Part III

Measuring the fiscal effort

SUMMARY

Traditionally fiscal stance is measured using a so-called "top-down approach", by computing a structural or cyclically-adjusted balance ("CAB") which consists of subtracting the impact of the business cycle on the budget from the headline deficit ratio, where the impact of the cycle is found by multiplying a measure of the output gap times a standard, average elasticity. In the past this is also often been used as a measure of fiscal effort.

Despite its advantages – the relevance of its interpretation as the government deficit that prevails when GDP is at potential, the clarity of the benchmark used in the calculation and its transparency and replicability – much recent literature favours for measuring the fiscal effort the use of a bottom-up or narrative approach, based on the sum of the budgetary impact of the measures implemented by governments.

These aim at overcome the shortcomings of the top-down approach, mainly that changes in the CAB can be driven by economic developments and not necessarily by governments' actions. This is when estimating fiscal multipliers given that estimates using the CAB as a proxy for fiscal effort are biased by the endogenous relation between CAB and GDP.

The best-known factor of distortion is the presence of windfalls/shortfalls in revenues or unemployment expenditure, which are correlated with the evolution of GDP but not taken into account in the cyclical correction because of the decoupling between the evolution of the tax base and GDP. These factors can result in distorting the short-term revenue-to-GDP elasticities. Thus a loosening or strengthening of the fiscal stance as signalled by the CAB does not necessarily reflect any discretionary measures and thus not any fiscal effort.

The bottom-up approach though has its own weaknesses, which are related to the difficulty in defining the benchmark of "unchanged policy" against which assess the impact of the government actions. This benchmark is particularly difficult to measure in the case of expenditures, and the computational choices made by the national authorities are at the moment neither comparable nor transparent.

Taking into account the limitations inherent in the top-down and bottom-up approaches, Chapter III.1 proposes a mixed indicator for analytical purposes, named the discretionary fiscal effort, which consists of a "bottom-up" approach on the revenue side and an essentially top-down approach on the expenditure side.

A comparison between the Discretionary Fiscal Effort (DFE) and the CAB for the period 2004-2013 shows that the difference between the two indicators has a pro-cyclical behaviour: DFE gives a less favourable view of the orientation of fiscal policy in booms times (when revenue windfalls are high) with an opposite effect in recessions, when large revenue shortfalls show up as a consequence of the fluctuations in tax elasticities relative to GDP. This is confirmed by the focus on 2012 and 2013.

Given the role played by tax elasticities in the difference between the DFE and the SPB (Structural Primary Balance) Chapter III.2 further presents an analysis of tax elasticities and their relations with discretionary tax measures on in the EU over the period 2001-12. The analysis shows that three tax policy 'regimes' have been observed. The first before the crisis when discretionary easing of the tax burden was prevailing. This was followed by a period of countercyclical tax cuts at the onset of the crisis; and finally by the recent period of fiscal consolidation with prevailing tax hikes.

These broadly correspond to the observed differences between the primary CAB or the primary structural balance and the DFE being often positive in the first period, close to zero in the second period and very negative in the third one, thus suggesting that cyclical elasticities are playing a large role.

The analysis further shows that, while tax elasticities average at around one in the EU as a whole for the period 2001-12, indicating an evolution of tax revenues broadly in line with nominal output growth over the medium to long run, they display significant departures *in the short run* from the long-term unitary value, irrespective of whether or not discretionary measures are netted off.

This indicates that discretionary measures per se do not explain the bulk of the short-term fluctuation in gross elasticities, but that they are rather explained by other types of revenue windfalls/shortfalls thereby stressing the relevance of complementing the CAB with the DFE.

1. INTRODUCTION

In times of consolidation the way consolidation itself was traditionally measured has been challenged in the economic literature. The traditional view presented in the fiscal policy literature proposes the use of the changes of an outcome variable like the Cyclically-Adjusted Balance or Cyclically- Adjusted Primary Budget Balance (CAB, or CAPB) to GDP ratio. ([63]) Consolidation periods are then defined as periods in which the CAB-to-GDP ratio has improved by a pre-defined amount in a given number of years. This methodology comprise both academic authors (among many Alesina and Perotti,1995; Ardagna, 2004) and research pieces of work by institutions (among many Kumar, 2007; and Turrini, 2009) both when analysing consolidation and when discussing other aspects of fiscal policy (see for example IMF, 2004).

Cyclically-adjusted balances are calculated following a so-called "top-down approach". It consists of removing from headline balances the impact of the business cycle, based on standard methodologies. ([64]) When computing structural primary balances, interest payments are also removed.

Such definition of consolidation has various advantages. First, the CAB-to-GDP ratio is easily interpreted as the balance that would prevail if GDP was at potential. This information is relevant per se because it is outcome-oriented and thus it is directly relevant for sustainability analysis or for surveillance purposes, where after all the final outcome is what matters. This is why it is a core indicator of fiscal surveillance. Achieving structurally broadly balanced positions is a key commitment of countries under the preventive arm of the SGP.

Moreover, the change in the CAB measures the fiscal stance, i.e. the change in the fiscal balance that is not driven by the automatic reaction of the balance to the business cycle. This provides a gauge of the non-automatic impulse from the fiscal balance on the economy. An increase in the cyclically adjusted deficit provides an expansive impulse on the economy.

Finally, the CAB is routinely calculated by many institutions, is easily available and replicable, which allows to know (and overcome) its weaknesses.

Conceptually, however, the change in CAB-to-GDP ratio has a number of shortcomings for assessing the fiscal effort, which is the change in the balance (compared to the non-action scenario) due to clearly identified government actions. ([65]) Indeed, regarding the fiscal effort, this measure is not necessarily an accurate measure of the size of the consolidation actions pursued by governments. This has the consequence that following the tradition by Alesina and Perotti (1995) which uses the CAB-to-GDP ratio to define consolidation periods selects improvements in the CAB that are driven by economic developments and not necessarily driven by explicit action by governments. A clear distinction between the change in the CAB (the fiscal stance) and the sum of discretionary fiscal consolidation measures is also necessary when analysing the impact of fiscal policy on the economy, such as in the case of the estimate of multipliers, with estimates made using the fiscal effort being less subject to econometric bias. Moreover, the interpretation of the results needs to take account of the measure used to reflect the fiscal impulse.

In particular, on top of discretionary fiscal policy actions, changes in the CAB (and the level itself) can be driven by endogenous factors that are not fully corrected by the implemented cyclical adjustment. The best-known factor is the presence of windfall/shortfall in revenues or unemployment expenditures, loosely correlated with the evolution of GDP but not taken into account in the cyclical correction because of the decupling between the evolution of the tax base and GDP. Fluctuations in asset or housing markets, are known to generate non-permanent but long-lasting shifts in revenues that are not captured by the CAB (see among many Eschenbach and Schuknecht, 2002); but revenue windfalls and shortfalls are bound to rise with

([63]) Part of the literature defines periods of consolidation based on the changes in the debt-to-GDP ratio. For a review see among many European Commission (2010a), Part III.

([64]) The most widely methodology used is the one described in Girouard, André (2005). For the detailed calculations following the recent update of the methodology see Mourre et al. (2013).

([65]) These are on top of the technical shortcomings related to assessing the potential in real time.

changes in the composition of growth (see for example Lendvai et al., 2011) or tax bases for example VAT can be affected by the change in consumption patterns towards more or less luxury goods. Technically the presence of such revenue windfalls/shortfalls translate into actual tax elasticities relative to GDP departing from the standard ones used to calculate the cyclically-adjusted and structural balances. Bouthevillain et al. (2001) have proposed to improve on this point by cyclically adjusting major revenue and expenditure components individually.

The deviation of the output elasticities from those used in the CAB calculation – be it driven by a long-term correction like the revenues from the housing bubble or by a temporary change in consumption patterns or decoupling of the tax bases from GDP – will result in the CAB signalling a loosening of the fiscal stance, before any discretionary measures are taken into account. Accordingly, to improve the structural balance the government will have to put in place new measures large enough to more than offset underlying negative trend. ([66])

Another factor that detracts from the signalling value of the CAB-to-GDP ratio is the presence of one-off and temporary measures, which in some cases may have been implemented with the aim of presenting public finance developments in a better light. These factors can be quantitatively relevant, as shown in Guajardo et al. (2011) and indeed the EU surveillance has evolved in reaction to this risk by turning to the structural balance (i.e. the cyclically-adjusted balance minus the one offs and other temporary measures).

Other sources of difficulties in interpreting the change in the CAB-to-GDP ratio as a proxy of discretionary fiscal effort relate to the frequent and important revisions, in turn reflecting the difficulty of real time measurement of the output gap, with errors that often are correlated with cyclical developments.

The identified problems related to CABs have been taken into account in the assessment of effective action under the corrective arm of the SGP. In particular, the Commission corrects for the impact of revisions regarding the composition of economic growth – or of other windfalls/shortfalls on revenue – which reflect the differences between the expected revenue elasticity relative to GDP at the moment the recommendation is issued and the ex post observed elasticity.

In the literature the shortcomings of the change in the CAB-to-GDP ratio as a measure of fiscal effort have been raised in the context of the measurement of fiscal multipliers, where it introduces a specific bias as shown in IMF (2010) and Guajardo et al. (2011). These authors show that the results by Alesina and Perotti (1995) and by Alesina and Ardagna (1998) on the prevalence of non-Keynesian effects had been driven by the choice of the change in the CAB-to-GDP ratio to define consolidation episodes. Perotti (2011) shows that the estimates of the multipliers can be biased in presence of trend variables that are not properly taken into account in the CAB measurement.

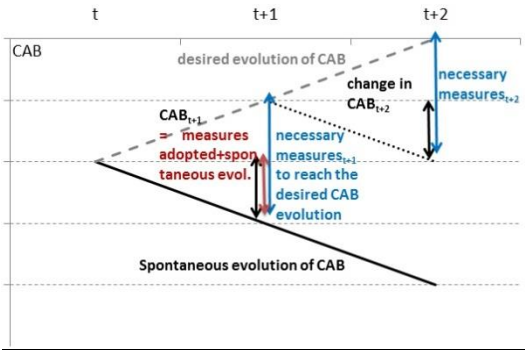
Based on this critique, de Vries et al. (2012) construct a dataset of consolidation episodes based on a different approach, named "narrative approach" or "bottom-up approach". Fiscal effort is measured as the sum of the value that government authorities have attributed to the measures in their budget at the time of adoption. Consolidation periods are then defined as periods in which the fiscal effort is above a given threshold.

