likely when output is close to potential). If the fiscal stance is more strongly pro-cyclical when the output gap is large, there could be stronger indications of pro-cyclical policies in good times when using real-time series. The histogram in Graph IV.13 provides information that corroborates this hypothesis. It reports the average change in the CAPB observed in correspondence with different ranges for the output gap. It is confirmed that

\[141\] The sample on real-time output gap estimates is the one in Forni and Momigliano (2004). The sample underlying the analysis in Graph IV.11 and IV.12 includes EU-11 countries over the period 1995-2003 both in case of ex-post and real time output gap estimates to permit comparability.

\[142\] Overall, this result confirms the findings in Forni and Momigliano (2004) who estimate the reaction of the fiscal stance to the output gap controlling for other factors through the econometric estimation of fiscal reaction functions.
that in cases of large positive output gaps the stance of the fiscal policy tended to be characterized by strong loosening.  

Graph IV.13. Fiscal stance in correspondence with different levels of the output gap (EU11, 1980-2005)

Source: Commission services.

3.4. Summary of findings

Overall, the preceding analysis confirms the broad outcome of preceding studies aimed at gauging whether in past decades fiscal policy in the EU took a stance consistent with the prevailing cyclical conditions. Although the relation between the fiscal stance and the output gap is in general rather weak, there are indications of frequent pro-cyclical behaviour for euro-area countries. While the need to maintain public finances under control and measurement errors could explain pro-cyclical policies in bad times, the reasons for fiscal loosening in good times need to be found elsewhere: identification and implementation lags and lack of control of the budget in periods when pressures for increased spending or tax cuts become stronger.

The analysis in the previous sections allows making some progress in the understanding of the features of pro-cyclical fiscal policy episodes in the euro area, which can be summarised as follows.

- Achieving a consistent conduct of fiscal policy over the cycle is subject to difficulties related with the identification of good and bad times. The output gap is a useful tool for measuring the cycle, but a mechanic definition of good and bad times based on the sign of the output gap does not seem advisable. The difference between actual and potential growth (equivalently, the year-on-year change in the output gap) should be considered together with the output gap level to permit an early assessment of cyclical developments.

- Output gap measurement errors can be considerable. The data show that in the past decade real-time output gap estimates were generally biased downward, possibly as a result of overestimation of potential output stemming from optimistic growth forecasts. Measurement errors have led to a mistaken assessment of the output gap sign in about 1/3 of the cases. The probability of such mistakes could be considerably reduced by adopting a notion of good and bad times which would consider not only the output gap in level but also it change and based on the output gap being sufficiently positive (good times) or negative (bad times).

- The fiscal stance in the euro area since the ‘80s seems to exhibit on average a moderate pro-cyclical stance both in good and bad times, defined irrespectively on the basis of the output gap levels or changes. The stance of the fiscal policy, however, was quite different depending on the specific time periods considered. While during the ‘80s and the run-up to EMU pro-cyclical policies were mainly enacted in periods where output was below potential, pro-cyclical policies in good times characterize the year following the completion of EMU.

- Evidence of a pro-cyclical bias in good times is there also after controlling for the main factors that influence the fiscal stance. The evidence is particularly strong for good times defined as periods with output above potential but analogous qualitative results are obtained also defining good times as upturns, i.e., periods with a positive change in the output gap. The pro-cyclical bias is mostly explained by faster expenditure growth in good times. Possible explanations are identifications and implementation lags in setting government expenditures or pressures to spend windfall budgetary gains accruing in good times.

- While real-time measurement errors can explain to some extent pro-cyclical behaviour of fiscal policy in bad times, this does not seem the case for good times. Fiscal loosening during periods with output above potential appears to be more frequent when measuring output gaps with real-time data. These findings relate to another relevant piece of evidence: the fiscal stance was more markedly pro-cyclical in good times when output gaps were very large.

143 Graph IV.11 also shows that, symmetrically, strong consolidations seem on average to characterize periods with largely negative output gaps. A tentative interpretation of these findings can be as follows. It is when the output gaps are very large that the pressures to increase expenditure or cut taxes become stronger, while it is after protracted periods of depressed economic activity that the deterioration in the budget balance can become so large to require a strong correction.
4. National rules and institutions to prevent procyclical policies in good times

4.1. Introduction

The main message from the previous sections is that pro-cyclical policies are far from being an exception in the EU. While the origins of pro-cyclical policies in bad times can be generally related to the need to keep public finances under control, the explanations for procyclicality in good times is less obvious. The main explanations are identification and implementation lags and "political economy" arguments linked to the pressures for increasing spending and cutting taxes when government resources become abundant. This explanation has implications for an adequate response to avoid pro-cyclical behaviour in good times: governments could strengthen the instruments (rules, procedures, institutions) that permit to improve the formation, execution and control of their budgets.

