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The Cyclically Adjusted Budget Balance in EU Fiscal Policymaking. Love at First Sight Turned into a Mature Relationship

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The Cyclically Adjusted Budget Balance in EU Fiscal Policymaking

Love at First Sight Turned into a Mature Relationship

The cyclically adjusted budget balance (CAB) plays a key role in the EU fiscal surveillance framework. It started off in a supporting role in the shadow of the headline deficit and, before long, turned into the linchpin of the rules of the Stability and Growth Pact. The steep ascent was driven by high expectations which, with the passing of time, were only partly met. The everyday practice of the EU fiscal surveillance rapidly revealed a number of caveats of the CAB which, at times, hampered the effectiveness of fiscal surveillance. This paper provides a comprehensive review of the changing fortunes of the CAB in the EU fiscal surveillance framework. It portrays its main shortcomings and the way they are dealt with in practice.

Despite its downsides, which were laid bare almost twenty years ago by Blanchard and others,[1] the cyclically adjusted budget balance (CAB) remains a key indicator for the analysis of fiscal policymaking, in particular in the EU fiscal surveillance framework. The users of the CAB, who abound in both the academic and policy arena, tend to waver between blind love and deep dissatisfaction. This paper reviews this "love-hate" relationship. It brings together insights and lessons related to the implementation of the EU fiscal surveillance framework, which constitutes a particularly taxing testing ground for the CAB.

The main beauty of the CAB is its aspiration to measure, at low costs, the underlying budget balance, that is, the fiscal position net of temporary factors that can be expected to even out over time. The CAB is used for several purposes in the analysis and conduct of fiscal policy: (1) to decompose a given change in the headline deficit into a discretionary fiscal policy component and a cyclical component; (2) to assess fiscal impulse; and (3) to examine the sustainability of fiscal policy.

The prominence of the CAB in policymaking, especially but not exclusively in the EU, has increased over the years. Before the Stability and Growth Pact (SGP) was revised in 2005, the CAB had mostly been used as an analytical tool to provide a better analysis of the fiscal situation of the EU

Member States. With the reform of the Pact, the CAB has taken centre stage in the EU fiscal surveillance framework. All key fiscal requirements to be met by Member States under the provisions of the revised Pact are expressed and assessed net of cyclical conditions and one-off and other temporary measures.

Unsurprisingly, the ascent of the CAB has attracted an increasing degree of attention and, with time, revealed a number of shortcomings which would have been pardoned for a purely analytical tool, but which raised pressing questions when the instrument became a reference for deriving policy conclusions. In particular, the conceptual beauty of the indicator hides a number of practical issues, such as the uncertainty attached to the measurement of cyclical conditions in real time as well as the assessment of short-term fluctuations in the tax content of GDP. The history of the SGP includes numerous examples where estimates of the CAB have given rise either to discussions between the European Commission, the Guardian of the Treaty and the EU Member States, or to policy conclusions which, with the benefit of hindsight, turned out to be off the mark.

However, the caveats of the instrument have only marginally affected the loyalty of the economic profession and of policymakers, partly because of inertia, but mainly owing to its striking simplicity, which trades off favourably with the costs of higher precision. Moreover, in spite of its drawbacks, the CAB still constitutes a better measure of the underlying orientation of fiscal policy than the headline

1 O. Blanchard: Suggestions for a New Set of Fiscal Indicators, in: OECD Economics Department Working Paper, No. 79, 1990; E. M. Gramlich: Fiscal Indicators, in: OECD Economics Department Working Papers, No. 80, 1990.

deficit. However, the initial degree of devotion is now accompanied by an increasing awareness of measurement issues.

The remainder of this paper provides a brief biographic review of the CAB, covering its origins and main functions. It also takes a closer look at the anatomy of the indicator, shedding light on its main components. It then gives a detailed account of whether and how the CAB fulfils its purpose in practice. Next it looks into ways to overcome the shortcomings of the indicator, while preserving one of its main virtues, namely simplicity. Finally, some conclusions are drawn.

Love at First Sight: The Virtues and the Anatomy of the CAB

Keynes' "General Theory" has had a far-reaching impact on economic thinking. One of its key contributions was to make clear that rigidities in the labour or other markets can give rise to unwelcome macroeconomic imbalances, most prominently unemployment, which take time to recede. Since then, when making sense of economic developments, economists and policymakers have accepted that variations in observed macroeconomic variables such as GDP are in part temporary. A large body of literature has emerged trying to measure the temporary part of economic fluctuations, primarily in a bid to gauge the scope for stabilising output through macroeconomic policies.[2]

In the realm of fiscal policymaking, the understanding that economic fluctuations are at least partly of a passing nature had an important impact on the assessment of fiscal developments. It made clear that nominal budget figures could not be taken at face value as they concealed two types of factors: temporary and permanent ones. Disentangling the two elements to reveal the underlying budget position – in operational terms, the cyclically adjusted budget balance (CAB) – was recognised as crucial for fiscal policymaking. The idea was to target a level of the CAB which would ensure long-term sustainability of public finances while at the same time permitting automatic stabilisers to dampen cyclical fluctuations. However, the use of the CAB went beyond the assessment of sustainability. The annual change of the CAB also became a common measure of discretionary fiscal policy and of the fiscal impulse.

Overall, economists and fiscal policymakers were enchanted by the possibilities of the CAB. It was seen as a handy instrument which, like an X-ray machine, revealed important information to policymakers.[3] However, a number of practical issues emerged right from the beginning.

The first issue related to the choice of the relevant benchmark against which to adjust the headline deficit for temporary effects. The first attempts to extract the underlying budget balance from observed data go back to the 1950s.[4] They showed that the assessment of US fiscal policy in the 1930s would have changed significantly if, instead of using headline figures, the budget had been adjusted for the effect of unemployment. Periods of large deficits, which had worried President Hoover at the beginning of the Great Depression, looked less alarming after accounting for the temporary budgetary effect of higher unemployment. One of the main pitfalls of the full employment surplus was that, on average, economies operate below full employment. As a result, and in a bid to capture the budget around the mid-point of the cycle, full employment was replaced by potential output or trend output.

However, the use of potential output, an unobserved variable, did not simplify things in practice. Its calculation is ambiguous. A range of methods was deployed, yielding diverging estimates which translated to equally diverging estimates of the CAB. The fundamental problem of gauging a benchmark that is intellectually convincing yet unobservable has not abated since the early days of the CAB. Following the proliferation of the full employment surplus and the CAB in the 1970s, and thanks also to the progress in statistics and computing technology, new methods have been developed to separate macroeconomic and fiscal variables into temporary and permanent components. In practice, the range of existing methodologies for computing the CAB boils down to two alternative approaches. The first, developed by Blanchard, consists of estimating cyclically adjusted measures of expenditures and revenues directly from regression-based analysis.[5] More recent applications of this first approach make use of structural VAR methodologies and unobserved component models.[6]

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2 Early examples are A. Okun: Potential GNP: Its Measurement and Significance, in: Proceedings of the Business and Economic Statistics Section, American Statistical Association, Washington DC 1962; and E. Kuh: Measurement of Potential Output, in: The American Economic Review, Vol. 56, No. 4, 1966, pp. 758-776.