The same issue had already been raised in the VAR literature aiming at estimating fiscal multipliers, where Romer and Romer (2007) and (2010) have revived the narrative approach starting from Rotemberg and Woodford (1992) and Ramey and Shapiro (1998). Accordingly, they aim at estimating fiscal multipliers by relying on fiscal shocks identified using the previously described definition of fiscal effort – i.e. by exogenous discretionary fiscal measures introduced by governments – instead of other more current methodologies for the identification of fiscal shocks. In this context, and advocating the use of narrative-type of fiscal shock also in the VAR approach, Favero and Giavazzi (2010) and Ramey (2011) argue that the narrative approach has better properties for the estimate of multipliers than traditional VAR-identified fiscal shocks.

([66]) This is illustrated in Graph III.1.1 below.

The narrative approach to measuring fiscal effort has also weaknesses. These are better understood by comparing the two approaches. The main conceptual difference between the traditional CAB-based approach and the narrative approach is that in the first case the fiscal effort is measured against the benchmark of balance at potential, while in the narrative approach the fiscal effort is measured against a benchmark of "unchanged policy", i.e. against what would have happened in absence of government intervention.

Graph III.1.1: **Change in Structural Balance versus bottom-up approach**



Source: Commission services

This is illustrated in Graph III.1.1. It considers a situation in which the economy is at potential for three years but the underlying trend in the CAB is negative. This could be because of trend changes in the composition of the tax base or because of revenue elasticities below their normal value. In this case the change in CAB will accurately signal a loosening in fiscal policy, despite no action having been taken in this sense by the government. If the government wants to shift the CAB to the desired consolidation path (dotted line), the fiscal effort it has to implement (the blue arrow) is thus larger than the corresponding observed change in the CAB. Indeed the value of the measures to be taken equals the difference between the spontaneous evolution of the CAB (i.e. the no-policy change situation) and the desired outcome. This confirms that the fiscal stance as measured by the change in the CAB can be of a different size than the underlying fiscal effort, as indicated in the narrative position.

However, the accurate assessment of the total effort crucially relies on the fact that benchmark revenues are easily identified, as a function of the evolution of tax basis. In the case of expenditures the benchmark is not so easily identified, because the evolution of many expenditures items depends on yearly legal decisions or because they have an evolution that does not depend on the economy.([67]) In the first group of expenditures it is unclear what should be the baseline defining the spontaneous evolution and thus it is not clear the meaning of policy actions of the narrative approach. In the second group of expenditures it is not clear that such a spontaneous evolution of the CAB, driven by the dynamic of entitlements in the same way the dynamic of revenues from housing drives it, is to be interpreted as a development out of the government control. ([68])

Consequently while on the revenue side an absence of measure can reasonably be equated with a neutral stance (a part for cyclical developments), this is generally not the case on the spending side. Specifically, an absence of new measures on the spending side need not imply a broadly constant expenditure ratio, even in the long-run. ([69]) Thus, one has to be careful when drawing conclusions from a bottom-up approach on the spending side, since the underlying baselines may present significant methodological differences across countries. In many such cases thus the spontaneous CAB evolution represented would rather better be interpreted as a discretionary fiscal loosening.

The second weakness in the narrative approach consists in the fact that the methodologies underlying the quantification of the measures are neither transparent nor replicable, differ across countries and in time within each country, are influenced by the cyclical position of the country

([67]) Examples of the first group are increases in government consumption or in public wages or education expenditures that depend on discretionary government choices. Examples of expenditures that have a trend mostly unrelated to the economy are pension or health entitlements.

([68]) In the case of pension expenditures it remains true that the measures taken by the government to reduce such entitlements are relevant for the estimate of the multipliers. But what is the correct quantitative estimate of this measure? The impact on the next budget year or the overall reduction in future expenditures?

([69]) In other words, the narrative approach does not consider as a relevant fiscal decision the choice of governments of non-acting. For example letting entitlements grow at an unsustainable rate is not considered as a fiscal policy decision and thus does not enter the picture of fiscal effort under the definition of the narrative approach.

Box III.1.1: **Computing the cyclically adjusted balance using short-term elasticities**

As an analytical exercise, we compute an estimation of the CAB using time-varying 'apparent' fiscal elasticities (corrected for the impact of DTM-Discretionary Tax Measures) instead of the constant elasticity. This approach is only illustrative, since it suffers from several limitations. In particular, two substantial caveats should be borne in mind. First, these empirical elasticities are those observed annually when examining the variation of revenue (net of DTM) and expenditure from a year to another. Analytically, these 'apparent' elasticities of revenue and expenditure to GDP, estimated over time, are only a proxy of the 'true' elasticities of the fiscal balance to the output gap. Second, by lack of data, the expenditure data are not corrected from discretionary spending measures, unlike for the revenue data. The apparent elasticities for expenditure are not purely endogenous but are influenced by discretionary fiscal policy. For further detail, please see Princen et al. 2013.

An illustrative CAB based on time-varying elasticities can be defined, for a given country, as:

$$\Delta CAB^{TVE} = \Delta\frac{(R_t - G_t)}{Y_t} - \Delta(\widehat{\varepsilon_t} \cdot OG_t) \quad (1)$$

with the 'apparent' semi-elasticity being determined as a function of the 'apparent' elasticities of revenue and expenditure: , where is the estimated empirical elasticity of total revenue (net of DTM) for a given country, and the estimated empirical elasticity of total spending. Following standard practice, the estimated empirical elasticities can be written as:

$$\widehat{\eta_{Rt}} = \sum_{i=1}^{5} \widehat{\eta_{Rit}} \frac{R_i}{R} = \sum_{i=1}^{5} \frac{R_{it} - DTM_{it} - R_{it-1}}{R_{it-1}} \cdot \frac{Y_{t-1}}{Y_t - Y_{t-1}} \cdot \frac{R_{it}}{R_t}$$

$$\widehat{\eta_{Gt}} = \eta_{G_U} \cdot \frac{G_{Ut-1}}{G_{t-1}} = \frac{G_{Ut} - G_{Ut-1}}{G_{t-1}} \cdot \frac{Y_{t-1}}{Y_t - Y_{t-1}}$$

where is the individual revenue for five revenue categories (personal income taxes, corporate income taxes, indirect taxes, social security contributions and non-tax revenues) , the unemployment-related expenditure and the elasticity of unemployment expenditure with respect to the output gap. The difference between the change in CAB based on time-varying elasticities (ΔCABTVE) and the change in CAB based on long-term elasticities can be expressed as:

$$\Delta CAB^{TVE} - \Delta CAB = (\varepsilon - \widehat{\varepsilon_t}) \cdot \Delta OG_t - \Delta\widehat{\varepsilon_t} \cdot OG \quad (2)$$

The term $(\varepsilon - \widehat{\varepsilon_t}) \cdot \Delta OG_t$ corresponds to the revenue shortfall/windfall effect. This effect is the most meaningful economically: this is the revenue gap/excess with respect to the long run value of the cyclical elasticity. The term $-\Delta\widehat{\varepsilon_t} \cdot OG$ corresponds to the elasticity fluctuation effect. The latter is difficult to interpret, since it captures the short-term volatility of the cyclical elasticity, which turns out to be sizeable empirically. The elasticity fluctuation effect could also be very large because it depends on the level of the output gap, not on its change. This could create some "noise", making the interpretation of the indicator delicate.

When considering long-term averages, the change in the illustrative CAB based on time-varying elasticities and the change in the standard CAB compare reasonably well (see Table III.0.1). Focussing on the 10-year average (2003-12), the gap between the two CAB measures is close to zero at the EU/euro area level and for most EU countries. This reflects the fact that the concepts are fairly consistent and, more importantly, that the short-term elasticities average out to a value fairly close to the constant long-term value computed by the OECD. The difference for some countries is explained by the elasticity fluctuation effect, which has no reason to average out to 0.

(Continued on the next page)

Box (continued)