This section first discusses how numerical fiscal rules at state level relate (deficit and debt rules, revenues rules, expenditure rules) to the cyclical behaviour of fiscal policy and which characteristics of such rules can prevent or facilitate pro-cyclical behaviour. National experiences aimed at dealing explicitly with procyclicality in good times are reviewed. The role of fiscal councils in improving the ability of governments to effectively put in place counter-cyclical policies is discussed. In a second step, building on a new dataset on numerical fiscal rules at state level, there will be an attempt to measure how different types of fiscal rules relate to the stance of fiscal policy over the cycle in EU countries.

4.2. Fiscal rules

As illustrated in Part III of this report, the principal objective of national-level numerical fiscal rules is to limit the deficit bias by re-addressing the balance between discretionary and rules-based behaviour in fiscal policy making. As pointed out in this part of the report, there is evidence supporting the view that numerical fiscal rules at national level, however defined, can be effective on outcomes: other things being equal, deficits tend to be lower in countries and periods characterised by stronger fiscal rules. The link between numerical fiscal rules and the cyclicality of public finances is necessarily more complex. Being containing deficits the main objective of fiscal rules, one may expect that such rules may clash with counter-cyclical behaviour in bad times.

A more thorough analysis shows that this expectation is not strongly supported by the facts. As will be clear from the following discussion, the impact of fiscal rules on cyclicality depends upon whether the rules apply to deficits or debt or rather to one side only of the budget (expenditure or revenues) and on the specific design of the rule. Moreover, the contemporaneous presence of several type of rules would also matter for the impact on the cyclical behaviour of fiscal policy. Appropriately designed fiscal rules on deficits or debt complemented by expenditure rules may help to reduce pro-cyclical in good times without necessarily inducing a procyclical behaviour in bad times.

4.2.1. Budget balance and debt rules

It is often held the view that rules that fix ceilings on deficits or on the amount of borrowing may introduce a constraint to the counter-cyclical use of fiscal policy in bad times. While the argument is quite straightforward in theory (the respect of numerical deficit results may require a correction when budgetary slippages are related with a worsening cyclical components in the budget), the evidence on their effect on the cyclicality of fiscal policy is not clear cut.

Most of the empirical work aimed at assessing the impact of deficit and debt rules on the response of the fiscal stance to the cycle focus on the EU fiscal framework. As highlighted in section 2, the available
studies based on the estimation of fiscal reaction functions conclude that, accounting for the most relevant factors that affect the fiscal stance, the introduction of the EU fiscal framework did not lead to a more pro-cyclical response of fiscal policy to cyclical conditions. Conversely, there is evidence that the response of the fiscal stance to the output gap turned from slightly pro-cyclical to broadly a-cyclical after the EU fiscal framework.\footnote{144} Even more to the point, the evidence provided in section 3 of this part of the report (Graph IV.8) shows that the frequency of pro-cyclical episodes in bad times in euro-area countries dropped after the introduction of the SGP compared with previous periods. Evidence over a large sample of EU and non EU countries go in the same direction. Manasse (2006) finds that countries where fiscal rules were in force exhibit on average a less pro-cyclical behaviour of fiscal policy.\footnote{145}

A more differentiated picture emerges from the analyses that focus on borrowing constraints acting at lower levels of government. Most of the research concerns the impact of state-level borrowing constraints in the US on the cyclical behaviour of state-level budgets. While some studies do not find a significant impact, other analyses show that stricter borrowing constraints are associated with a less counter-cyclical response of local budgets to cyclical conditions.\footnote{146} In general, there are indications that budget balances at lower level of government exhibit a less counter-cyclical behaviour compared with the general government budget balance.\footnote{147}

Overall, although the available studies do not support the view that budget balance or debt rules had a strong pro-cyclical impact, it would be simplistic to fully reject the issue of a possible pro-cyclical bias in good times introduced by budget balance rules on the basis of this evidence. These results need to be interpreted with care, given the major difficulty of controlling for all the factors that could drive the fiscal stance and of the issue of measuring the different degree of enforcement of the rules (countries with badly enforced rules may exhibit big budgetary loosening in bad times).