3 A detailed portrayal of the initial faith bestowed in the indicator is provided in A. S. Blinder, R. Solow: Analytical Foundations of Fiscal Policy, in: A. S. Blinder, G.F. Break, D. Netzer, R.M. Solow, P.O. Steiner (eds.): The Economics of Public Finance, Washington DC 1974, The Brookings Institution, pp. 3-115.

4 E.C. Brown: Fiscal Policy in the Thirties: A Reappraisal, in: American Economic Review, Vol. 46, No. 5, 1956, pp. 857-879.

5 O. Blanchard: Suggestions for a New Set of Fiscal Indicators, in: OECD Economics Department Working Paper, No. 79, 1990.

6 See A. Dalsgaard, A. De Serres: Estimating Prudent Budgetary Margins for 11 EU Countries: A Simulated SVAR Model Approach, in: OECD Economics Department Working Papers, No. 216, 1999; and G. Camba-Mendes, D. Rodriguez-Palenzuela: Assessment Criteria for Output Gap Estimates, in: ECB Working Paper, No. 54, 2001.

The Commission Methodology for Calculating the CAB

In the framework of the EU budgetary surveillance, the CAB is derived as $CAB_t = BB_t - \varepsilon \cdot OG_t$

where BB_t is the nominal budget balance to GDP ratio in year t, ε the budgetary sensitivity parameter and OG_t the output gap in year t. The output gap is a measure of an economy's cyclical position and is defined as the distance between actual and potential output. Potential output can either be derived from purely statistical methods (e.g. the Hodrick-Prescott filter) or structural, production function-based methods. The reference method for the SGP is a production function approach. It was officially adopted by the ECOFIN Council on 12 July 2002. A detailed description of the approach is to be found in Denis et al.[1]

The overall sensitivity parameter ε is obtained by aggregating the elasticities of individual budgetary items estimated via a methodology developed by the OECD and agreed to by the Output Gap Working Group, a working group of the Economic Policy Committee. The individual revenue elasticities $\eta_{R,i}$ are aggregated to an overall revenue elasticity η_R weighted by the share of each in the total current taxes (R_i / R):

$$\eta_R = \sum_{i=1}^{4} \eta_{R,i} \frac{R_i}{R}.$$

As for the expenditure elasticity η_G, it can be expressed as

$$\eta_G = \eta_{G,U} \frac{G_U}{G}$$

where $\eta_{G,U}$ is the elasticity of unemployment-related expenditure, again estimated on the basis of the agreed upon OECD methodology, and G_u / G is the share of unemployment related expenditure in total current primary expenditure.

As budgetary variables are generally expressed in per cent of GDP, the revenue and expenditure elasticities η_R and η_G (which measure the change in the level of a budgetary item with respect to the output gap) are transformed into sensitivity parameters as follows:

$$\varepsilon_R = \eta_R \frac{R}{Y}, \; \varepsilon_G = \eta_G \frac{G}{Y},$$

where R/Y is the share of current taxes in GDP and G/Y is the share of primary current expenditure on GDP. The difference $\varepsilon_R - \varepsilon_G$ yields the sensitivity parameter of the overall budget balance ε used in the equation defining the CAB. The empirical estimates of the budgetary sensitivity parameters currently in use in the EU fiscal surveillance framework are reported in Table 1.

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[1] C. Denis, K. McMorrow, W. Roeger: Production Function Approach to Calculating Potential Output Growth and Output Gaps – Estimates for the EU Member States and the US, in: European Economy, Economic Papers, No. 176, 2002.

The second approach for computing the CAB is a two-stage procedure: a cyclical component of the budget balance CC is first estimated and subsequently subtracted from the nominal budget BB:

(1) $CAB = BB - CC$

where all variables are expressed in percentage of GDP. This second approach has come out on top in practice and is the one generally used by national governments and international institutions, including the European Commission, the OECD, the IMF and the ECB for the purpose of budgetary surveillance.

Table 1
Budgetary Sensitivity Parameters

	Revenues	Expenditure	Budget balance		Revenues	Expenditure	Budget balance
Belgium	0.47	-0.07	0.54	Hungary	0.45	-0.01	0.46
Bulgaria	0.35	-0.01	0.36	Malta	0.35	-0.01	0.36
Czech Republic	0.36	-0.01	0.37	Netherlands	0.39	-0.17	0.55
Denmark	0.50	-0.15	0.65	Austria	0.43	-0.04	0.47
Germany	0.40	-0.11	0.51	Poland	0.33	-0.06	0.40
Estonia	0.29	-0.01	0.30	Portugal	0.41	-0.04	0.45
Greece	0.42	-0.01	0.43	Romania	0.28	-0.02	0.30
Spain	0.38	-0.05	0.43	Slovenia	0.42	-0.05	0.47
France	0.44	-0.06	0.49	Slovakia	0.27	-0.02	0.29
Ireland	0.36	-0.05	0.40	Finland	0.41	-0.09	0.50
Italy	0.49	-0.02	0.50	Sweden	0.48	-0.10	0.58
Cyprus	0.39	-0.01	0.39	United Kingdom	0.40	-0.02	0.42
Latvia	0.26	-0.02	0.28				
Lithuania	0.26	-0.01	0.27	Euro area	0.42	-0.06	0.48
Luxembourg	0.48	-0.01	0.49	EU27	0.39	-0.04	0.43

S o u r c e s : OECD, European Commission.

The estimation of the cyclical component *CC* requires two inputs: (1) a measure of the cyclical position of the economy generally measured by the output gap, the distance between actual and potential output;[7] and (2) a measure of the link between the economic cycle and the budget, summarised by elasticity parameters representing the percentage change in budgetary items associated with percentage changes in the level of economic activity.

Elasticity parameters are generally derived from national tax codes as well as from regression analysis.[8]

The Disenchantments of Everyday Life:
The Shortcomings of the CAB

In the early years of the EU fiscal surveillance framework, the SGP focused on headline numbers only. With the aim of achieving and safeguarding macroeconomic stability,

Member States were required to reach and sustain a fiscal position close to balance or in surplus (CTBOIS) in the medium term. Compliance with this CTBOIS requirement in terms of (1) the budgetary plans presented in the annual updates of the stability and convergence programmes and (2) budgetary outcomes was formally assessed on the basis of nominal budget figures. The CAB, although available and in use, played only an informal role.[9]

The difficulties associated with monitoring budgetary policy in nominal terms manifested themselves relatively quickly. It became apparent that the budgetary "noise" stemming from cyclical variations in economic activity precluded sensible conclusions about the underlying thrust of fiscal policy. The CTBOIS objective turned into a moving target: it seemed to come within reach one year only to walk away the next, depending on prevailing cyclical conditions.