Table III.0.1 Change in CAB based on time-varying elasticities

	Change in CAB based on time-varying semi-elasticities											Difference between change in CAB based on time-varying elasticities and change in standard CAB										
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	10Y av (03-12)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	10Y av (03-12)
BE	0.2	-0.5	-2.4	2.5	-1.0	-0.9	-2.4	1.4	-0.3	2.3	-0.1	-0.3	0.4	-0.1	0.1	0.0	-0.3	0.0	0.3	0.1	0.9	0.1
BG	1.0	1.7	0.0	0.5	-3.3	2.7	5.4	-9.2	1.3	0.5	0.1	0.2	-0.3	0.8	-0.2	**-2.3**	**2.5**	**8.6**	**-10.5**	0.7	0.0	0.0
CZ	-0.3	2.8	-1.5	-0.4	0.3	1.0	-2.7	0.8	1.3	2.1	0.3	0.0	-0.6	0.0	0.0	-0.7	**2.2**	**-1.9**	0.1	-0.1	**1.4**	0.1
DK	0.2	1.1	1.8	0.3	-0.3	-0.4	-3.4	0.5	0.5	-2.2	-0.2	0.0	-0.2	-0.5	**1.4**	0.1	0.0	**-1.4**	0.8	0.0	0.1	0.0
DE	-0.9	1.7	0.3	1.0	1.1	-1.2	-0.5	-1.6	2.9	1.0	0.4	**-1.5**	**1.3**	-0.4	0.6	0.3	-0.9	-0.8	**1.1**	0.4	0.0	0.0
EE	1.4	0.0	-1.1	-0.3	-1.3	-6.0	9.6	-3.2	2.8	-2.5	-0.1	0.3	-0.1	-0.4	0.0	-0.4	**-2.8**	**4.5**	**-4.4**	**3.7**	-0.1	0.0
IE	1.2	1.3	-0.2	0.6	-3.2	-6.4	-2.8	-14.4	13.2	3.8	-0.7	-0.4	0.0	0.0	-0.1	0.7	-0.7	**1.6**	**2.4**	**-3.5**	-0.6	-0.1
EL	-1.5	-2.1	2.4	-1.2	-2.1	-1.9	-1.5	1.7	11.1	3.2	0.8	-0.1	0.1	0.0	0.3	-0.9	0.6	**2.8**	**-5.1**	**7.7**	-0.9	0.5
ES	0.3	0.2	1.2	0.8	-0.6	-5.2	-2.5	85.7	-90.5	3.4	-0.7	0.1	-0.1	0.0	0.0	-0.1	0.4	**2.0**	**83.9**	**-90.4**	**1.8**	-0.2
FR	-0.4	-0.1	0.7	-0.1	-0.5	0.0	-2.1	0.9	1.5	1.0	0.1	0.0	-0.2	0.0	-0.3	0.2	-0.2	-0.1	0.8	-0.1	-0.1	0.0
IT	-0.3	-0.2	-1.0	-0.8	2.1	-0.2	1.2	-0.5	-0.2	-5.1	-0.5	-0.5	0.0	0.0	**-1.1**	0.7	0.1	1.0	-0.5	-0.6	**-6.9**	-0.8
CY	-1.1	2.3	2.2	0.5	2.1	-0.9	-6.6	1.1	-1.1	2.5	0.1	0.2	-0.2	0.4	-0.4	**-1.6**	**2.4**	**-1.0**	0.2	-0.2	0.7	0.1
LV	0.4	-0.1	-0.5	-2.3	-0.6	-0.3	4.7	3.9	-5.6	1.2	0.1	0.0	-0.1	-0.2	-0.8	0.8	**1.5**	**4.5**	**2.4**	**-8.6**	0.6	0.0
LT	-1.0	-1.1	0.3	-1.4	-1.4	-1.8	2.2	-2.2	2.6	2.3	-0.1	0.0	-0.2	-0.1	-0.9	0.3	-0.3	**2.7**	**-3.9**	**2.7**	0.0	0.0
LU	-0.5	-1.6	0.8	0.9	1.3	10.8	-13.8	-0.2	0.6	-1.6	-0.3	-0.2	0.0	0.1	0.1	0.4	**9.8**	**-12.3**	0.8	0.3	-0.3	-0.1
HU	1.6	0.4	-1.8	-2.5	3.1	3.7	2.9	-4.0	11.3	-3.6	1.1	-0.1	0.1	0.0	-0.3	**-1.9**	**2.1**	0.3	**-3.6**	**3.3**	**2.7**	0.3
MT	-2.5	6.2	1.1	0.0	-0.2	-3.1	2.4	-0.7	0.6	0.3	0.4	0.0	0.5	-0.3	-0.1	-0.1	-0.2	0.3	-0.1	0.0	0.0	0.0
NL	-1.5	2.3	1.2	0.4	-1.2	0.5	-3.7	0.2	-0.5	1.0	-0.1	**-1.3**	**1.2**	-0.1	0.5	0.3	0.2	-0.4	0.1	**-1.1**	-0.3	-0.1
AT	0.6	-4.1	2.9	-0.5	-0.2	-0.7	-0.7	-0.3	1.3	-0.4	-0.2	0.7	-1.0	0.3	0.0	-0.1	-0.8	0.1	0.6	0.1	0.0	0.0
PL	-1.7	0.2	1.2	-0.6	1.0	-2.2	-1.8	-0.7	3.0	2.0	0.1	-0.5	0.0	0.0	-0.3	-0.1	-0.4	**1.1**	-0.4	0.0	-0.2	-0.1
PT	0.3	0.3	-2.4	1.5	0.6	0.1	-3.2	-2.6	4.6	2.0	0.1	-0.5	0.6	0.1	-0.3	-0.2	0.1	**2.0**	**-2.2**	**-1.3**	**1.9**	0.0
RO	-0.1	-1.1	-0.1	-3.0	-1.0	-2.6	-0.6	2.8	2.1	3.1	-0.1	0.0	0.1	-0.2	-0.9	0.0	1.0	-0.4	-0.4	1.0	0.0	0.0
SI	0.0	0.0	0.4	-0.8	-0.2	-2.1	0.4	3.6	-7.3	1.1	-0.5	0.0	0.0	-0.1	0.0	-0.1	-0.3	-0.1	**3.8**	**-6.2**	**-1.7**	-0.5
SK	5.1	0.3	-0.5	-0.8	-0.4	-0.2	-2.9	-0.7	2.6	0.1	0.3	-0.2	-0.1	0.0	0.2	-0.3	0.2	0.2	-0.4	0.0	0.0	0.0
FI	-1.1	-0.7	0.3	0.1	0.2	-1.2	-2.1	0.3	0.6	-0.7	-0.4	-0.1	0.1	-0.1	-0.2	0.6	**-1.1**	-0.3	**1.6**	-0.3	0.2	0.1
SE	0.6	0.6	0.9	0.0	0.4	0.6	-2.4	1.4	-0.6	0.0	0.2	0.1	-0.1	-0.4	0.7	-0.5	0.3	**-3.3**	**2.9**	0.4	-0.2	0.0
UK	-1.6	-0.8	-0.1	0.5	0.2	-1.9	-2.4	-0.2	1.5	2.0	-0.3	0.2	-0.6	-0.1	-0.1	0.9	-0.9	**1.7**	**-1.0**	-0.7	-0.2	-0.1
EA-17	-0.2	0.2	0.4	0.2	0.3	-1.2	-1.3	2.1	-1.1	0.6	0.0	-0.4	0.1	0.0	-0.1	0.3	-0.3	0.2	**2.6**	**-2.8**	-0.6	-0.1
EU-27	-0.4	0.1	0.4	0.0	0.2	-1.0	-1.5	4.2	-3.0	0.4	-0.1	-0.2	0.0	0.0	-0.2	0.2	-0.1	0.2	**4.5**	**-4.8**	-0.8	-0.1

Note: The change in the CAB computed for Spain for the years 2010 and 2011 is very large. This is due to the almost zero growth rate during the crisis years in Spain, which largely inflates the denominator of the revenue/expenditure elasticities and leads to an extremely high value of the semi-elasticity. The resulting CAB values are consequently very lare.

Looking at the annual changes in the CAB and in its variant, the difference becomes much larger. As indicated by the figures highlighted in bold in the right-hand panel of Table III.0.1, the difference between the change in the CAB and in its variant exceeds one pp in around 20% of the observations. Some very large numbers in the crisis years (e.g. Bulgaria, Greece, Spain, Latvia, Slovenia) are due to the very low growth which enters in the denominator of the elasticities. Therefore, when growth is at around zero, some argue that the difference in growth rate is more telling than the elasticity, which is a ratio. However, in 40% of the observations, the discrepancies are only +/-0.2 or lesser. We observe that the discrepancies are concentrated in the crisis period 2008-11 and are more marked for countries particularly affected by the economic downturn. Those discrepancies reflect diverging cyclical patterns in both revenue and GDP in some years and/or some countries. For any given level of the output gap, the larger and less synchronised the swings in revenue and GDP, the larger the gap between the time-varying and the constant elasticities.

In an attempt to better understand some possible reasons behind the volatility of the CAB variant, we identified an interesting pattern in Table III.0.1. When the deviation from the standard CAB becomes very large, the value of the CAB variant seems to also overshoot in the following year but in the opposite direction. This may suggest the importance of dynamic effects, namely the fact that tax revenue may follow the evolution of tax bases with some delays, owing to specific collection mechanisms or declaration based on past income or transactions. Using a three year moving average of the CAB reduces the discrepancies: only +/-0.2 or lesser in 60% of the observations. Clearly, adjacent elasticities seem to cancel out or average out to reasonable levels, giving some credit to the role of dynamic effects. Some very strong divergences seem to remain in some countries and/or years, even after smoothing, suggesting that the other determinants of tax elasticity fluctuations (composition of growth, tax compliance and asset price cycle) may play an important role as well.

and can be affected by the scope and the aim of the assessment and by political decisions of the governments.

Taking stock of the criticisms this Part takes the view that in order to evaluate the fiscal effort it is useful to use another indicator of the orientation of fiscal policy.

This indicator, named discretionary fiscal effort, is not a genuinely new concept; it aims at putting together the advantages of the narrative and of the traditional approach. Specifically, it includes a narrative approach relative to the revenue side and a similar-to-CAB measure on the expenditure side.

The reasons for this choice are those explained above: while on the expenditure side there are good reasons to believe that the CAB – normally a measure of fiscal stance – provides an overall correct benchmark to gauge discretionary government policy, i.e. the fiscal effort, on the revenue side the presence of underlying movements of tax bases imperfectly correlated with GDP, and the fluctuation of short-term elasticities plead for complementing the traditional CAB-based measure with a measure based on the narrative approach.

In this respect, it could be argued that the criticisms to the change in CAB related to the short-term variation in tax to GDP elasticities could be addressed by computing a CAB variant based on time-varying elasticities (see Box III.1.1). This exercise only provides a partial solution as also the short-term variations contain some statistical 'noise'. Indeed, while this exercise highlights the large impact of short-term fluctuations in tax elasticities on the annual variation in the CAB, a change in CAB computed using observed short-term elasticities turns out to be very erratic, given the magnitude of fluctuation in elasticities, the varying sign of elasticities and the fact that they seem to offset each other over a number of years Moreover it should be noted that this CAB-refinement shares a feature with the discretionary fiscal effort indicator. As the time varying elasticities are net of discretionary measures, their calculation requires an estimate of the discretionary measures, meaning that they also contain an element of bottom-up or narrative approach on the revenue side (the Discretionary Tax Measures).

Chapter III.1 provides a description of the discretionary fiscal effort indicator and compares it to the change in structural primary balances (SPB) with a breakdown of the sources of gaps between the two. It shows that it contributes to a better understanding of the evolution of the public finances and its interaction with economic developments.

Section III.1.2 applies the fiscal effort indicator to the recent and on-going consolidation episode. This highlights the relevance of the narrative approach on the revenue side in a period characterized by large fluctuation of short-term elasticities of revenues to GDP. Chapter III.3 focuses on the discretionary tax measures which are the key ingredient of the narrative approach on the revenue side, and on the behaviour of short-term elasticities around their long-term value. These are the main source of difference between the discretionary fiscal effort indicator and the change in the CAB-to-GDP ratio. Based on a longer dataset than in the previous exercise, it highlights that discretionary measures account for only a small part of the short-term fluctuations in gross apparent elasticities, thus confirming that a narrative approach on the revenue side can be a useful complement to the traditional CAB-based analysis.

2. MEASURING THE FISCAL EFFORT

2.1. A COMPLEMENTARY MEASURE OF FISCAL STANCE

As discussed in the introduction, a growing strand in the literature proposes to consider a narrative or "bottom-up" approach to assessing the fiscal stance, which consists in adding up the effects of the measures as estimated by the governments in the relevant budget documents at the time of their adoption.

This approach aims at complementing both the traditional CAB-based approach of fiscal stance and the purely narrative approach of fiscal effort by proposing a new indicator that on the one hand is a better measure of fiscal effort than the traditional straight "top-down" approach based on the change of the CAB ratio and on the other improves on the main difficulty of the pure bottom-up approach. This will provide an indicator which is useful, in identifying the moment of fiscal intervention and in analysing fiscal efforts made by governments.