It needs also to be remarked that the design of budget balance rules can be such that to limit or minimise the possible pro-cyclical bias induced by the rule. First, budgetary targets could be specified in cyclically adjusted terms in order to permit the operation of automatic stabilisers. In spite of the known difficulties and uncertainties with the computation of cyclically-adjusted budget balances, deducting even indicative estimates of the cyclical component of budgets from budgetary targets could introduce some leeway in the implementation of deficit rules and contribute to ease the risk of pro-cyclical bias. Second, budget balance rules could apply over medium-term time horizons rather than on an annual basis, in such a way to allow some degree of variation in budgets according to cyclical patterns. The evidence of a potentially more pro-cyclical impact of budget balance and debt rules applied at lower levels of government could be related to the fact that in this case the rules are applied preponderantly on annual schemes while those applied at general government or other sub-sectors more often extend the time horizon beyond the yearly budgetary cycle and are integrated into a multi-annual fiscal framework (see Graph III.3 in Part III of this report).\footnote{148} Last but not least, the risk of pro-cyclical corrections in bad times to respect budget balance rules could be reduced if effective mechanisms to foster budgetary prudence in good times are in place. A symmetric functioning is key to any effective and sustainable budgetary framework.

### 4.2.2. Expenditure rules

As opposed to budget balance rules, no concern for a pro-cyclical bias is there for expenditure rules. At the opposite, such arrangements can be effective in curbing

\footnote{148} In addition, two other factors needs to be considered. First, the enforcement of budget balance rules tend to be stronger at lower levels of government (see Graph III.5 in Part III of this report). Second, the intensity of a possible pro-cyclical bias at lower levels of government depends on which expenditure items are under the control of regional and local authorities (i.e. whether cyclically sensitive or neutral items) and what the main sources of revenue are (i.e. whether revenue consists mainly of transfers from central authorities or own tax collection exposed to business cycle fluctuations).
the growth of expenditure in good times, thus preventing the fiscal stance from becoming pro-cyclical in good times. As shown in section 3, cyclically-adjusted primary expenditures as a ratio of GDP increase especially in periods of positive output gap. Moreover, fiscal expansions in periods of positive output gap are mostly explained by the behaviour of expenditures. While potentially effective in limiting the risks of pro-cyclical behaviour in good times, expenditure rules are compatible with the working of automatic stabilizers on the revenue side in bad times. In spite of wide agreement that expenditure rules could be helpful in containing the pro-cyclical bias of fiscal policy (e.g., Daban et al. (2003), Brunila (2002), European Commission (2003, 2005)), systematic empirical analysis on their effectiveness to that purpose is scarce.

The effectiveness of expenditure rules in reducing the risk of pro-cyclical behaviour depends on their specific design. A number of elements need to be considered in this respect. First, how expenditure ceilings are defined. Ceilings define as maximum expenditure ratios on GDP may be less effective than ceilings defined in terms of maximum expenditure growth rates. In the former case, during good times expenditure could grow in nominal terms without violating the ceiling, while this eventuality is less likely in the latter case. As for the choice of nominal or real growth rates, counter-cyclical stabilisation is enhanced when it is nominal growth to be capped. In such a case indeed, if periods of GDP above potential are characterised by demand-pull inflation, expenditure adjustment in good times is stronger.149

Second, which expenditure aggregate should be subject to ceilings. Obviously, expenditure ceilings have a higher chance of affecting the overall fiscal stance the broader is the expenditure aggregate subject to the ceiling. However, the exclusion of some categories could be advisable. Interest expenditures, being outside the direct control of fiscal authorities is one of such categories. The exclusion of cyclical components like unemployment subsidies permits the expenditure ceiling to be compatible with the full operation of automatic stabilisers. Conversely the definition of separate ceilings for particular type of expenditures characterised by a growing trend and that are hardly compressible downward in the short term (age-related expenditures in particular) could be advisable to avoid that expenditure rules translate into excessive compression of other expenditure categories.

Third, a medium term orientation of the expenditure rules is likely to increase the correction of the pro-cyclical bias. Expenditure caps need to be determined and implemented over the medium-term to avoid a systematic revision of the ceilings which follow ongoing cyclical developments. However, it needs to be recalled once more that realistic macroeconomic assumptions underlying expenditure ceilings are key for the effectiveness of such instruments.

Needless to say, expenditure rules per se, not applying to the revenue side, are not a guarantee that pro-cyclical policies will not be implemented. However, appropriately designed expenditure rules are potentially a very effective ingredient of broader rules-based frameworks for addressing the tendency for fiscal policy to behave pro-cyclically in good times.