Discontented with the adverse experience in guiding fiscal policy towards sustainable medium-term positions, the ECOFIN Council, following the November 2002 Commission Communication "Strengthening the co-ordination of budgetary policies", adopted a report in March 2003 which formally changed the status of the CAB.[10] The report considered that compliance with the CTBOIS requirement of the SGP should be assessed in cyclically adjusted terms

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7 Generally, the cyclical component *CC* is derived using an aggregate estimate of the output gap. The ECB follows an alternative approach involving different output gaps for individual tax and expenditure bases. For a detailed presentation of the ECB method see C. B o u t h e - v i l l a n, P. C o u r - T h i m a n n, G. V a n D e n D o o l, P. H e r n a n d e z d e C o s, G. L a n g e n u s, M. M o h r, S. M o m i g l i a n o and M. T u - j u l a: Cyclically Adjusted Budget Balances: An Alternative Approach, ECB Working Paper, No. 77, 2001.

8 Useful references for the estimation of tax elasticities are: C. B o u t h e - v i l l a n, et. al., op. cit.; P. V a n d e n N o o r d: The Size and Role of Automatic Stabilizers in the 1990s and Beyond, OECD Economics Department Working Paper, No. 230, 2002; N. G i r o u a r d, C. A n d r é: Measuring Cyclically-Adjusted Budget Balances for the OECD Countries, OECD Economics Department Working Paper, No. 434, 2005; G. W o l s w i j k: Short- and Long-Run Tax Elasticities. The case of the Netherlands, ECB Working Paper, No. 763, 2007.

9 The only official reference to the CAB was in the 1998 and 2001 Code of Conduct on the content and format of stability and convergence programmes defining the CAB as a useful working instrument.

10 ECOFIN Council Report 6877/03 of 7 March 2003, endorsed by the European Council of March 21 and 22 March 2003.

and that countries with a deficit must improve their cyclically adjusted budget position and, in the case of euro area countries, by a minimum of 0.5% of GDP per year.

While this upgrade from a complementary analytical tool to an official assessment instrument constituted an important step forward, the use of the CAB gradually revealed a number of pitfalls. Most of these pitfalls had been known since the fiscal policy indicator made its debut in policy making.[11] However, their extent and empirical relevance became visible only after the CAB had been put through its paces.

Monitoring Fiscal Adjustment

Monitoring the budgetary adjustment may appear to be a purely mechanical exercise. The CAB can be calculated for subsequent years, and the resulting annual changes of the indicator trace improvements or deteriorations in the underlying budget balance. For a long time, the common practice, including the various stages of the EU surveillance process, was to interpret changes in the CAB as a measure of discretionary fiscal policy, that is the budgetary impact of fiscal policy measures deliberated by government.[12]

However, in the early 2000s this practice gave rise to disagreement between the European Commission and a number of EU Member States exhibiting budgetary slippages compared to previously announced objectives. National fiscal authorities maintained that they had stuck to their budget plans, insisting that they had not increased discretionary spending. The European Commission, conversely, inferred from the observed deterioration of the CAB that the fiscal stance had become expansionary and blamed deviations from plans on discretionary fiscal policy.

With hindsight, these conflicting interpretations turned out to be related to two sets of misperceptions. On the side of national governments, medium-term economic growth was frequently overestimated, with the implication that sustainable revenue levels were overstated as well.[13] On the side of the European Commission, the interpretation of slippages compared to planned CAB figures did not discount the fact that shortfalls in potential economic growth

could also affect the CAB, which is typically expressed as a percentage of GDP.

Disagreements over the interpretation of observed changes in the CAB as an indicator of discretionary fiscal policy became apparent when examining in detail the budgetary execution in order to directly identify the supposedly expansionary measures implemented by national governments. In some cases, none could be identified, or they were not sufficiently strong to account for the slippage observed. This is because whenever potential output turns out to be lower or higher than assumed, observed changes in the CAB are off the target even if budgetary plans are implemented correctly.[14]

The discussions about the budgetary adjustments under the SGP can be viewed as a reflection of a latent disagreement about "conditional" as opposed to "unconditional" compliance. The initial interpretation of observed changes of the CAB was based on the understanding that Member States were to deliver the planned adjustment independently of macroeconomic conditions. Following the 2003 downturn, some Member States raised the issue of whether compliance should not be interpreted conditionally upon the macroeconomic scenario underpinning budgetary targets, rather than unconditionally.

Monitoring the Level of the Underlying Fiscal Position

In the EU fiscal surveillance framework, the assessment of the Member States' fiscal position *inter alia* addresses two key questions: (1) how big is the risk in a given year of breaching the 3% of GDP threshold of the Treaty; and (2) how distant is the budget balance from the medium-term objective (MTO) that ensures sustainable public finances in the long run. In both cases the CAB plays a pivotal role. The risk of breaching the 3% of GDP threshold is assessed by means of the minimum benchmark, that is the level of the CAB which, under normal cyclical fluctuations, ensures that automatic stabilisers do not push the deficit above the 3% of GDP limit.[15] As regards the second key question, the SGP explicitly states that the budgetary objective to be achieved in the medium term is defined in structural terms, i.e. net of cyclical, one-off and other temporary factors.[16]

11 A. B l i n d e r, R. S o l o w, op. cit.

12 The IMF in its World Economic Outlook and the OECD in its Economic Outlook regularly comment on fiscal positions in structural terms as measured by the CAB, associating changes in the structural deficit with discretionary policy interventions.

13 L. J o n u n g, M. L a r c h: Improving Fiscal Policy in the EU. The Case for Independent Forecasts, in: Economic Policy, Vol. 21, No. 47, 2006, pp. 491-531.

14 A detailed analytical discussion of this issue is provided by M. L a r c h, M. S a l t o: Fiscal Rules, Inertia and Discretionary Fiscal Policy, in: Applied Economics, Vol. 37, No. 10, 2005, pp. 1135–46.

15 For the technical details of the minimum benchmark, see European Commission: Public Finances in EMU – 2004, in: European Economy, No. 3, Brussels 2006.

16 Art. 2a of Council Regulation (EC), No. 1466/97, 7 July 1997, on the strengthening of the surveillance of budgetary positions and the surveillance and coordination of economic policies.

Figure 1
**CAB Estimates for 2000 Across Time:
Autumn 2000 and Autumn 2008**

Source: Commission Services.

Figure 2
**Output Gap Estimate for 2000
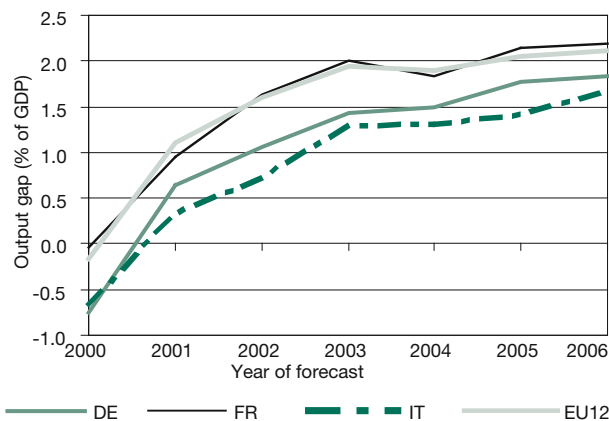in Successive Commission Services Forecasts**

Source: Commission Services.