Thus, in view of the weaknesses of both the top-down and the bottom-up or narrative approaches the chapter introduces and discusses a new indicator, the discretionary fiscal effort (DFE) which aims at combining the top-down and bottom-up approaches to respond to the main criticisms of the two.

In particular the DFE has the attraction of being broadly immune to the measurement uncertainties affecting the structural balance when used to assess fiscal effort, in particular on the revenue side and on unemployment expenditures that can be considered cyclical. On the other hand, by relying on a conventional approach on the expenditure side, it avoids the main shortcoming of the bottom-up approaches, namely the lack of a benchmark against which to gauge discretionary expenditure measures.

Thus under certain conditions the DFE can be a helpful indicator of the fiscal effort. This may be especially the case in periods of shifts in the composition of growth and yearly potential output.

2.2. THE DISCRETIONARY FISCAL EFFORT

The DFE is defined as:

$$DFE_t = DFE_t^R + DFE_t^G = \frac{N_t^R}{Y_t} - \frac{(\Delta E_t - pot.E_{t-1})}{Y_t} \quad (1)$$

where N^R stands for all revenue measures in nominal terms, Y_t is nominal GDP, E_t is the adjusted expenditure aggregate and *pot* is the medium-term nominal potential growth rate as used in the framework of the expenditure benchmark. It is a smoothed average of the "annual potential growth" traditionally used in surveillance and underpinning the calculation of the cyclically-adjusted balance. In turn, the adjusted expenditure aggregate is obtained as:

$$E_t = G_t - U_t^{nd} - I_t$$

where U_t^{nd} and I_t refer to non-discretionary unemployment expenditure and interest payments, respectively. The DFE also corrects for the effects of one-offs and other temporary measures. Therefore, the correction for one-offs does not lead to differences between the two indicators of the fiscal stance.

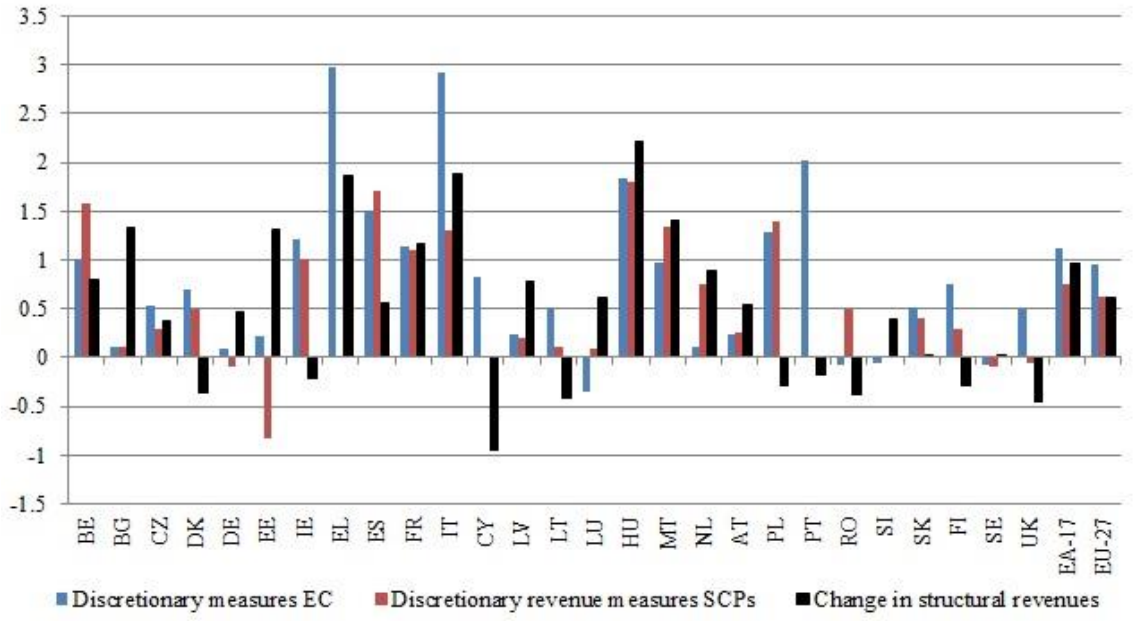
The DFE represents a mixed method for assessing the fiscal stance in the following sense:

• On the revenue side, it relies on a truly bottom-up approach, as the effort is simply computed by adding-up the effects of new tax measures in the year of interest. ([70]) This can include the incremental effect of tax measures adopted in earlier years. The main difference with the structural balance stems from the fluctuations in tax elasticities from their standard (long-term) values, which are quite large in practice (this issue is discussed in detail in Chapter III.2).

• On the expenditure side however, an essentially top-down method is kept by measuring the effort as the gap between spending and potential growth. This is because of the methodological limitations

([70]) In what follows, data until 2012 are from governmental source (the Discretionary Tax Measures database, see the next chapter) while data as from 2012 are the measures as assessed by the Commission services.

Graph III.2.1: **Discretionary revenue measures (% of GDP) in 2012**



Source: AMECO (Commission spring 2013 forecast), Stability and Convergence Programmes (2013).

noted above, but also for a more positive reason. Defined this way, the discretionary fiscal effort indicates whether policy is inducing expenditure growth above or below potential GDP growth. In particular, a neutral stance corresponds to a situation where the authorities do not aim at changing the medium-run values of the tax and expenditure to GDP ratios; that is, there is no attempt to stimulate demand above or below potential growth. ([71])

While the approach to the spending side is more conventional and closer to the structural balance methodology, two important differences must be underlined:

• First, interest payments and all non-discretionary changes in unemployment expenditure are removed from the expenditure aggregate as they are deemed to be outside the control of policymakers in the short run.

• Second, a more stable notion of potential growth is used. Specifically, potential growth is smoothed over 10 years centred on the current year, as already done when evaluating the expenditure benchmark in the EU fiscal framework. ([72]) This "reference rate" is more stable by construction than the standard measure.

These adjustments are important for getting closer to a time-invariant notion of the underlying fiscal effort. Specifically, for a given amount of expenditure measures, the evaluated fiscal stance will not be significantly affected by temporary fluctuations in activity and potential growth.

The DFE sums the efforts on the spending side and on the revenue side. It is arguably a closer reflection of the fiscal effort, i.e. of the underlying discretionary policy actions than the traditional change in the CAB ratio, especially when one registers fluctuations in revenue elasticities compared to average elasticities.

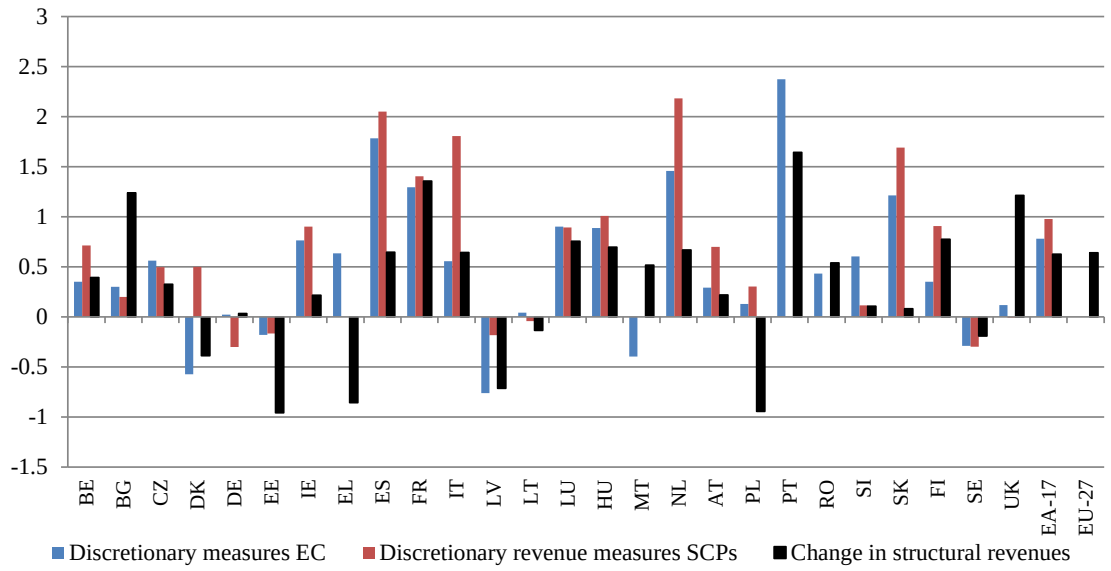
([71]) Notice that in view of the efficiency gain in the public sector, which are required to sustain the current level of services while reducing government expenditures, one could take a decreasing expenditure rtio as a benchmark.

([72]) This medium-term- potential growth rate is gauged as:

$$pot_t = \left(\left(\frac{Y^*_{t+4}}{Y^*_{t-5}}\right) - 1\right)^{1/10} * 100$$

where Y_t^* is real potential GDP in year t.

Graph III.2.2: **Discretionary revenue measures (% of GDP) in 2013**



Source: AMECO (Commission Spring 2013 forecast), Stability and Convergence Programmes (2013).

Among other potential benefits, a breakdown of the difference between the two indicators also gives insights about underlying economic developments, and may allow a more robust assessment the composition of consolidation, i.e. to what extent it is revenue or expenditure-based. The analytical decomposition of the difference between the two indicators highlights, apart from the difference concerning interest payments, the impact of revenue windfalls/shortfalls (and their equivalent for unemployment expenditure) as well as the variability of potential growth (see Box III.2.1 for the full breakdown of the gap between the two indicators).

The evidence provided in this chapter points to significant benefits from using the DFE for enriching the analysis of the fiscal effort. The DFE suffers from some weaknesses though, which partly shares with other approaches. First, it relies on estimates of the budgetary costs or savings from tax and spending measures that come with their own measurement uncertainties, particularly when the underlying data for evaluating measures is lacking or of poor quality. Related to this, the comparison of the evaluation of the measures across countries and time periods is problematic in that methodologies employed, scope and aim of the evaluation differ widely. For instance, data for discretionary revenue for the forecast years correspond to measures that are already adopted or with at least a high probability of enactment. Actually, Graphs III.2.1 and III.2.2 show that measures as reported by Member States in stability and convergence programmes (SCPs) can differ from those the Commission AMECO dataset. This can reflect notably differences in scope (the SCPs may include measures not yet sufficiently specified), and estimations of the yields of measures. Moreover, there are significant differences between the measures and the changes observed in structural revenues, which illustrates how the cyclical adjustment may, under certain circumstances, convey a misleading assessment of the sheer fiscal effort on the revenue side undertaken by the countries concerned. For instance, in 2012 and 2013 the divergences between discretionary revenue measures are highest (above 1% of GDP on average) in Ireland, Greece, Spain, Poland and Portugal.