### 4.2.3. Revenue rules and rainy-day funds

Revenue rules fall under two broad categories. There are rules defining caps on the tax burden or, conversely, minimum ceilings on revenues.150 The purpose of such rules is, respectively, to prevent the tax burden to become too high and to ensure an adequate government financing. This first category of revenue rules may introduce a pro-cyclical bias. If the rule sets a cap on revenues, pro-cyclical may show up in good times (depending on how the cap is defined, tax rates may need to be lowered when revenues become more abundant), while the opposite holds for rules that define minimum ceilings.

The second category of revenue rules deals with the use of windfall revenues ensuing from better than expected cyclical conditions or from "elasticity surprises" related for instance to asset price cycles or tax-rich growth. This second category of revenue rules is potentially very effective in dealing with the issue of pro-cyclical in good times. Rules of this type address in the most direct way the issue to which fiscal authorities are faced when better than expected budgetary outcomes materialise.

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149 Expenditure ceilings in terms of growth rates could be made conditional on prevailing and expected GDP growth rates and specified in terms of yearly ceilings on real or nominal expenditure levels. This is what is observed in the practice of some countries.

150 An example of revenue rules setting a cap on the tax burden is found in Denmark. A rule fixing a minimum growth rate of nominal taxes equal to GDP growth was in place in Belgium.
Pressures to cut taxes or increase expenditures become strong once there is awareness of unexpected extra-budgetary room. Defining ex-ante which share of the windfall revenue will be saved could be an effective commitment device for fiscal authorities and could re-address the bias for fiscal policy to become pro-cyclical in good times. It is relevant to highlight that the concept of good times that makes operational this type of rules only partly overlaps with that defined in terms of the prevailing cyclical conditions. The realisation of windfall revenues is normally related with strong cyclical conditions but does not need always to be so, given that elasticity surprises may have a considerable quantitative impact without being strictly related to GDP fluctuations. The experience of countries that have been adopting revenue rules of this type is summarised in Box IV.2. Since revenue rules are not very frequent, systematic empirical analysis aimed at assessing their effectiveness is not available.

Related to revenue arrangements to deal with windfall gains, there is the setting up of so-called rainy-day funds (see Box IV.3). The basic idea is that the accumulation of resources in a fund during good times permits to draw resources during bad times without the need to run into pro-cyclical budgetary adjustment. The mechanism could be a very effective complement to fiscal rules defined over cash variables. For instance, when sub-national levels of government are subject to borrowing constraints putting ceilings on debt, rainy-day funds would help to avoid pro-cycle in good times and this way, to permit a counter-cyclical fiscal stance in bad times. Moving resources in and out of the fund will still impact operations and do not affect the size of budget balances. It follows that drawing from the fund will not help to improve budgetary figures in bad times. However, this does not mean at all that the fund will be ineffective.

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Moving resources in and out of the fund will still impact debt in a stabilising way. Additionally, rainy-day funds will in general fulfil a function akin to that of revenue rules for stabilising purposes. They can work as a commitment device for fiscal authorities to permit that when better than expected budgetary outcomes materialise a fraction of these resources is saved rather than spent or dissipated via tax cuts.

### Box IV.2. Revenue rules to prevent pro-cyclical fiscal policy in good times in EU countries

The replies to the questionnaires submitted to the ECP Working Group on the Quality of Public Finances indicate that while about half EU Member States have put in place expenditure rules (which, as discussed in section 4.2.2. could be a useful instrument to avoid pro-cyclical developments in expenditure in good times) there are only few countries that operate revenue rules explicitly aimed at preventing a pro-cyclical fiscal stance in good times.

Finland is characterised by a system of national fiscal rules aimed at the same time at containing deficits and at favouring an appropriate fiscal stance over the cycle. A budget balance rule applied to central government fixes a maximum ceiling of 2.75% of GDP and requires a balance position in periods of normal growth conditions, admitting however short-term deviations related to cyclical conditions. The budget balance rule is complemented by an expenditure rule implemented over a multi-annual framework. The exclusions of cyclically-sensitive items from the expenditure ceilings favours the free operation of automatic stabilisers. A revenue rule stipulates that unemployment security contributions as well as earnings-related pension contributions are stabilised over the cycle with the help of so-called EMU-buffer funds, which work in a way akin to that of rainy day funds (see Box IV.2). This revenue rule contains the risk of increased spending or tax cuts in good times.