While the CAB has generally been useful in providing answers to both questions, there was one particular episode in the implementation of the EU fiscal surveillance framework where, with the benefit of hindsight, the CAB turned out to be inaccurate. In the late 1990s, towards the end of the "ICT bubble" and right after the formal inception of the SGP, most EU Member States ran comparatively favourable fiscal positions. This was the result of important adjustment efforts implemented in the run-up to the euro coupled with high economic growth, which at the time was expected to continue over the medium term.[17] In addition, a number of countries benefited from a sort of tax bonanza linked to a tax-rich composition of economic activity.

The assessment of public finances carried out at the time did not point to any major risks vis-à-vis the requirements of the SGP. The radar screen of EU fiscal surveillance was clean. CAB figures available in real time indicated healthy fiscal positions. In autumn 2000 and still in spring 2001, the general government budget net of cyclical factors of both the euro area and the EU were estimated to stay broadly in balance over the two-year forecast horizon. Against this backdrop, and based on the assumption that economic growth and high tax returns would persist, a number of Member States decided to reduce taxes and/or to increase discretionary expenditure. However, the benign assessment of economic and fiscal prospects turned out to be a chimera. The bursting of the ICT bubble in the second half of 2001 and the

ensuing economic slowdown made it clear that fiscal policy plans had been based on an erroneous judgment of the underlying situation. Countries like Italy, France and Germany suddenly found themselves in a situation in which they struggled to stay within the remits of the SGP and had no fiscal leeway to lean against the economic slowdown.

Ex post, it became clear that the underlying fiscal situation at the end of the 1990s and in the early 2000s was not nearly as rosy as assumed at the time: the output gap was abundantly positive and the fiscal stance too lax. Based on today's assessment, the 2000 headline deficit recorded for Germany in autumn 2000 would have shown an underlying deficit of close to 2% of GDP as compared to less than 1% of GDP at the time. A similar story holds for France and Italy (see Figure 1).

An attentive examination of the revision of CAB estimates revealed two weak spots: (1) the assessment of potential output and cyclical conditions in real time is surrounded by a considerable degree of uncertainty; and (2) the elasticity of taxes with respect to GDP can be subject to significant fluctuations.

Starting with the uncertainty surrounding real-time output gap estimates, Figure 2 depicts output gap estimates for the year 2000 in successive Commission services forecasts for three large EU Member States as well as for the euro area. In the beginning, that is in real time, estimates of the cyclical position did not point to particularly favourable economic conditions. Since medium-term growth prospects were generally assessed to be very bright, the prevailing conditions were taken to be average or slightly

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17 In 1998-2001, euro area GDP grew on average by around 3% per year. In autumn 2000, shortly before the bursting of the ICT bubble, available forecasts – including the one by the services of the EU Commission – expected this rate to carry on into the medium term.

below average.[18] With the arrival of new data indicating that growth projections for the medium term had been rather sanguine, the assessment of cyclical conditions in 2000 changed significantly.

The uncertainty surrounding real-time estimates of potential output and the output gap is not new. It was first empirically explored and discussed in connection with US monetary policymaking already in the late 1990s and early 2000s.[19] More recently, similar work was carried out in the field of fiscal policy for OECD countries.[20] The fundamental problem in assessing the cycle in real time can be interpreted as a problem of forecasting. In order to make an assessment of where in the cycle the economy stands today, it is necessary to make an assumption/forecast about where one believes the economy will be in the future.[21] The inherent uncertainty attached to economic forecasts, and in turn to output gap estimates, clearly weighs on the assessment and conduct of fiscal policymaking.

The second Achilles heel of the cyclical adjustment method used in the EU fiscal surveillance framework is the assumption of constant tax elasticities. As indicated in Figure 3, the link between the cyclical component of GDP and the budget is taken to be invariant over time. Constant tax elasticities are an acceptable approximation as long

Figure 3

Apparent Tax-to-GDP Elasticity in the Euro Area (1996-2008)

Source: Commission Services.

as short-term variations in the tax content of economic growth remain small. In that case, the advantages in terms of methodological simplicity clearly outweigh the costs of additional precision. However, past experience has shown that in some years tax elasticities can depart quite substantially from their "normal values" (see Figure 3) and produce unwelcome effects on the surveillance and conduct of fiscal policy.

Concretely, the aforementioned tax windfalls recorded during the economic boom of the late 1990s, coupled with the use of constant tax elasticities in the calculation of the cyclical component of the budget, resulted in an overestimation of the underlying budgetary position and, in sequence, misled the fiscal authorities in some EU Member States to conclude that there was room for tax cuts and/or expenditure increases. When tax cuts and expenditure increases turned out to be unsustainable in the subsequent years, fiscal reigns had to be tightened in a pro-cyclical manner. The ensuing tensions were part of the November 2003 crisis of the EU fiscal framework which ended with the reform of the Pact in 2005.

The renewed rebound of tax elasticities in 2005-2007 filled general governments' coffers again and triggered a number of tax cuts and expenditure increases in the EU just before economic growth, along with the tax content of economic activity, started to weaken in the wake of the US sub-prime residential mortgage market crisis. This time, however, the episode did not come as a complete surprise. Surveillance tools were sharpened thanks to the lessons from the past, and the Commission services started highlighting the potential risks at an early stage.[22]

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18 The economic projections included in the 2003 vintage of the Member States' stability and convergence programme implied a medium-term growth rate of around 3% for the euro area.

19 A. Orphanides: Monetary Policy Rules Based on Real-Time Data, in: American Economic Review, Vol. 91, No. 4, 2001, pp. 964-85.; A. Orphanides, S. Van Norden: The unreliability of output gap estimates in real time, in: Review of Economics and Statistics, Vol. 84, No. 4, 2002, pp. 569-83.

20 L. Forni, S. Momigliano: Cyclical Sensitivity Of Fiscal Policies Based On Real-Time Data, in: Applied Economics Quarterly , Vol. 50, No. 3, 2005, pp. 299-326; R. Golinelli, S. Momigliano: The Cyclical Response of Fiscal Policies in the Euro Area. Why Do Results of Empirical Research Differ So Strongly?, in: M. Larch (ed.): Achieving and Safeguarding Sound Fiscal Positions, European Economy, Economic Paper, No. 377, 2008.