Second, the DFE may retain an overly conventional approach on the spending side, although as noted this is also a feature that can be justified.

2.3. PROPERTIES OF THE DFE: AN ILLUSTRATION FOR THE PERIOD 2004-2013

This section uses the Commission 2013 Spring forecast to evaluate the DFE and compare it with the structural balance-to-GDP ratio. Given that the Commission AMECO dataset contains a series of one off and temporary measures necessary to compute the structural balance starting from the CAB, it is preferable to us the former for a comparison with the DFE. In turn, data on discretionary revenue measures for the period 2012-2013 are taken from the AMECO database. However, for the period 2004-2011 this dataset is rather incomplete, for which the Discretionary Tax Measures (DTM) database is used instead.

The first stylized fact is that the change in the structural (primary) balance yields an optimistic view of the fiscal effort in booms, while it tends to underestimate it in recessions. This is mainly due to the revenue windfalls/shortfalls (and to a lower extent to windfalls/shortfalls in unemployment expenditure) that show up as a consequence of the fluctuations in tax (and unemployment) elasticities and by construction are part of structural balances. The DFE is a more appropriate measure of fiscal effort as it appears much less exposed to these problems in that it relies on enacted measures on the revenue side and on medium-term potential growth on the expenditure side.

Table III.2.1 illustrates this aspect by comparing the change in the structural primary balance (fiscal stance) and the DFE by sub-periods. ([73]) In the boom period from 2004 until 2007 the difference between the two indicators is largely positive, indicating that the fiscal stance did not reflect entirely the fiscal effort. This is especially noticeable in Bulgaria, Estonia, Ireland, Spain, Cyprus, Latvia, Lithuania and Romania, where sizeable revenue windfalls were registered, jointly with likely overestimations of potential growth. ([74]) According to the data, these revenue windfalls were used to finance discretionary revenue reductions or expenditure increases. More moderate effects can be seen in many other countries as well, with some notable exceptions (the Czech Republic, Germany, the Netherlands, Austria and Slovakia).

Following the outbreak of the crisis in 2008, sizeable stimulus packages were adopted between 2008 and 2010. At the same time, significant revenue shortfalls (see Graph III.2.3) and large unemployment expenditure increases were registered.

These elements explain the generally negative values for the two indicators, although with considerable heterogeneity across countries. The largest differences, though negative this time, were again observed in Bulgaria, Estonia, Ireland, Spain, Cyprus, Latvia and Romania. Slovenia and Finland also registered significant differences between the two indicators but with the positive sign. Other countries display similar features though to a lesser extent. The loosest fiscal stance and fiscal effort throughout the sample are observed in 2009, when the most sizeable stimulus packages in the context of the EERP where adopted. The DFE shows that a loosening in excess of discrete expansionary measures occurred in Denmark, Spain, Cyprus, the Netherlands, Portugal, Slovakia and Finland, with a DFE around -3% GDP.

Between 2011 and 2013 ambitious consolidation packages are adopted in most Member States and accordingly both indicators unveil a tighter fiscal stance. However, against a context of severe economic slowdown the DFE suggests in general a fiscal effort larger than the implied fiscal stance. In other words, countries had to implement discretionary measures to offset the deterioration in the cyclically adjusted balance, driven for example by the erosion of tax bases. That difference is as explained previously more sizeable in the countries under closer market scrutiny and undertaking more sizeable consolidation measures.

The countries for which this difference is highest are Ireland, Greece, Spain, Cyprus, Slovenia and, to a somewhat lesser extent, Latvia, the Netherlands and Portugal. The highest tightening effort according to the DFE metric is observed in 2012 in most economies, but it is especially

([73]) The change in the structural balance is not presented to ensure a more direct comparison in that the change in interest payments is one of the main explanatory factors behind the difference between the two indicators.

([74]) Annual potential output and smoothed potential output are calculated based on ex-post data as opposed to real time data for the period until 2011. This applies to both indicators of the fiscal stance.

Table III.2.1: **The change in the structural primary balance and the DFE 2004-2013**

	Change in the structural primary balance				DFE				Difference			
	Average 2004-2007	Average 2008-2010	Average 2011-2013	Average 2004-2013	Average 2004-2007	Average 2008-2010	Average 2011-2013	Average 2004-2013	Average 2004-2007	Average 2008-2010	Average 2011-2013	Average 2004-2013
BE	-0.4	-0.8	0.3	-0.3	-0.2	-1.2	0.1	-0.4	-0.3	0.4	0.2	0.1
BG	-0.1	-0.7	0.5	-0.1	-1.5	1.7	0.7	0.1	1.4	-2.4	-0.2	-0.2
CZ	0.8	-0.3	1.0	0.5	1.1	-0.1	1.5	0.9	-0.3	-0.3	-0.5	-0.4
DK	0.3	-0.9	0.0	-0.1	-0.4	-1.1	0.1	-0.4	0.6	0.2	-0.1	0.3
DE	0.5	-0.6	0.9	0.3	0.6	-1.0	0.2	0.0	-0.1	0.4	0.6	0.3
EE	-0.5	0.1	0.3	-0.1	-1.6	2.1	-0.1	0.0	1.1	-2.0	0.5	0.0
IE	-0.6	-1.7	1.3	-0.4	-1.6	0.9	2.7	0.5	1.0	-2.6	-1.4	-0.8
EL	-0.6	0.0	3.0	0.7	#N/A	#N/A	6.1	#N/A	#N/A	#N/A	-3.1	#N/A
ES	0.2	-2.7	1.5	-0.3	-0.7	-1.3	3.6	0.4	1.0	-1.4	-2.1	-0.7
FR	0.0	-0.5	1.2	0.2	-0.4	-0.6	1.2	0.0	0.4	0.1	0.0	0.2
IT	0.5	-0.2	1.3	0.5	0.2	-0.2	1.9	0.6	0.3	0.0	-0.6	-0.1
CY	2.5	-2.9	0.8	0.4	0.6	-1.6	4.6	1.1	1.9	-1.3	-3.7	-0.7
LV	-0.5	0.7	0.5	0.2	-1.5	5.6	0.8	1.3	1.0	-5.0	-0.2	-1.2
LT	-0.5	-0.1	0.6	0.0	-2.0	0.6	1.6	-0.1	1.4	-0.7	-0.9	0.1
LU	0.2	-0.6	0.3	0.0	#N/A	#N/A	0.2	#N/A	#N/A	#N/A	0.1	#N/A
HU	0.5	0.8	0.7	0.7	#N/A	#N/A	-2.3	#N/A	#N/A	#N/A	3.0	#N/A
MT	0.6	-0.4	0.3	0.2	0.4	-0.2	-0.2	0.0	0.2	-0.2	0.6	0.2
NL	0.1	-1.1	0.6	-0.1	0.4	-0.9	1.6	0.4	-0.3	-0.2	-0.9	-0.5
AT	-0.3	-0.5	0.6	-0.1	0.0	-0.7	0.8	0.0	-0.3	0.2	-0.3	-0.1
PL	0.3	-1.6	1.7	0.1	-0.3	-1.2	2.4	0.3	0.5	-0.4	-0.7	-0.1
PT	0.5	-1.7	2.4	0.4	0.1	-1.8	3.3	0.5	0.4	0.1	-0.9	-0.1
RO	-1.1	-0.2	1.6	0.0	-2.8	1.5	2.3	0.4	1.7	-1.7	-0.7	-0.3
SI	-0.1	-0.5	1.0	0.1	-0.5	-1.4	2.3	0.1	0.3	0.9	-1.3	0.0
SK	-0.6	-1.2	1.6	-0.1	0.1	-0.8	2.1	0.4	-0.7	-0.4	-0.6	-0.5
FI	-0.2	-1.3	0.0	-0.5	-0.9	-1.7	0.2	-0.8	0.6	0.5	-0.2	0.3
SE	0.5	-0.4	-0.5	-0.1	-0.1	-0.4	-0.3	-0.3	0.6	0.0	-0.2	0.2
UK	-0.1	-1.2	1.0	-0.1	-0.5	-1.0	1.3	-0.1	0.5	-0.2	-0.3	0.0
EA-17	0.3	-0.9	1.1	0.2	0.0	-0.8	1.4	0.2	0.3	-0.1	-0.3	0.0
EU-27	0.2	-0.9	1.0	0.1	-0.1	-0.7	1.3	0.1	0.3	-0.1	-0.3	0.0

Source: AMECO (Commission Spring 2013 forecast) and Commission Services calculations.

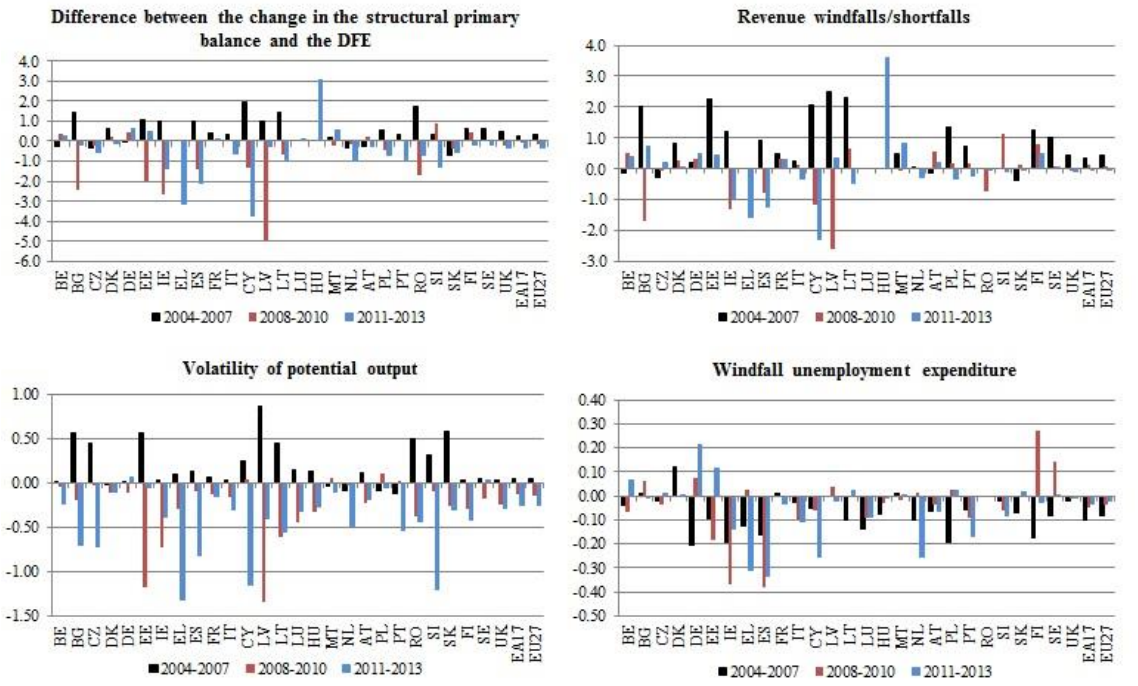
remarkable in Greece, Spain and Portugal, with a DFE above 5% of GDP.