In the Netherlands, ceilings on real expenditure levels defined for different sub-sector of the central government and set for the length of a legislature limit the use by the national government of budgetary windfalls for additional expenditure in good times. The expenditure rule in the Netherlands is complemented by a medium-term framework aimed at stabilising revenues through the indication of yearly revenue targets. On top of this medium-term revenue framework, the Netherlands adopted a rule defining ex-ante which share of higher than expected revenues could be spent or redistributed to citizens via tax cuts and which share should be used for the purpose of reducing the deficit.

A revenue rule to prevent dissipating budgetary windfalls arising in good times has been introduced in France in 2005, taking effect in 2006. The introduction was motivated by the episode of the large revenue windfall of 2000 ("la cagnotte"), which was allocated to tax cuts. The recently introduced French revenue rule requires that in the budget law the government defines how possible differences between actual and predicted revenues will be allocated. Which share of revenue windfalls will be used to reduce the deficit is thus set ex-ante but on a year-by-year basis.
Box IV.3: Rainy-day funds and their operation

So-called rainy-day funds (alternatively referred to as extra-budgetary stabilization funds) are an instrument specifically designed to prevent pro-cyclical behaviour of fiscal policy.¹ Such funds are replenished in good times in order to become available for spending in bad times. Until now, real-world experiences with rainy-day funds are abundant especially in US individual states. In the EU, the only country having set up a fiscal rule with effects similar to those of rainy-day funds is Finland.

The principle underlying the working of rainy-day funds is relatively simple. In good times government revenues are more abundant, and part of these extra revenues are used to accumulate financial assets in the fund. Conversely, when times are bad, assets are decumulated. The setting up of rainy day funds has a clear stabilizing impact on the gross debt. During good times, there is less debt reduction because some resources are used to buy financial assets; during bad times, debt grows less, because financial resources are obtained from the sales of the assets accumulated in the fund. While fully effective in principle as a debt stabilization tool, the impact on deficits is not equally effective. Budget balances are compiled net of financial transactions, so that any accumulation or decumulation of financial assets in rainy day funds would not have any direct stabilizing impact on budget balances.² Surpluses in good times will not be smaller, deficits in bad times will appear equally large with or without rainy-day funds. This is a basic reason why rainy-day funds are so common in contexts were gross borrowing constraints are present (like in the US) while a similar widespread use is not observed in the case of fiscal constraints operating on deficits defined in relation to net borrowing. Although the operation of rainy-day funds does not have a direct impact on the stabilization of deficits, their indirect effect could be relevant. In particular, they could be helpful in preventing that in good times budgetary resources are depleted. The commitment to transfer of resources in the fund in good times into a separate fund may contribute to discipline policymakers who might otherwise be inclined to give away any budgetary windfalls in the form of higher expenditure or lower taxes. The decumulation of rainy day fund assets in bad times would in any case permit to contain the growth of (gross) debt at given deficit.

For rainy-day funds to function properly in practice, several conditions will have to be met. First, the circumstances and modalities under which reserves could be accumulated and withdrawn need to be clarified ex-ante, monitorable, and enforceable.² This requires a non-ambiguous definition of good times, such that the accumulation of resources into the fund cannot be denied on the basis of diverging views on what should be meant by good times. Clear provisions on the modalities for the accumulation of assets in the fund are also needed, in order to ensure that the payments to the fund are not delayed and that resources are invested in appropriate financial instruments. As for the rules governing the use of the assets in the fund, a non-ambiguous definition of bad times is needed. An effective monitoring and enforcement process is key to avoid that the funds are used for purposes different from debt stabilisation.

Second, the notion of good times used for the working of the fund should ideally be both easily made operational and useful for the purpose of output stabilisation. Having a definition closely linked to the amount or revenues perceived by the government (expressed for instance in terms of a sufficiently positive difference with respect to projected revenues) is likely to be more suited to ensure a smooth operation of the rainy day fund. The working would be similar to that of a revenue rule aimed at avoiding pro-cyclical budgetary loosening, with the additional requirement of the accumulation of resources in the fund. With such type of definition, however, it would not be guaranteed an effective impact on cyclical stabilisation since extraordinary government revenues may not necessarily be related to the cyclical conditions of the economy but to other reasons relating mainly to lags in revenue collection or changes in the elasticity of revenues with respect to output. An alternative would be to define good times on the basis of indicators relating directly to cyclical conditions. This is the practice followed in most US states. The problem with this definition is that revenues may not always be particularly abundant in periods or strong cyclical conditions or could be only with lags.