21 The estimate of potential output in year t estimated in the current year T generally involves a centred function of actual GDP y or of parts of actual GDP:

$$y_{t|T}^{P} = b_0 + \sum_{j=0}^{\infty} b_j y_{t-j} + \sum_{j=1}^{\infty} b_j y_{t+j}$$

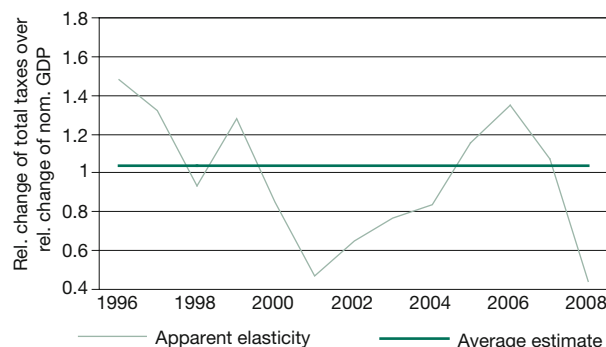For estimates of potential output in year T or beyond, this involves the use of forecasts:

$$y_{T+i|T} = b_0 + \sum_{j=0}^{\infty} b_j y_{T+i-j} + \sum_{j=1}^{\infty} b_j Ey_{T+i+j|T}$$

Taking the difference between the "final" estimate of potential output, the one obtained after the arrival of new data, and the forecast yields

$$y_{T+i|T+i} - y_{T+i|T} = b_0 + \sum_{j=0}^{\infty} b_j (y_{T+i-j} - Ey_{T+i+j|T})$$

which shows that the revision of potential output estimates reflects the forecast errors for real GDP.

22 A first clear message concerning the risks related to the spending of revenue windfalls was included in the Commission services 2006 autumn forecast.

One-off and Other Temporary Measures

The abrupt economic slowdown following the bursting of the "ICT bubble" in 2001 was the first such episode following the inception of the SGP in Europe in 1999. Annual economic growth, which in the euro area had been averaging around 3% in 1997-2000, dropped sharply and remained subdued, especially in the large euro-area countries, through 2004. In the wake of the economic downturn, public finances quickly started to deteriorate, and in a number of Member States the headline deficit approached the 3% of GDP threshold of the Treaty. Working on the rather optimistic assumption that the economy would soon return to the steep path of expansion observed at the end of the 1990s, a number of governments resorted to temporary deficit decreasing measures to bridge the supposedly short-lived deterioration of public finances and, more importantly, to stay within the nominal limits of the SGP. Typical expedients implemented at the time comprised sales of real assets and tax amnesties or settlements.[23] At times, "fiscal gimmicks" also resulted in a stretched interpretation of the ESA95 and EDP accounting rules so as to temporarily embellish budgetary figures. Empirical evidence suggests that after the introduction of the EU fiscal framework, reported deficits became less closely linked to debt developments.[24]

The relevance of one-off measures went beyond the academic interest. They were pervasive in terms of the number of cases, and their actual budgetary impact was far from marginal. Deficit decreasing one-off measures, excluding sales of UMTS licences, could reach 1% of GDP or more in a single year.[25]

Abstracting from the issue of "creative" accounting, the increasing recourse to one-off measures gave rise to a number of problems for fiscal surveillance. First and foremost, since they were temporary but not cyclical, they impaired the CAB as a measure of both the underlying budgetary position and of the lasting consolidation effort. For instance, revenues from real estate sales, which in some cases reached significant levels in successive years,

would embellish all key indicators of the EU fiscal surveillance framework, i.e. the headline deficit, the CAB and the change in the CAB, without having a permanent effect on the medium-term orientation of public finances.

The obvious fix to exclude one-offs from the CAB was not without problems. Leaving aside revenues accruing from the sale of UMTS licences, which are one of the few clear cases, views frequently diverged with regard to the actual impact of one-off measures over time.[26] The difficulty in finding an encompassing definition of one-offs was reflected in the March 2003 European Council conclusions of the November 2002 Commission communication "strengthening economic policy coordination", reporting that one-off measures had to be considered "on their own merits on a case-by-case basis".[27]

Fix It, Don't Break It: Living with Compromises

In retrospect, the difficulties encountered with the CAB materialised bit by bit and were, as highlighted above, linked to specific economic or policy episodes. At the level of the EU fiscal surveillance, the response to gradually emerging issues was dominated by a sense of pragmatism. Instead of abandoning the CAB altogether, targeted attempts were made to better understand the reasons for the shortcomings and to look for ways to improve the accuracy of the instrument.

To follow this line of compromise was not always easy. Criticism from both academia and fiscal policymakers was at times harsh and hinted at scrapping the CAB as a way forward. The fact that, at the end of the day, this did not happen indicates that there were no viable alternatives, or that alternatives would not have been superior. It is relatively undisputed that in a fiscal surveillance framework geared towards the achievement of medium-term objectives, the CAB, in spite of its shortcomings, provides better guidance than the headline deficit. After all, it was the volatility of the headline numbers that motivated the decision to ditch the nominal budget balance as the official yardstick of fiscal surveillance under the "old" SGP.

A simple back-of-the-envelope calculation illustrates the point. In most euro-area countries, the cyclical component of aggregate economic activity, as measured by the output gap, has exceeded +/- 3% of GDP at least once in the past twenty years and has frequently reached levels

23 A detailed analysis of the link between the constraints imposed by the SGP and the recourse to one-off and temporary factors is provided by V. K o e n, P. Va n   D e n   N o o r d : Fiscal Gimmickry in Europe: One-off Measures and Creative Accounting., in: P. W i e r t s, S. D e e r o s e, E. F l o r e s, A. Tu r r i n i, (eds.): Fiscal Policy Surveillance in Europe, Basingstoke 2006, Palgrave McMillan, pp. 45-76.

24 J. Vo n   H a g e n, G. Wo l f f : What Do Deficits Tell Us About Debt? Empirical Evidence on Creative Accounting with Fiscal Rules in the EU, in: Journal of Banking & Finance, Vol. 30, No. 12, 2006, pp. 3259-3279; M. B u t i, J. N o g u e i r a   M a r t i n s, A. Tu r r i n i : From Deficits to Debt and Back: Political Incentives under Numerical Fiscal Rules, in: CESifo Economic Studies, Vol. 53, No. 1, 2007, pp. 115-152.

25 European Commission: Public Finances in EMU – 2004, in: European Economy, No. 3, 2004.

26 By way of example, it was argued that tax amnesties, combined with the intention to strengthen tax controls, would produce a permanent improvement in the budget. To prove the contrary from an *ex ante* point of view was not always easy.

27 ECOFON Council report on "Strengthening the coordination of budgetary policies", 7 March 2003, 6877/03.

of more than +/- 1% of GDP. Using the average budgetary sensitivity of around 0.5 for the euro area as a whole, the nominal budget balance in a given year can include between 0.5 and 1.5% of GDP of purely transitory elements which obstruct the view of the underlying budgetary situation. Transitory elements of this size preclude a reliable judgment on the medium-term orientation of fiscal policy. While the actual size of the distortion in real time may be somewhat smaller because real-time output gap estimates tend to be of a lower magnitude than those derived *ex post*, the nominal budget balance is definitively more volatile than the CAB.