However, Table III.2.1 also shows that the DFE and the change in the structural primary balance broadly coincide on average for the period 2004-2013 – because of the cyclical variation of short-term tax elasticities around the long-term average which implies that broadly on average fiscal effort and fiscal stance coincide – though with significant variations across countries and time periods. In principle, it would be expected that the differences between the two indicators are generally less pronounced in "normal times" than they are at the present juncture. However, this assessment should not build on the comparison with the years before the crisis. There are good reasons for not to qualify them as "normal times", but as "boom" ones in view of the overheating in some Member States and the sizeable accumulation of imbalances. These led to large revenue windfalls, the temporary nature of which was unveiled by the crisis.

Graph III.2.3 displays the contribution of the main explanatory factors of the difference between the change in the structural primary balance and the DFE by subsample. On average, positive revenue windfalls feeding the structural balance and not reflecting a true structural effort were registered annually during the expansionary phase up until 2007.

However, this picture reverts significantly as of 2008. In most cases their size diminished remarkably, with the more vulnerable countries in

Graph III.2.3: **Contributions to the difference between the change in the structural primary balance and the discretionary fiscal effort**



Source: AMECO (Commission Spring 2013 forecast) and Commission Services calculations.

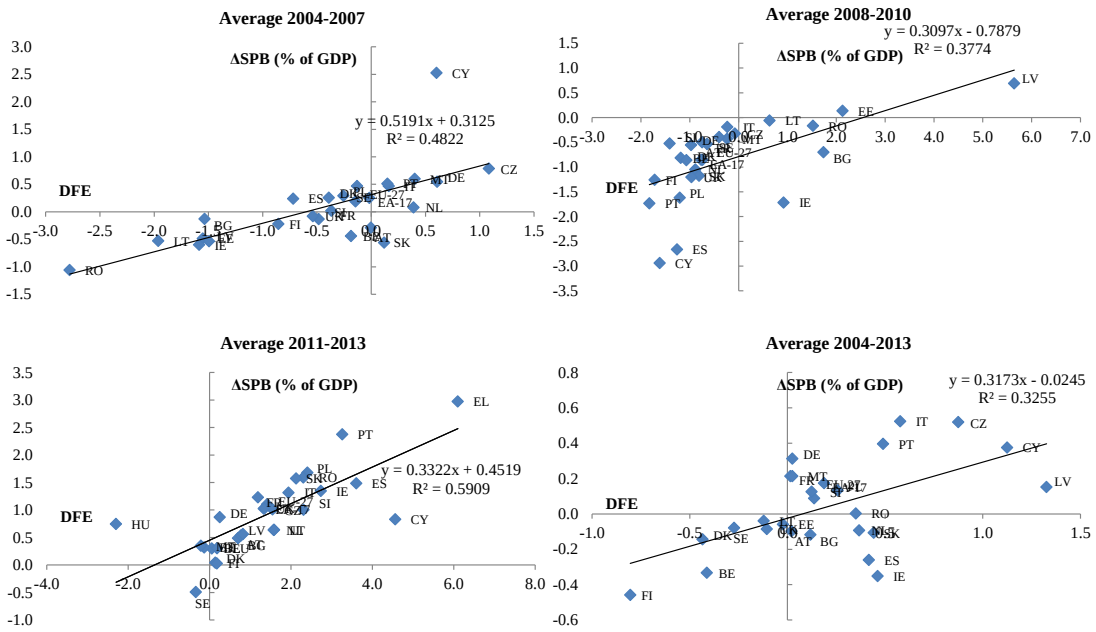
fact registering sizeable revenue shortfalls (see Graph III.2.3). For the most recent years the picture is more mixed, with some countries registering revenue windfalls while others showing the opposite.

Albeit to a lesser extent, the volatility of potential output with respect to its medium term average growth is another major factor explaining the difference between the two indicators. While its contribution is positive on average for the pre-crisis period, it turns clearly negative as of 2008. The largest negative contributions between 2008 and 2010 are registered in the Baltic countries and Ireland. However, in most of the remaining cases, the contribution of this factor is largest between 2011 and 2013, especially in Greece, Spain, Cyprus, Slovenia, and to a lesser extent, Bulgaria, the Czech Republic, Lithuania, the Netherlands and Portugal. It should be stressed, however, that the two notions of potential growth coincide on average, so that there is no inherent bias in the DFE measure.

The contribution of windfall/shortfall unemployment expenditure is not as sizeable as the former two other components. Leaving aside its size, its most remarkable feature is that it is largely negative on average in the three subsamples. However, the most negative values for this factor are registered after 2008 in Ireland, Greece, Spain, Cyprus and the Netherlands and are associated to the intense job destruction observed in these economies in recent years (beyond what would have been expected given growth developments).

The change in the structural primary balance and the DFE display a high correlation coefficient, even by the sub-samples considered in Table III.2.1. For the entire sample the simple correlation coefficient amounts to around 0.7. However, such relation is sensitive to different country groupings. Two groups have been considered: the first one comprises the countries that have accumulated the largest imbalances, peripheral economies and those that have been hit more severely by the crisis (Ireland, Spain, Italy, Cyprus, Latvia, Lithuania, Malta, Portugal, Romania, Slovenia and Slovakia and the United Kingdom); the second group gathers core economies and the Nordic countries.

Graph III.2.4: **Relationship between the change in the structural primary balance and the discretionary fiscal effort**



Source: AMECO (Commission Spring 2013 forecast) and Commission Services calculations.

The correlation between the two indicators is significantly stronger in the latter group, around 0.7, whereas in the former group it amounts to only 0.3. The time evolution of the correlation between two coefficients shows some discrepancies too. Until 2007 the correlation amounts to around 0.7 in both cases, but significant differences are observed thereafter. While in peripheral economies the correlation between the two indicators remains broadly stable between 2008 and 2010, it rises up to 0.9 for the core ones. For the period 2011-2013 the correlation in the periphery declines to 0.5, reflecting a situation in which a large discretionary tightening is needed to improve he structural balance. By contrast, in the core group the correlation between the two indicators resumes to 0.7.

Graph III.2.4 presents the relationship between the two indicators by sub-sample and for the whole period. Despite the notable exception of Cyprus in the period up to 2007, the dispersion of the two indicators with respect to the regression line is rather limited. The outbreak of the crisis in 2008 contributes to increasing such dispersion, especially between 2011 and 2013. In this period most of the countries adopt consolidation strategies but in most of them the degree of fiscal tightening shown by the DFE exceeds the change in the structural primary balance. This is especially salient in the cases of Greece, Portugal, Spain, Cyprus, and to some lower extent Ireland.

2.3.1. Fiscal stance, fiscal effort and economic conditions in 2012

Assessing the orientation of fiscal policy relative to the business cycle requires combining information on the fiscal stance and the fiscal effort with a gauge on the cyclical conditions. A rough analysis consists in plotting together a measure of fiscal effort and a measure of cyclical conditions. The "cyclical conditions" are measured by the level and the change of the output gap.

Of course, this is an oversimplification, given that economic conditions in several countries do not represent an ordinary business cycle, but a balance sheet recession after the bursting of a credit boom, associated with a break in risk assessment by markets. Moreover, as emphasised earlier in this

chapter, the output gap (potential growth) is particularly difficult to estimate under current economic conditions. In this light, one of the mentioned features of the DFE indicator was that volatility in potential growth was smoothened out.

Graphs III.2.5 to III.2.8 display fiscal effort and the fiscal stance in 2012 as measured with the discretionary fiscal effort (Graphs III.2.5 and Graphs III.2.6), and the change in the structural primary balance (Graphs III.2.7 and Graphs III.2.8) plotted against levels and changes in the output gap. Some conclusions stand out even if they have to be taken with care. Indeed, the output gap is endogenously affected by the fiscal effort made (and vice-versa). This implies that part of the observed short-term correlation between out gap and effort is induced by the necessary effort made by countries that needed to address their sustainability risk. Thus, it should be recalled that gauging fiscal policy only with respect to the output gap gives an incomplete picture as it omits other crucial factors, like the monetary policy stance and crucially the riskiness of the fiscal situation of the countries which can make a restrictive fiscal policy the best option also in presence of difficult economic conditions. In addition, the on-going reallocation of resources in presence of structural rigidities impacts on the output gap.

In particular, by 2012 public debt had risen to over 90% in the euro area. Coupled with solvency concerns for some countries, this implies that these graphs should be interpreted with caution. Countries that enter a period of heightened risk aversion with a large debt overhang inevitably face difficult choices. In a sovereign debt crisis, obviously, each quadrant in these Graphs is not equally attainable.

In many countries, the discretionary fiscal effort provides the clear picture of the choice by Member States to put their public finances back on track.

About a third of MS undergo significant consolidation to cure their fiscal imbalances as shown in Graph III.2.5 and III.2.6. When defined as the combination of an output gap below -2% of GDP and a discretionary fiscal effort exceeding 2% of GDP, this would apply to eight countries (Hungary, Slovenia, Spain, Italy, Portugal, the Czech Republic, Romania and Greece). Two countries (Ireland and Slovakia) are close to that pattern, as they combine a fairly negative output gap (between -1% and -2% of GDP) with strong fiscal tightening (above 2% of GDP improvement in the discretionary fiscal effort). These countries also feature a rapidly widening output gap (a negative change in the output gap over ½% of GDP), with the exception of Ireland where the output gap is presumed to close notably, thereby making it more debatable whether the case is one of pro-cyclical tightening.

A number of other countries also appear to take restrictive fiscal policy measures in difficult cyclical conditions, albeit to a varying extent, and sometimes with important caveats:

– Clear cases of modest to quite significant pro-cyclical tightening include Belgium, Bulgaria, Denmark, France, the Netherlands, Austria and Poland. Finland and the United Kingdom also belong to that category, using the discretionary fiscal effort as a gauge (which appears warranted given large revenue shortfalls).