A further issue with the operation of rainy day funds is that there may be the risk that the accumulation of assets in good times in the fund occurs via additional borrowing. In this case, governments could be able both to put assets in the fund and spend budgetary windfalls at the same time. The reputational cost of such circumventing measures may not always be a sufficient deterrent for governments, so that explicit provisions addressing this specific issue might be desirable.

Finally, the amount of resources moved in and out rainy-day funds need to be sufficiently large in order to have an impact on the fiscal stance. An approach could be to determine accumulation thresholds that guarantee a significant impact on the fiscal stance. However, the limitation of this approach is that the extra resources available related to strong cyclical conditions may not large enough to reach the threshold. The alternative would be to define the minimum requirements for asset accumulation as percentages of the cyclical component of the budget or of the difference between expected and realized revenues.

¹ Rainy-day funds have been discussed with a focus on the US, among others, by Kopits and Symanski (1998), Knight and Levinsohn (1999), Zahradnik and Johnson (2002), Hemming and Kell (2000)). Among the papers addressing the issue in the EU context see Wagner and Elder (2002), Buti et al. (2003), Sapir et al. (2003), CESIFO (2003).
² Of course, this does not exclude the possibility of defining a different notion of government budget balance net of accumulation/decumulation of assets in the fund for analytical purposes. Moreover, it would not inconceivable to carry out budgetary surveillance on such alternative notion of deficit. In the EU practice, however, this may entail a revision of the EDP Protocol of the Treaty where the concept of government deficit used in EU budgetary surveillance is defined.
³ On deposit and withdrawal provisions for rainy day finds, see for instance Sobel and Holcombe (1996) and Wagner and Gropp (2002).
4.3. National independent institutions

An alternative avenue to address the pro-cyclical bias of fiscal policy consists of the establishment of institutions independent of the government with a role in fiscal policy-making. In recent years, a certain number of proposals have been put forward by the academia advocating the creation of “independent fiscal authorities" to address the deficit bias and the pro-cyclical bias in fiscal policy making. As discussed in Part III of the report, these independent authorities would be delegated some tasks of fiscal policy making, with a view to define and monitor budgetary targets not biased by the "common pool problem" and the short-sightedness that often characterise political bodies. In theory, such solution would permit to maintain the advantages of discretionality, namely, the possibility to adapt budgetary policy to the unforeseen contingencies, getting rid of the problems that normally come with it: deficit bias and unsatisfactory fiscal stabilisation ensuing from pro-cyclical bias in good times.

Additionally, independent fiscal authorities are likely to be less prone to a time-inconsistency issue stemming from the difficulties that governments may have in keeping their commitments. Even in case numerical rules are in place, if enforcement is not strong enough governments may have an incentive to violate rules-based commitments ex-post if the political gain of doing so is high enough, while such an incentive will not be there for non-political bodies. These arguments apply also to numerical rules to address the pro-cyclical bias, like the definition of ex-ante arrangements on the use of windfall revenues or the establishment of rainy-day funds.\(^{151}\)

Although the establishment of independent fiscal authorities is vividly debated, such proposals for the time being have no real-world counterpart and are unlikely to be implemented for a series or major reasons, mainly relating to lack of guarantee of sufficient democratic accountability.

A different type of independent national institutions with a potential role in fiscal policy making are so-called "fiscal councils". As illustrated in Part III of the report, these type institutions currently in operation in the EU and other industrial countries mainly have the function of supplying analytical inputs to fiscal policy making, but may also have a role in providing normative indications and expressing a voice in the fiscal policy debate. Those councils that provide technical inputs generally prepare macroeconomic forecasts to be used in budgetary planning or that provide a counter-check to the official forecasts used by the government. A further relevant analytical task performed in relation with fiscal policy making is the assessment of the budgetary impact of policy measures.

The role of this type of councils in preventing a pro-cyclical bias of fiscal policy in good times is only indirect, but potentially relevant for a number of reasons. First, independent high-quality macroeconomic forecast could help to address the pro-cyclicality of expenditure related with identification and implementation lags. As stressed previously, the issue of pro-cyclicality in good times is strongly related with the behaviour of expenditures. Disposing of high-quality and realistic growth forecast would contribute to limit expenditure growth in periods of positive output gap, where growth forecast run the highest risk of being excessively affected by recent periods of growth above trend. Second, independent forecasts would increase the effectiveness of expenditure rules. Multi-year expenditure frameworks limiting putting a cap on the growth of government outlays are among the instruments that most directly deal with the issue of excessive expenditure growth in good times. However, as already pointed out, the effectiveness of such arrangements crucially depends on the quality of the surrounding macroeconomic forecast. Related to that, a high-quality assessment of the budgetary impact of policies can contribute to address a possible optimistic bias in expenditure planning. Finally, independent fiscal councils may feed the internal debate on how to improve the existing arrangements to prevent the pro-cyclical bias and may increase awareness among the policy community, academia, and the public opinion on existing problems with the design or the implementation of fiscal rules currently in place (e.g., the use of revenue rules of rainy-day funds).