Evidently, the successive improvements of the CAB, discussed in the following sections, have not eliminated all caveats. Rather, a workable *modus vivendi* has been found. The enhanced CAB preserves the simplicity of the assessment exercise and guarantees a uniform and consistent application across countries. The last point is of particular importance in the EU fiscal surveillance where, in view of equal treatment, great care is taken to make sure the assessment is carried out on the basis of comparable data and methods. In addition, the enhanced CAB sharpens the view of potential upside or downside risks to the underlying fiscal position of Member States.

Conditional versus Unconditional Fiscal Adjustment

Before the 2005 reform, the SGP was not explicit about whether targeted fiscal adjustments were to be achieved unconditionally, irrespective of macroeconomic conditions, or alternatively whether the adjustment was conditional on the macroeconomic outlook underpinning budgetary plans. Discussions in the competent Council committees in 2004 contributed to clarify technical aspects of how conditional compliance with planned budgetary adjustments could be implemented in practice. The principle of conditionality was finally incorporated into the EU fiscal surveillance framework with the 2005 reform of the Pact. Specifically, the report of the European Council of 20 March 2005, which lays out the foundations of the reformed SGP, stresses that policy errors should be clearly distinguished from forecast errors in the implementation of the excessive deficit procedure.[28]

The decision to assess fiscal adjustment in conditional terms is not immaterial to the path of budgetary consolidation. As the budgetary impact of unexpected variations in growth is not charged to the fiscal authorities' account,

the duration of the consolidation process cannot be established with certainty. Unexpected departures from the projected growth outlook can delay or accelerate the budgetary adjustment. This mechanism is made explicit in the provisions of the reformed SGP, which foresees the repetition of certain steps in the excessive deficit procedure if effective action has been taken but unexpected adverse economic events have an unfavourable impact on government finances.[29]

If appropriately corrected, observed changes in the CAB convey relevant information to assess conditional compliance. The correction is needed to account for the effect of higher or lower than expected growth on the denominator of the CAB. A convenient approximation for the corrected *ex-post* variation in the CAB is given by

$$(2)\ \Delta CAB_t^{corrected} = \Delta CAB_t + \frac{G_{t-1}^S}{Y_{t-1}^P}(E_{t-1}\,\omega_t - \omega_t)\,.$$

Expression (2)[30] states that in order to monitor conditional compliance, the observed change in the CAB should be corrected by adding a term equal to the ratio of non-cyclical expenditures over potential output at time *t-1* multiplied by the forecast error of potential output growth $(E_{t-1}\,\omega_t - \omega_t)$. This correction is based on the assumption that fiscal authorities plan non-cyclical expenditures on the basis of projected potential output growth and cannot or do not adjust expenditure in the execution of the budget to account for higher or lower than expected growth. Under these assumptions, the adjustment given in (2) effectively eliminates variations in the CAB associated with growth surprises.

Since the correction term to be applied to the observed change in the CAB increases the size of the forecast error, adjustment for the growth effect can give rise to moral hazard. In particular, the adjustment may create an incentive for countries to overestimate growth in order to obtain a greater discount in the assessment of the required budgetary adjustment.[31] To disclose and maybe prevent this risk, the assessment of conditional compliance is to be anchored to an unbiased forecast of economic growth.

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28 A detailed overview of the 2005 reform is presented in European Commission: Public Finances in EMU – 2004, in: European Economy, No. 3, 2005.

29 See Council regulation (EC) No. 1056/2005 of 27 June 2005 amending Regulation (EC) No. 1467/97 on speeding up and clarifying the implementation of the excessive deficit procedure.

30 The result is derived in a separate appendix available upon request from the authors.

31 Evidence for a systematic tendency in some Member States to overestimate potential growth, confirming the risk of moral hazard, is provided in R. Strauch, M. Hallerberg, J. Von Hagen: Budgetary Forecasts in Europe: The Track Record of Stability and Convergence Programmes, in: ECB Working Paper, No. 307, 2004.; and in L. Jonung, M. Larch, op. cit.

In practice, the part of that anchor is played by the Commission services forecasts.[32]

Improving the Assessment of Cyclical Conditions in Real Time

One useful way to address the uncertainty attached to real-time output gap estimates is to broaden the assessment of cyclical conditions with a battery of complementary indicators that are taken to reflect cyclical developments. The inclusion of complementary indicators is motivated by the observation that in some cases the indications of output gap estimates derived from the production function method used in the EU fiscal surveillance framework tend to contrast with elements of the prevailing macroeconomic conditions. Concretely, negative output gap estimates happened to go along with increasing rates of inflation and other aspects which are generally observed in economies operating above potential.

A first attempt to bring complementary indicators on board was made in the 2006/07 assessment round of the stability and convergence programmes. The approach was purely descriptive and judgmental in nature.[33] In a bid to make the assessment more systematic, a quantitative method has been tested. It is an extension of the commonly agreed upon production function method for calculating potential output and the output gap that incorporates the degree of capacity utilisation of labour and capital.

One of the major difficulties in the commonly agreed method is to correctly identify total factor productivity (TFP), which generally represents the largest part of GDP growth. This is achieved by resorting to the simplifying assumption that the existing stocks of capital and labour are always fully utilised across different phases of the cycle. The price paid for this simplification is straightforward. To the extent that the degree of capacity utilisation increases during upswings and decreases in downswings, TFP may be overestimated or underestimated, which in turn may affect the accuracy of the output gap estimates in real time.

The simplifying assumption of a constant degree of utilisation of capital and labour can be relaxed by making use of survey indicators such as the rate of capacity utilisation in the manufacturing sector or indicators of economic sentiment. These complementary indicators are embedded into the commonly agreed upon production function approach, so as to track the variations in the use of the existing capital stock during upswings and downswings.[34]

Simulations designed to test the relative merits of such an extended production function approach vis-à-vis the "standard" approach yield encouraging results (see Figure 4). Although findings vary across countries, the inclusion of the rate of capacity utilisation or other survey indicators tends on average to reduce the uncertainty surrounding real-time output gap estimates.[35]

Tracking Short-term Fluctuations of Tax Elasticities

Compared to the other caveats of the CAB, tackling short-term fluctuations of tax elasticities has so far proved more difficult. While progress has been made on getting a grip on the problem, work is still ongoing.

To improve the measurement of tax elasticities in the EU fiscal framework and, in turn, to enhance the appraisal of the structural budget balance, two separate questions have been addressed: (1) what drives the year-to-year fluctuations of tax elasticities, and (2) how important are changes in the tax content of growth for the assessment of the CAB?