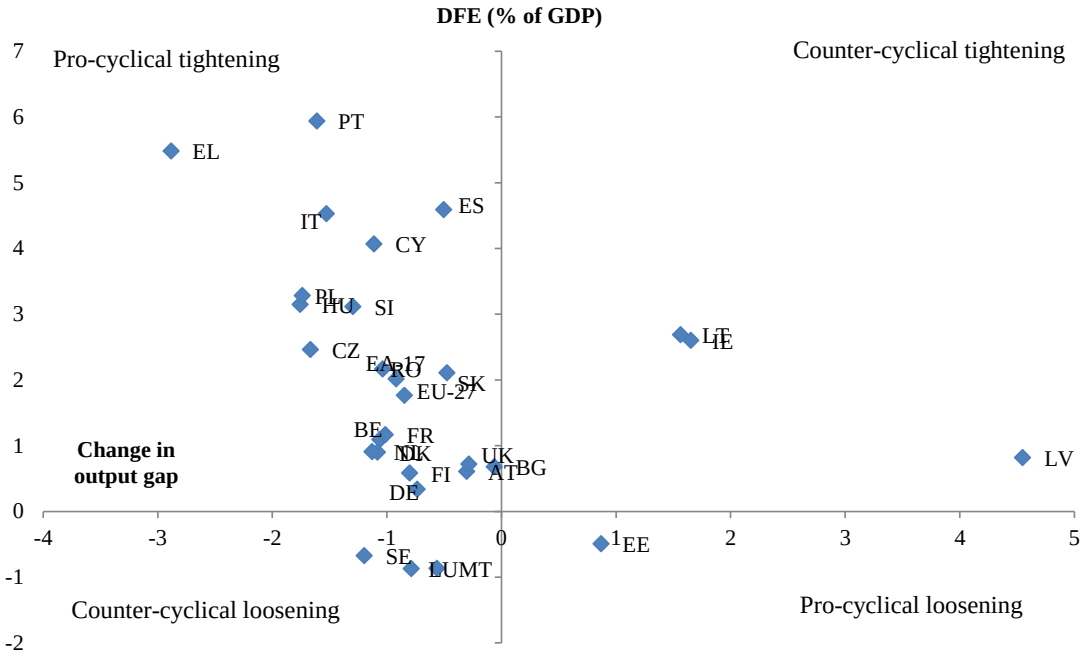
– In two countries (Lithuania and Latvia), there is also discretionary tightening ([75]) and a negative output gap, but one that is not large, and with a positive change in the output gap. In these cases it could be argued that fiscal retrenchment in fact plays a countercyclical role or at least, that the conclusion is ambiguous.

– In Germany, the discretionary fiscal effort is neutral while modest counter-cyclical loosening in fiscal effort is detected in three countries, Luxembourg, Malta and Sweden.

In almost all cases the fiscal stance as shown in Graphs III.2.7 and III.2.8 reflects the discretionary effort made by countries but only to a lower degree. This is especially the case of the countries undergoing large deleveraging process and Italy. The same phenomenon is also visible in Luxembourg, Malta and Sweden. Estonia is an exception in the sense showing the relation between CAB and DFE observed in good times: both the level and the change in the output gap are

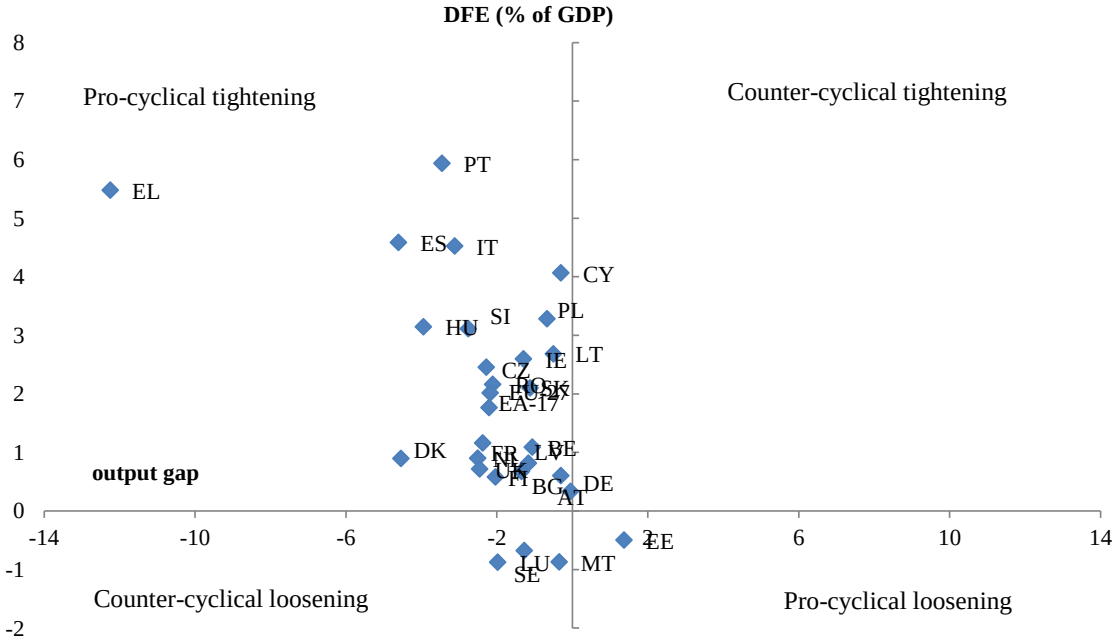
([75]) For Denmark, this is based on the discretionary fiscal effort, which, for the same reason as Finland, appears here more appropriate given a large revenue shortfall.

Graph III.2.5: **Discretionary Fiscal Effort (DFE) in 2012 against the level of the output gap**



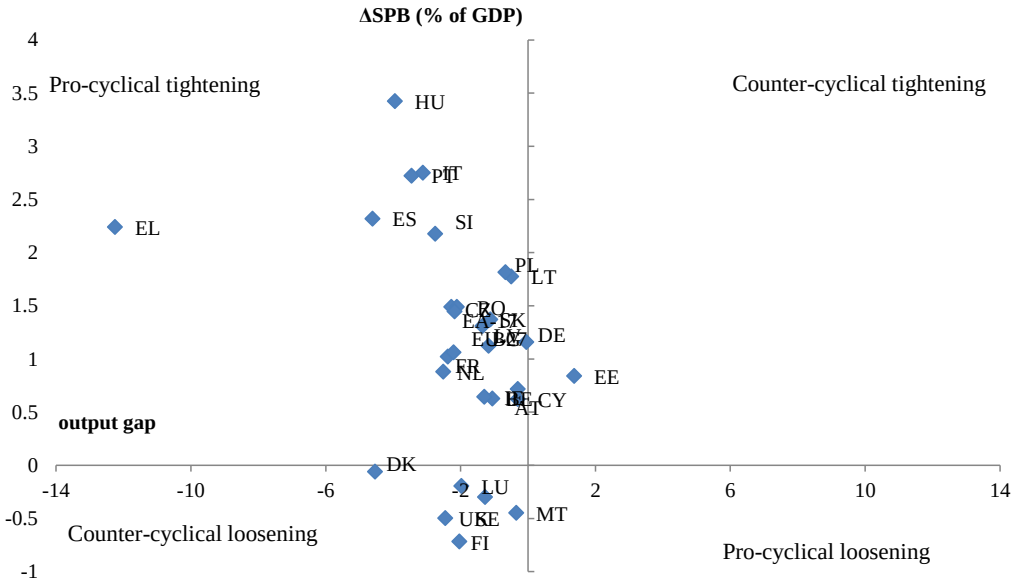
Source: AMECO (Commission Spring 2013 forecast).

Graph III.2.6: **Discretionary Fiscal Effort (DFE) in 2012 against the change in the output gap**



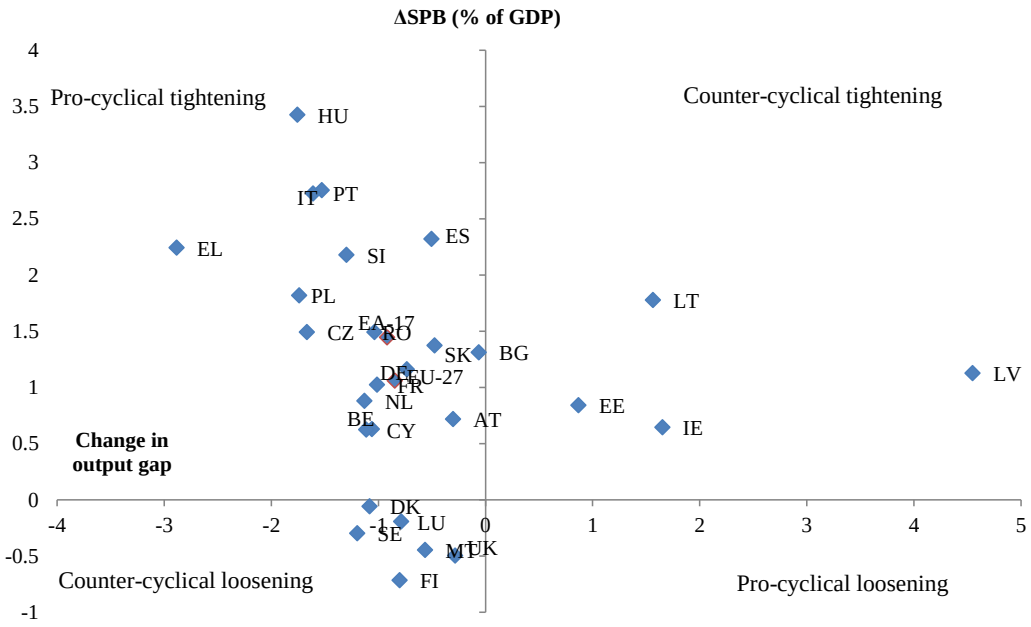
Source: AMECO (Commission Spring 2013 forecast)

Graph III.2.7: : **Change in the structural primary balance in 2012 against the level in the output gap**