4.4. National fiscal rules and the stance of fiscal policy over the cycle

The aim of this section is to provide analysis on the link between fiscal rules at national level and the issue of pro-cyclicality. The analysis will proceed in three steps. First, there will be an analysis of what are the perceptions by EU policy makers on the impact of the fiscal rules in place at national level on the procyclicality of fiscal policy. The information for this analysis is the one provided by the replies to questionnaires submitted by the European Commission, DG ECFIN, to the Members of the Quality of Public Finances Working Group (QWG) of the Economic Policy Committee (EPC). In a second step, there will be an attempt to establish a link between fiscal rule indexes, measuring the strength of fiscal rules at national level (see Part III of this report for their construction) with the observed patterns of public finances cyclicality. A distinction will be made between the complex of rules that affect the budget balance and expenditure rules. Third, a synthetic index will be built at country level

\(^{151}\) The establishment of independent fiscal authorities with a specific mandate for fiscal stabilisation has been advocated, inter-alia, by Eichengreen et al. (1999) for the US and Wren-Lewis (2002) and Calmfors (2003) for the EU.
measuring the likely impact of the complex of the existing national-level fiscal rules on the stabilisation properties of fiscal policy. The index is constructed on the a-priori expectations on the effects of the different type of rules on the basis of the arguments listed in the previous section. This index will be put in relation with country-level measures of the cyclicality of public finances to check whether the ex-ante expectations on the impact of rules are confirmed by the data.

The questionnaire submitted to the QWG members included explicit questions on the perception of Members (experts from Finance Ministries) on whether or not each of the rules in place in their country would entail a pro-cyclical bias in the conduct of fiscal policy. The replies to this question are synthetically reported in Graph IV.14. The histograms summarise the replies over the sample according to the type of rules concerned: budget balance, debt, expenditure or revenue rules. It turns out that the respect of the rule may imply the conduct of a pro-cyclical fiscal policy in the majority of cases relating to budget balance and debt rules. This findings are consistent with the arguments spelled out previously when discussing the potential implications of different types of fiscal rules for the cyclical behaviour of the fiscal stance. However, an interesting distinction needs to be made between budget balance and debt rules. While the vast majority of debt rules is perceived to be pro-cyclical, the judgement is much more balanced in the case of debt rules. This difference is mostly explained by the fact that borrowing constraints apply at lower levels of government and are specified on an annual basis, while a substantial share of budget balance rules are defined either “over the cycle”, or on a multi-annual basis, or excluding cyclically-sensitive items.

The perception on expenditure rules fully confirm expectations: none of them is perceived as leading to pro-cyclical outcomes. Regarding revenue rules, the majority is judged not to entail a pro-cyclical bias.

In order to perform an analysis on the link between national fiscal rules and the stance of fiscal policy over the cycle a necessary ingredient is a measure of the strength of fiscal rules at the national level. To this purpose, the “fiscal rules index”, and the “expenditure rule index” are put in relation with indicators of the fiscal stance. The overall fiscal rule index is linked with the year-on-year change in the

The first index provides a synthetic measure of the strength of all the fiscal rules in force in a given country (deficit rules, debt rules, expenditure rules, revenue rules) in a given period, taking into account their coverage in terms of government sectors concerned (e.g., only sub-national levels of government or general government), their statutory basis, the body in charge of monitoring and enforcing the rules, the type of enforcement mechanism foreseen, and the media visibility of the rules.

The “overall expenditure rule index” provides analogous information but regarding expenditure rules only. Although these indexes vary both across countries and over time, only the cross-country variation can be exploited in the following analyses. This limitation comes from the need to estimate the fiscal stance prevailing in good and bad times over a sufficiently long time period. The fiscal rule indexes are put in relation with indicators of the fiscal stance. The overall fiscal rule index is linked with the year-on-year change in the
the overall expenditure rule index is put in relation with the change in the primary cyclically-adjusted expenditures.