The standard approach established in the literature to understand the behaviour of tax revenues are econometric regressions where annual tax data are linked to measures of economic activity and a series of other variables that are expected to affect the level of taxation.[36] A variant of this standard approach was examined by the European Commission.[37] The variant explicitly allows for composition effects which lead to a higher- or lower-than-normal tax-to-GDP ratio, such as changes in the consumption or
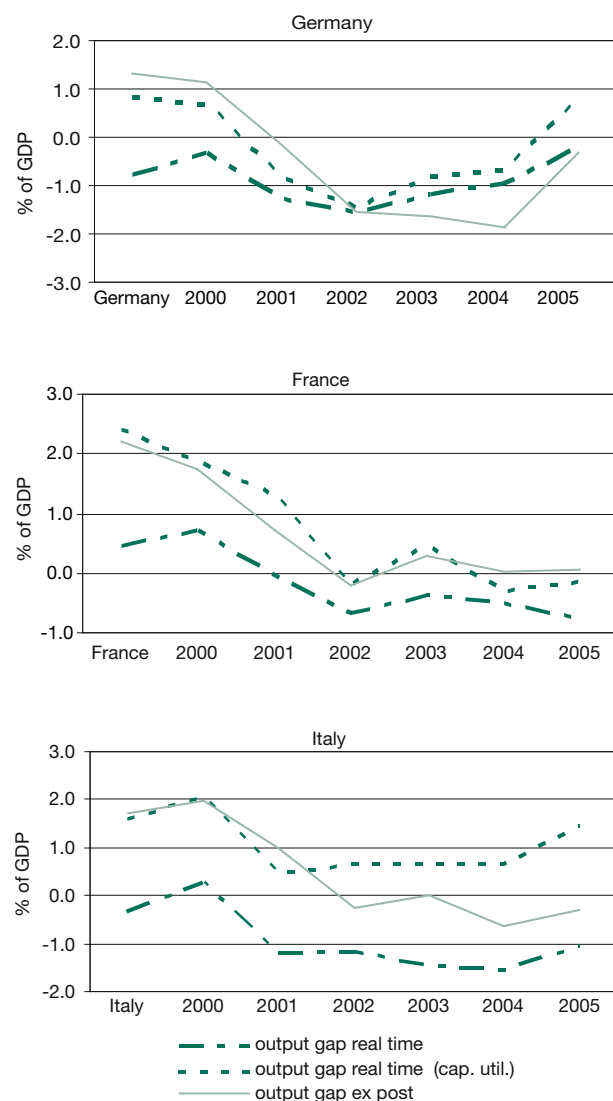
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32 The accuracy of Commission services growth forecasts is documented in F. Keereman: The Track Record of the Commission Forecast, in: European Economy, Economic Paper, No. 137, 1999; and in L. Jonung, M. Larch, op. cit.

33 Commission services' economic assessment of the 2006/07 vintage of stability and convergence programmes includes short paragraphs comparing output gap estimates with the indications emerging from complementary indicators. The assessments can be found at: http://ec.europa.eu/economy_finance/netstartsearch/pdfsearch/pdf.cfm?mode=_m2

34 European Commission: Public Finances in EMU – 2008, in: European Economy, No. 3, 2008.

35 The extended production function approach does not yet have official status in the EU fiscal surveillance framework. It is currently being discussed with the Member States in the competent Council committees.

36 See for instance R. Morris, L. Schuknecht: Structural Balances and Revenue Windfalls. The Role Of Asset Prices Revisited, ECB Working Paper, No. 737, 2007; and G. Wolswijk: Short- and Long-Run Tax Elasticities. The Case of the Netherlands, ECB Working Paper, No. 763, 2007.

37 European Commission, op. cit.

Figure 4
Comparing Alternative Output Gap Methods (DE, FR, IT)

Germany

France

Italy

- – – output gap real time
- ···· output gap real time (cap. util.)
- —— output gap ex post

Source: Commission Services.

wage share of GDP or significant changes in asset and commodity prices. The results are encouraging. They provide a relatively persuasive account of why the tax content of GDP has increased or declined in the past. By way of example, in the late 1990s and early 2000s, the marked increase in the elasticity of current taxes with respect to GDP can be attributed to an increase in the consumption share of total income in Germany and to a combination of a higher wage share, rising imports and high asset prices in France.

Although the identification of the drivers of tax elasticities is intrinsically useful, as it provides an understanding of what lies beneath composition effects, it is not sufficient to understand the impact on the underlying fiscal position. In order to assess more precisely whether composition effects are of a temporary nature or not, it is necessary to analyse the behaviour of individual tax bases. A disaggregated approach is crucial because individual tax bases, such as household consumption, wages and profits, may (and in practice do) follow a different pattern compared to overall GDP. If all tax bases were fully synchronised with the cyclical fluctuations of the aggregate level of economic activity, composition effects would not play a role.

In a bid to disentangle the composition effect into a permanent and a temporary part, the European Commission[38] applied a variant of the disaggregated approach developed and used by the European System of Central Banks (ESCB).[39] Tax revenues are broken down into four categories (indirect taxes, personal income taxes, corporate income taxes and social security contributions) and linked to their corresponding tax bases or approximations thereof, i.e. household consumption, gross operating surplus and wages.[40] The disaggregated approach yields a direct estimate of the CAB by subtracting the temporary component from the actual yield of each tax category. The difference between the traditional CAB and this alternative calculation provides a proxy for the impact of composition effects.

An empirical application of this approach to a set of large EU countries (Germany, France, Italy and the Netherlands) in 1996-2007 gives interesting results which are in line with expectations. In particular, composition effects had a strong and positive impact in the late 1990s and early 2000s, while they were rather negative in 2003-2006. The composition effect was particularly strong in 2000, when it implied an overvaluation of several percentage points of GDP in the improvement of the CAB in the large EU countries considered (see Figures 5 and 6). Needless to say that an assessment based on headline deficits would have been even further off the mark.

The lessons to be learned from such an exercise are straightforward. In the late 1990s and early 2000s, taking composition effects into account would have shown significantly lower improvements in the structural budget balances. Conversely, during the protracted slowdown

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38 Ibid.
39 For a detailed description of the ECB method see C. B o u t h e v i l l a n et al., op. cit.
40 The technical details can be found in Part II of European Commission: Public Finances in EMU – 2008, in: European Economy, No. 3, 2008.

