

INTRODUCTION

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In the last two decades there has been a significant change in the way public finances are assessed. There has been a shift from short-term to medium- and long-term considerations, with a resultant change in the attention paid to the different analytical tools. While long-term analysis has been overhauled by the introduction of generational accounting, medium-term studies have usually relied on indicators of the *structural or cyclically-adjusted budget balances*. Owing to the Stability and Growth Pact, these indicators have gained further relevance for the assessment and planning of budgetary policies in the European Union, as extensively examined in the foreword to this volume.

As confirmed by the papers prepared by the experts from the European Commission, the IMF and the OECD, these developments are inducing the international organisations that regularly publish estimates of national cyclically-adjusted balances to review their methods and assessing the merits of alternative techniques. Judging on the basis of the contributions to this volume, the impact of these developments may, however, prove to be more significant at the national level. After a long period of relative neglect, in which most European governments and central banks did not regularly publish estimates of the cyclically-adjusted budget, the greater role of this indicator has fostered research, led to innovative approaches and induced a more critical attitude towards the concepts and methodological details on which the available measures of structural budget balances are based.

1. Two important intertwined issues addressed in this volume are the definition and the role of the structural budget balances. The traditional definition, adopted by the European Commission, the IMF and the OECD, is relatively restrictive. In the definition, the term “structural” is

synonymous with cyclically-adjusted; moreover, the budget is adjusted only for the automatic (i.e. determined by pre-existing legislation) effects of real fluctuations in GDP¹.

Most papers in this volume point out that such a narrow definition is satisfactory only if the use and interpretation of the indicator are clearly restricted. In particular, it is maintained that changes in the structural budget balance should not be used to measure discretionary fiscal policies, as they also reflect factors not directly related to government actions. It is also pointed out that the structural budget is a poor indicator of the sustainability of public finances. Assessing sustainability calls for a projection of future structural budget balances or, at least, taking into account all temporary measures and factors that affect the budget. Finally, it is stressed that this indicator should not be interpreted as a measure of the effect of fiscal policy on the economy, since this evaluation must be based on an explicit model of private sector behaviour.

Despite these limitations, a large majority of the papers tend to support the view that, interpreted with caution, the cyclically-adjusted budget balance can play an important role in assessing and formulating fiscal policy in a medium-term perspective and in the context of the Stability and Growth Pact. This judgement, however, does not prevent the authors from proposing complementary tools of analysis, as the estimates of this indicator may be subject to considerable uncertainty, and from suggesting a few limited extensions to the definition adopted by the international organisations, together with some refinements to their methods.

A dissenting view concerning the role of the cyclically-adjusted budget balance in the context of the Stability and Growth Pact is put forward in the paper by Marin. The author proposes, among others, a simpler indicator, which adjusts the budget balance for the impact of a change in economic activity from the current growth rate to a decline corresponding to a less than severe recession. The aim of the indicator is to help assess the risk of the budget deficit increasing above 3% of GDP in case of adverse cyclical developments. The main advantage of the

¹ In the case of Norway, the IMF and the OECD also adjust the budget for oil revenues.

indicators proposed by Marin is that they do not require an assessment of the cyclical position of the economy, which is often subject to considerable uncertainty.

2. With respect to the choice of methods, most approaches presented in the papers belong to the “gap + elasticity” category. Such methods compute the structural balance using the following two-stage procedure: a) a trend (or potential) value for GDP is estimated; b) the transitory component of the budget is computed, multiplying the GDP elasticity of the various budget items by the difference between trend and actual GDP. The structural balance is then obtained by subtracting the transitory component from the actual balance².

Within the “gap + elasticity” category, however, there are a number of differences between the methods discussed in this volume. An important issue concerns the measurement of the output gap (the difference between trend and actual GDP).