Graph IV.15 shows the frequency of counter and pro-cyclical fiscal policy episodes in good and bad times (as measured by output being, respectively, above or below potential) separately for countries with high and low overall fiscal rules indexes. The breakdown of countries is on the basis of the average value of the index over the period. Countries with an index value above the median are classified as countries with strong overall fiscal rules; countries with an index below the median as countries with weak rules. The Graph indicates that the percentage of pro-cyclical fiscal policy episodes was slightly higher in countries with strong overall fiscal rules both in good and bad times.

More frequent episodes of fiscal tightening in periods with output below potential in strong rule countries is consistent with expectations, especially if these countries rely strongly on deficit and debt rules to keep under control the budgetary position of lower levels of government.

In order to disentangle the contribution to the stance of fiscal policy associated with the strength of expenditure rules, the frequency of episodes of pro and counter-cyclical behaviour of government expenditure was computed separately for weak and strong expenditure rule countries, defined, respectively, as countries with the average overall expenditure rule index below or above the median.

Graph IV.16 displays histograms on the change in cyclically-adjusted expenditure as a percentage of GDP (CAPE) shows that countries with strong expenditure rules were less likely to run pro-cyclical expenditure policies. In line with expectations, the difference is considerable especially in good times: countries with strong rules are considerably less prone to raise expenditure when output is above potential. As pointed out in section 3, the ratio of primary cyclically-adjusted expenditure on GDP tends to raise especially in periods of positive output gap, possibly due to identification and implementation lags: expenditures are planned on the basis of growth expectations, largely determined by current and recent growth developments. Expenditure frameworks putting a limit on the yearly growth expenditures are likely to be effective especially when expenditures grow faster, namely, when the output gap is positive. Regarding the lower frequency of episodes of pro-cyclical behaviour of expenditure in good times, a possible explanation could be related to the fact that a lower growth of expenditure in good times reduces the likelihood of expenditure retrenchments in bad times to respect budgetary targets.

The sample used in the analyses covers all the countries for which information on fiscal rules were obtained from the questionnaires submitted to Member States within the framework of the Quality of Public Finances Working Group attached to the Economic Policy Committee. These countries are all EU countries with the exception of Greece, Cyprus and Malta. The period considered is 1990-2005. The period chosen reflects the time frame considered in the questionnaire on fiscal rules, which includes all rules into force starting from 1990. The sample includes episodes of very large and rarely observed changes in budgetary data, observed mostly in New Member States. In order to avoid results being driven by these “outliers”, the sample was trimmed in such a way to exclude the observations exhibiting changes in the CAPB and in the primary cyclically-adjusted expenditure outside the 2.5 percent and the 97.5 percent percentiles of the overall distribution.

Graph IV.16. Frequency of episodes of pro and counter-cyclical behaviour of government expenditure. Weak and strong expenditure rule countries (22 EU countries, 1990-2005)

Source: Commission services.

4.5. Summary of results

National-level rules and institutions matter for the cyclical behaviour of fiscal policy. In particular, a number of points can be highlighted as follows.

- Whether budget balance rules introduce a pro-cyclical bias in bad times depends crucially on the way the rule is designed. Rules that exclude cyclical items, or that are applied "over the cycle" may contribute to reduce the risk of a pro-cyclical bias. The extent to which budget balance rules and borrowing constraints applied at lower levels of government induce a pro-cyclical behaviour depend also on the cyclical behaviour of the type of expenditures delegated to local governments and on the source of their finances.

- Expenditure rules can be an effective tool to curb the tendency for expenditures to grow faster during good times. The effectiveness of such rules depends on their design. Multi-year
expenditure frameworks capping the growth of relatively broad expenditure aggregates on the basis of realistic macroeconomic assumptions would be the most effective instrument.

- Revenue rules defining ex-ante which share of revenue windfall materialising in good times are to be saved, or the establishment of "rainy-day funds" could help governments to credibly commit not to spend or give away via tax cuts better than expected budgetary outcomes emerging during good times.

- "Fiscal councils" providing analytical inputs, notably high-quality independent macroeconomic forecasts and an assessment of the budgetary impact of measures would improve the effectiveness of national-level rules aimed at addressing the pro-cyclical bias in good times.

- Analysis on the basis of questionnaires submitted to the EPC Quality Working Group reveals that countries with overall stronger fiscal rules behaved slightly more pro-cyclically in bad times. This confirms that a certain trade-off could emerge between fiscal rules for fiscal discipline and stabilisation in good times. However, the evidence also shows that those countries with the strongest expenditure rules were characterised by a considerably less frequent pro-cyclical behaviour of expenditure in periods with positive output gaps.