Figure 5

Impact of Composition Effects on the Change in the CAB (1996-2007)

Figure 6

Change in the CAB: "Standard" and Corrected for Composition Effects
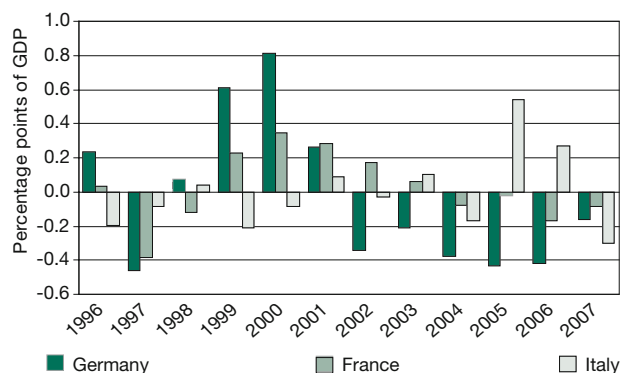
Source: Commission Services.

following the bursting of the "ITC bubble" in 2001, composition effects have excessively darkened the reading of the conventional CAB in some countries, notably Germany but also the Netherlands and the UK.
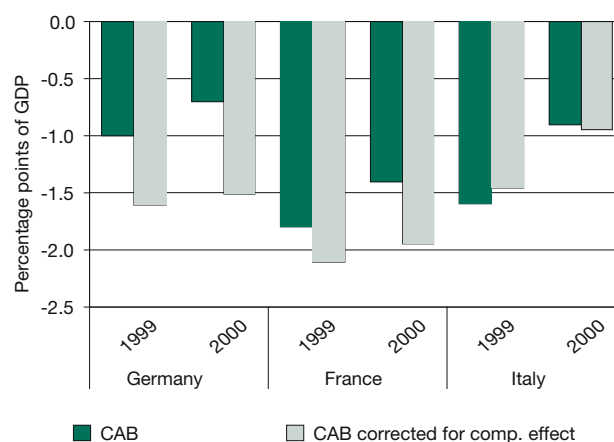
The detailed assessment of government tax revenues along the lines outlined above is currently not part of the commonly agreed upon EU fiscal surveillance framework. For the moment, the reference method for the assessment of tax revenues remains the one that relies on time-invariant elasticities. However, in a bid to achieve a better overview of the underlying fiscal situation and of fiscal adjustment in the EU Member States, the Commission services are complementing, on an informal basis, the standard analysis with a more detailed approach.[41]

Accounting for One-off and Temporary Measures

The fourth CAB adjustment relates to temporary elements of the budget that are not linked to changes in the economic environment but result from discretionary decisions taken by fiscal authorities. Once an agreement is reached about what "one-off and temporary" measures are, they should simply be netted out from the CAB so as to reveal the "true" structural budgetary position. The importance of abstracting from one-off and temporary measures when assessing fiscal performance was acknowledged in the Council report of March 2005, which

underpins the revised SGP.[42] In fact, all key requirements of the revised SGP, such as the required annual adjustment and the medium-term budgetary objective, are defined in the cyclically adjusted terms net of one-off and temporary measures. The Code of Conduct even includes a definition which states, that "one off measures are measures having a transitory effect that does not lead to a sustained change in the intertemporal budgetary position".[43]

In practice, however, finding a common understanding about one-off and temporary measures was not always easy. Because of the relative novelty of the phenomenon, there was no established taxonomy to refer to. Apart from very obvious cases, such as the sale of UMTS licences, each measure had to be assessed individually, which repeatedly gave rise to debate. Member States would insist that the measures produced permanent effects, whereas the European Commission generally took a more cautious view.

Experience accumulated over the years shows that the assessment of whether a given measure is to be considered temporary inevitably involves judgment. However, in order to avoid arbitrary decision-making and ensure equality of treatment across Member States, the Com-

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41 A first step in this direction was presented in European Commission, op. cit.

42 Council report on "Improving the Implementation of the Stability and Growth Pact" was included in the Council conclusions of 23 March 2005, 7619/1/05 REV 1.

43 The code of conduct on "Specifications on the implementation of the Stability and Growth Pact and guidelines on the format and content of stability and convergence programmes", endorsed by the ECOFIN Council on 11 October 2005.

mission, in collaboration with the competent committees of the Council, has agreed upon a number of principles.[44] The following common features are to be taken into account:

- As a general principle, only measures having a significant impact on the general government balance should be considered, whereby significant is meant to be above the level of one decimal point of GDP.

- The temporary nature of a fiscal measure is born out by its impact on the general government budget balance over time; i.e. the impact is to be concentrated in one single year or a very limited number of years.

- One-offs and temporary measures are non-recurrent and should be assessed in the context of a sequence of related measures. For instance, although each investment project is unique, they are to be seen in the context of a continuity of established investment decisions over time.

- Deficit-increasing measures should not be counted as one-offs and, hence, not be excluded from the CAB. The assessment of the non-recurring nature of certain expenditures is particularly difficult. Measures intended to be temporary often become permanent.

Although the above elements do not allow for an exhaustive identification of one-off and temporary measures, they serve as guidelines to make sure that a case-by-case assessment follows consistent principles.

On top of such guidelines, the following indicative list of deficit-reducing one-off measures has emerged: tax amnesties involving one-off payment by taxpayers; sales of non-financial assets (real estate, public owned licences and concessions); securitisation operations with a positive impact on the general government budget balance; temporary legislative changes in the timing of outlays or revenues with a positive impact on the general government budget balance; exceptional revenues from state-owned companies with a positive impact on the general government budget balance; exceptional revenues linked to the transfer of pension obligations; and changes in revenues or expenditures following a Court's or other authority's rulings.

Conclusions

The cyclically adjusted budget balance (CAB) is a commonly used fiscal indicator. It is also used in the EU fis-

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44 European Commission: Public Finances in EMU – 2004, in: European Economy, No. 3, 2006.

cal surveillance framework, where it has gained "official status" with the reform of the Stability and Growth Pact (SGP) in 2005. In clear contrast to the SGP mark I, which focused on headline figures, most of the requirements of the revised Pact are expressed in cyclically adjusted terms.

In the beginning, great hopes were attached to the change in focus. The expectation was that by removing cyclical elements from the budget, one would get a clearer view of the actual fiscal situation of a country and derive more robust policy conclusions. Such expectations developed in the wake of the rather difficult experience with a fiscal surveillance structure based on nominal figures. A country that seemed to be close to or steadily moving towards the target of a balanced budget one year, would suddenly find itself off track when cyclical conditions changed. In light of this, all eyes turned to the CAB, which seemed to offer the virtues headline figures were lacking.

Unfortunately, the honeymoon effect did not last long. A number of frictions emerged in the new relationship: it turned that the CAB did not always provide accurate signals of Member States' fiscal performance. Nevertheless, instead of abandoning the CAB in a rage of frustration, efforts were made to understand and correct the weaknesses. This outcome reflects the awareness that reverting to a fiscal surveillance system centred on headline deficits would not improve things. It also reflects the understanding that some of the problems encountered in the use of the CAB are probably, in the spirit of Goodhart's law, intrinsic to any rules-based surveillance framework, rather than to the indicator itself. In this respect, it was understood that improving the CAB would be the way forward.

Thanks to the improvements achieved over the years, a much better and more accurate understanding of the virtues and vices of the CAB prevails today. Progress has been made in the identification and measurement of Member States' fiscal efforts, the measurement of cyclical conditions in real time and the assessment of tax developments. Some of these improvements have been officially incorporated in the surveillance framework, such as the concept of conditional versus unconditional compliance with fiscal plans or the understanding that fiscal adjustments need to be assessed net of one-off measures and other temporary measures. Other methodological advances, notably the assessment of composition effects of government taxes and the use of complementary indicators for the real-time assessment of the output gap, have as yet an informal status but are used by the Commission services to form a well-informed view of budgetary developments.