The standard methods to calculate the output gap fall into two categories: those based on a production function and those relying on statistical filters. Which approach is preferable represents a highly controversial issue. The former methodologies seek to assess the level of the potential GDP on the basis of an aggregate production function and the “normal” levels of production factors. This requires making a number of methodological choices in a setting of significant theoretical and empirical uncertainty: in particular, on the functional form of the production function and on the normal utilisation rate of production factors. The main advantage of the production function approach is that it allows for an economic interpretation and discussion of the results, which can be linked to the movements in the determinants of GDP. The methods based on statistical filters usually compute a trend GDP by smoothing the actual GDP series (in the widely used Hodrick-Prescott filter the trend is calculated by applying a symmetric weighted moving average to the GDP

² The methodology proposed in the works by Momigliano and Staderini and by Langenus (see par. 4) is not conceptually different, as it simply substitutes GDP with other macroeconomic variables.

series). Advantages of the statistical methods are their simplicity and limited data requirements. However, they also require making difficult assumptions, either on the relative variability of trend and actual GDP series or on the length of cyclical fluctuations. Moreover, the reliability of their estimates of trend GDP for the years close to the end of actual data depends on the quality of medium-term forecasts for GDP, used to extend the actual series.

A general discussion of the relative advantages and problems of the two approaches is included in many of the papers (see, in particular, the studies by Hernandez de Cos, by Ongena and Röger and by Brunila and Tujula). The study by van den Dool largely focuses on the different problems in using the Hodrick-Prescott (HP) filter. The analysis, also based on simulations, concludes that, while it is important to be aware of the different kinds of uncertainty related to the HP filter, these uncertainties can be quantified and should not be exaggerated.

While the majority of the papers in this volume rely primarily on purely statistical methods to estimate the output gap, but not necessarily the HP filter, this point should not be overemphasized. In fact, in most papers a significant role is also assigned to the method based on the production function. This tendency to rely on both methodologies is also present in the procedures followed by the international organisations. Ongena and Röger stress that output gap estimates obtained via the Commission's QUEST production function are used to check the plausibility of the results obtained via the HP filter. Hagemann, describing the IMF's methodology, shows that no standardised methodology is imposed for all countries, though the production function approach tends to dominate. For some countries, the estimates of the IMF are based on direct HP filtering. The HP filter is also used at various stages in the OECD's method, based on a production function;³ this tends to reduce the differences with the results obtained by direct application of the filter.

Brunila and Tujula suggest, however, that estimating output gaps using a production function may be preferable in the presence of large structural breaks in the economy. In the Finnish experience, they show that

³ This applies also to the production function methods used for some countries by the IMF.

the qualitative conclusions are not overly sensitive to the choice of method (HP filter or production function approach) until the early 1990s. As major structural breaks occurred in the Finnish economy in the late 1980s and early 1990s, the divergences between the results of the two methods became large. The authors tend to support the indications provided by the production function approach, suggesting that it can more readily incorporate auxiliary information concerning structural change. A similar comparison is presented for Portugal by Sarmiento. In this case, however, notwithstanding the presence of a significant structural break in 1974, the results obtained using the HP filter and those based on a production function are sufficiently similar.

Other specific features of the economy may account for large differences in the results of the two approaches and hinder accurate estimates of the output gaps, as highlighted in the paper on the Irish experience by Cronin and McCoy. Both statistical filter and production function approaches are complicated by the large variability in Irish output growth and the existence of a highly-elastic labour supply and highly-mobile capital. These features of the Irish economy may explain the disparity of several percentage points that exists between the estimated potential growth rates considered applicable to Ireland at present. Such variation can, in general, weaken the use of structural budget balance as an indicator of a Member State's performance with respect to the Stability and Growth Pact.

3. Alongside the discussions in this volume of the issues relating to the output gap methodology, attention is also given to how best the cyclical sensitivity of budget categories should be assessed. Several of the collected papers present new estimates of the cyclical sensitivity of the national budgets. Estimates are in many cases based on econometric analysis, while in others they are derived from the legal rules concerning the most relevant taxes and benefits, included the timing of their collection or payment. Various problems related to the econometric approach are discussed in the papers by Hernandez de Cos and by Cronin and McCoy.

Hernandez de Cos points out that changes in the structure of public sector, which were particularly large in Spain since the late seventies, could lead to significant errors in estimates of elasticities calculated on long reference periods; if only annual data are available this may greatly

hinder econometric analysis. He also stresses the need to re-estimate the elasticities whenever there is a significant change in the law, especially when it is intended to analyse future cyclically-adjusted deficits. Cronin and McCoy point out in particular that systematic discretionary policy may result in elasticities not being constant over time, making standard estimates less reliable.

Changes in the structure of the public sector also affect the legal-based approach, if the aim is to analyse past developments. In this case, it becomes necessary to retrieve the legal and administrative rules which existed in the past. In the paper by Momigliano and Staderini it is pointed out that the method based on the legal rules is the more reliable the closer the tax base is to the macroeconomic variable used to compute the gap. This implies that such an approach is particularly useful when the analysis of the cyclical position is not restricted to GDP (see the following paragraph).

4. Some papers in this collection discuss the possibility of extensions to the traditional definition of cyclically-adjusted budget balance. Four studies point out the importance of considering not just the budgetary effects of fluctuations in GDP but also those of fluctuations in the composition of output and the distribution of income. They show that the latter fluctuations may have a significant impact on the budget, leading to large differences, with respect to the methods based only on GDP, in the estimates of the overall effect of the cycle on the budget.

Two of the four papers (by Langenus and by Momigliano and Staderini) present a similar approach. Both studies, instead of using only GDP as a reference, compute the trends and the cyclical components for a limited number of macroeconomic variables whose impact on public finances is particularly large (e.g. private consumption, employees' gross earnings, operating surplus, employment in the private sector). The cyclical-adjusted balance is then computed adjusting the budget for the effects of those cyclical components.

The other two papers (by Assarsson, Gidehag and Zettergren and by Hansen) are partly devoted to analysing the responses of public finances to an unbalanced growth using model simulation. Their results, according to which the cyclical sensitivity of the budget balance is strongly dependent

on the underlying shocks that cause the cyclical change, are used to complement the assessment provided by a cyclically-adjusted budget indicator which takes into account the fluctuations in GDP.

In the traditional method used by the Belgian central bank (see the paper by Langenus) the budget balance is also adjusted for the effects of fluctuations in relative prices (more precisely, of differences between movements in the consumer price index and those in the GDP deflator). These effects are significant for Belgium, since a large part of government expenditure is explicitly indexed to consumer prices. Relative price effects could also be important in those countries where explicit or implicit indexation plays an important role and consumer prices are not highly correlated with the GDP deflator. However, accurately measuring relative price effects may prove to be a complex task, as typically: a) some indexation mechanisms are based on past inflation while others rely on expected inflation; b) not all mechanisms refer to the same price basket.

Bouthevillain and Quinet discuss the adjustment for the effects of fluctuations in the inflation rate. The paper points out the problems that arise in the measurement of these effects, especially because the impact of price changes may considerably differ according to whether they are expected or unexpected. It should also be considered that it is difficult to define and measure price fluctuations, given the existence of a *continuum* of possible levels of equilibrium for inflation.

Finally, a few papers (among which, that by Sarmento) point out that fluctuations in interest rates may have a significant impact on the deficit; to signal that such factor is not taken into account when adjusting the budget it is proposed to explicitly limit cyclical-adjustment analysis to the primary balance.

5. A number of contributions discuss alternative procedures to the “gaps + elasticity” approach for estimating structural budget balances. In addition to the model simulation approach (used in Assarsson, Gidehag and Zettergren and in Hansen) and to the proposal put forward by Marin, there are two methods which do not belong to the “gap + elasticity” category.

Bouthevillain and Quinet present, together with a method belonging to the “gap + elasticity” category, an application of VARs which,

following the approach developed in Blanchard and Quah⁴, decomposes the fluctuations in the deficit-to-GDP ratio into those arising from output and those arising from the deficit itself. The cyclical component of the deficit is defined as the accumulation of output shocks over the period. The authors assign to the VAR-based-method the role of complementing the more traditional approach.

The paper by van den Dool proposes to accompany a cyclically-adjusted balance, computed using a standard “gap + elasticity” approach, with a “structural balance”, calculated as a moving weighted average of the actual balance (using the Hodrick-Prescott filter). The structural balance, in this case, does not aim to adjust the balance only for the effects of economic fluctuations but for all other temporary factors.

6. The papers included in this volume offer a valuable contribution to the assessment of public finances and a useful support to fiscal policy decisions in Europe. They also provide a wide range of insights into the problems encountered in estimating cyclically-adjusted balances. Moreover, the arrays of methods developed in the papers represents an important starting point for future research in the area.⁵ Research and fiscal policy analysis will also benefit from the many new or updated estimates of budget elasticities and of cyclically-adjusted budgets which are included in the book.

⁴ Blanchard, O.J. and Quah, D. (1989), *The Dynamic Effect of Aggregate Demand and Supply Disturbances*, *The American Economic Review*, 79, pp. 655-73.

⁵ It should be noted that many of the papers represent intermediate products of ongoing researches.