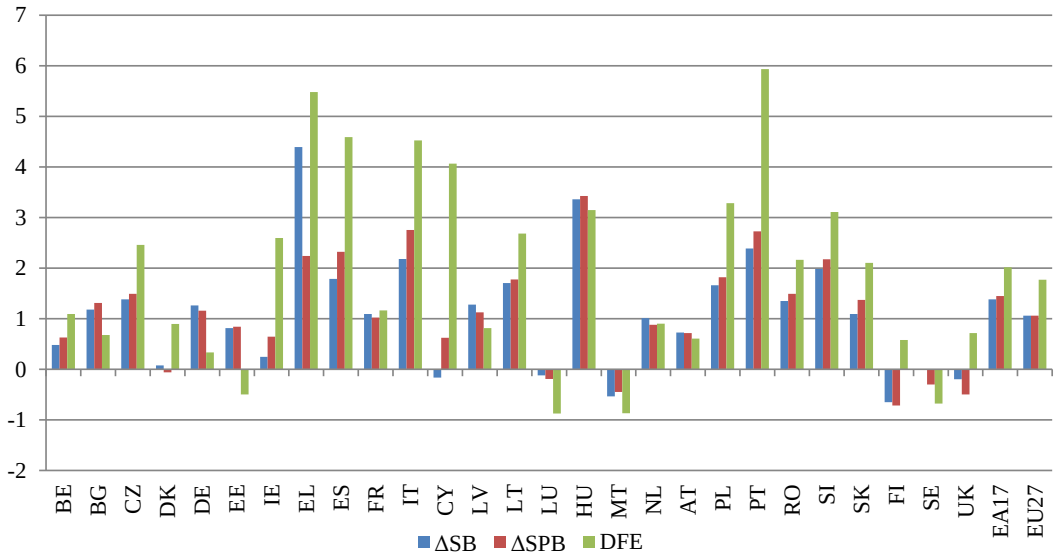
Source: AMECO (Commission Spring 2013 forecast)

Graph III.2.8: **Change in the structural primary balance in 2012 against the change in the output gap**



Source: AMECO (Commission Spring 2013 forecast)

Graph III.2.9: **Fiscal stance in 2012 according to the structural balance (ΔSB), structural primary balance (ΔSPB) and Discretionary Fiscal Effort (DFE) (% of GDP net of one-offs)**



Source: AMECO (Commission Spring 2013 forecast) and Commission Services calculations.

positive, its fiscal stance is contractionary but this is not supported by the DFE.

2.4. THE COMPARISON BETWEEN THE DFE AND THE CHANGE IN THE STRUCTURAL BALANCE: FOCUS ON 2012 AND 2013

2.4.1. Fiscal stance and fiscal effort in 2012

In 2012 a very large majority of EU countries made large fiscal efforts and had tightened fiscal stance (Graph III.2.9).In twenty countries, fiscal consolidation has taken place, in the sense that both the fiscal stance as measured by the structural (primary) balance and the discretionary fiscal effort supporting it have improved, in some cases quite significantly. Besides, in two countries that are gauged to have experienced fiscal loosening as assessed by the change in the structural balance, the discretionary fiscal effort suggests that in fact these countries implemented non-negligible consolidation measures (Finland and the United Kingdom). The further analysis of the gap between the two indicators suggest that the difference between the fiscal stance and the DFE reflects idiosyncratic revenue shortfalls in these two countries, especially large in the United Kingdom.

Moreover, for a large majority of these countries, the consolidation effort has been larger than the change in the primary structural balance.

This implies that the underlying policy retrenchment is visible by only looking at the fiscal effort. For twelve of these countries (Czech Republic, Ireland, Greece, Spain, Italy, Cyprus, Lithuania, Poland, Portugal, Slovenia, Slovakia and Finland), the discretionary effort, as indicated by DFE has exceeded the change in the structural balance by over 1% of GDP, and in several of these countries by over 2% of GDP. In Greece and Portugal, the fiscal effort has been very large (almost 6% of GDP). Cyprus, Spain and Italy also implemented very strong measures. Overall, the group broadly overlaps with that of countries most affected by the current downturn, as well as experiencing strong rebalancing of their economy.

In a few countries shown as consolidating, the discretionary fiscal effort suggests a more limited improvement than the structural balance metric. This holds notably for Germany (where the gap exceeds 0.8% of GDP), and to a lesser extent Bulgaria (with a gap of ½% of GDP), Latvia and Hungary.

Only Malta has experienced significant loosening of the fiscal stance in 2012 reflecting policy action in this sense. Luxembourg and Sweden also relaxed fiscal policy, but more modestly. Finally, only Estonia shows loosening discretionary effort together with improvement of the structural balance.

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2.4.2. A decomposition of the difference between the indicators (2012)

The discretionary fiscal effort is higher than the change in the structural balance in 2012 for two-thirds of EU countries. As already suggested, one immediately notes that this group typically includes those Member States most affected by the current recession and rebalancing. The group comprising the remaining one-third of countries tends to map Member States with a stronger recent growth momentum in relative terms.

Further analysis of the underlying reasons for the gap between indicators can be performed by breaking down the difference into four main components, as well as a small residual term capturing other factors (Graph III.2.10):

- Revenues windfalls and shortfalls (as compared with standard tax elasticities);
- Changes in interest payments;
- Windfalls or shortfalls in unemployment expenditure (as compared with standard elasticities that capture the presumed cyclicality of unemployment benefits in the structural balance calculations); and The wedge between annual potential growth and medium-term expectations of potential growth, as measured by reference rate of potential growth.

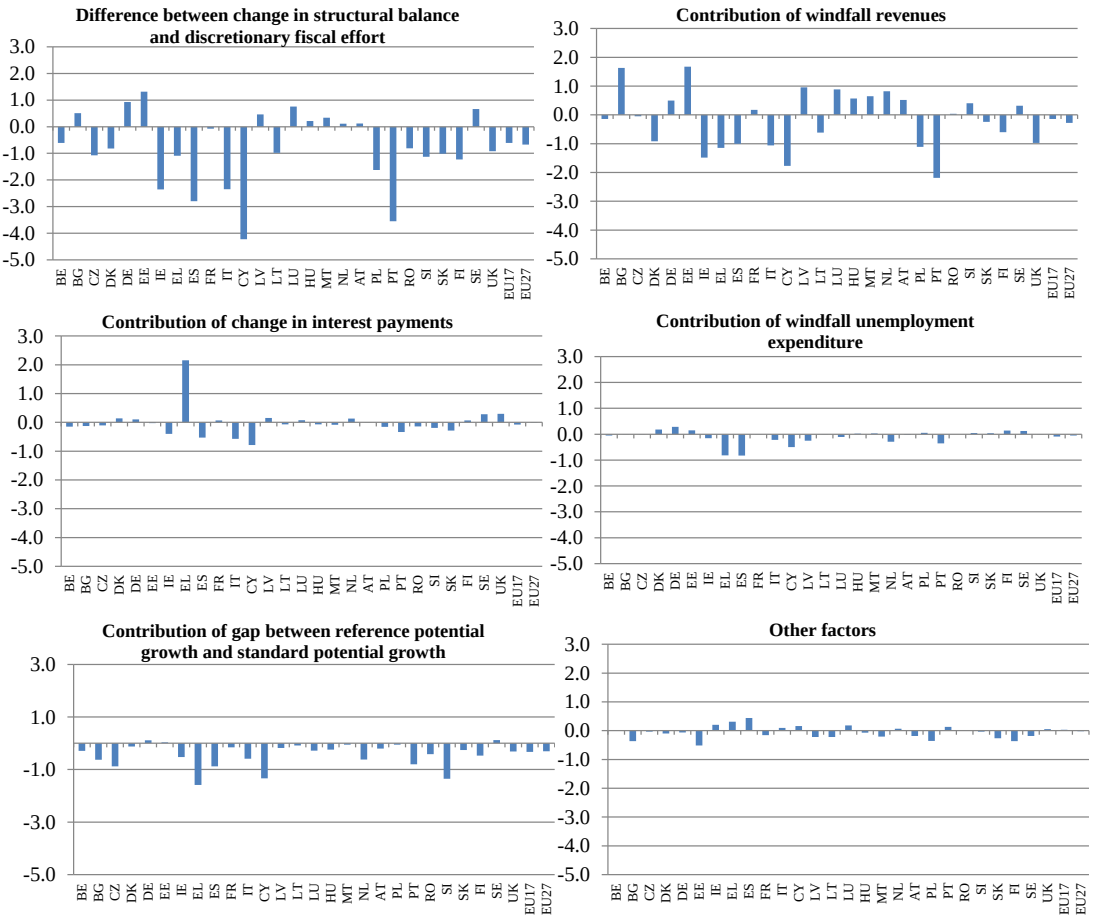
All four components contribute significantly, although the primary contributor appears to be revenues windfalls/shortfalls, followed by the potential growth wedge and then changes in interest payment. ([76])

Sizable revenues windfalls and shortfalls appear to be at play. ([77]) For example, six countries are reckoned to have experienced large windfalls, in the sense of being close to or even higher than 1% of GDP: in addition to Bulgaria, these include Estonia and Latvia as well as Luxembourg, Malta and the Netherlands. More moderate windfalls are registered elsewhere, often in Central and Eastern Europe, although with exceptions. Large revenues shortfalls (over 1% of GDP) are observed also in seven countries, including three programme countries (Ireland, Greece and Portugal), Spain, Italy, Cyprus and Poland. Revenues shortfalls but to a lesser extent (over ½ per cent of GDP) are visible also in Lithuania, the United Kingdom, Denmark and Finland (where more idiosyncratic factors likely played out). The wedge between annual potential growth and the reference rate of potential growth is most often negative, sometimes

([76]) The mean absolute value of windfalls/shortfalls in revenues is 0.8% of GDP. The figure is 0.5% of GDP for the potential growth wedge, 0.3% of GDP for the change in interest payments, and 0.2% for the windfalls/shortfalls in unemployment expenditure.

([77]) For an investigation of the factors explaining revenue windfalls and shortfalls in EU countries, see e.g. Morris et al. (2009).

Graph III.2.10: **Decomposition of the difference between the change in the structural balance and the discretionary fiscal effort in 2012**



Source: AMECO (Commission Spring 2013 forecast) and Commission Services calculations.

very significantly so. Few exceptions where this effect is (modestly) positive are Sweden and Germany. Large negative wedges (above 1% of GDP) are obtained in three countries (Greece, Cyprus, Slovenia), which are characterised by marked recession resulting in a sizable slowdown in annual potential output. Notable effects (of ½ per cent of GDP or above) are observed for seven more countries (Bulgaria, Czech Republic, Ireland, Spain, Italy, the Netherlands and Portugal).

Overall, the group of ten countries experiencing a notable or large slowdown in annual potential output, as compared with medium-term expectations, broadly coincide with those Member States severely affected by the crisis. Changes in interest payments (which do not come into the breakdown when one starts from the primary structural balance) have been significant for some countries. A notable negative contribution (i.e. an increase of interest costs exceeding ½ per cent of GDP) has affected Cyprus, Italy and Spain. In Greece, there is a strong positive effect, resulting from the debt relief measures agreed in February 2012, namely those related to the Private Sector Involvement.

The windfalls/shortfalls of unemployment expenditure, showing up as the difference between actual and elasticities in the cyclical adjustment, plays a more modest role overall.

Large shortfalls due to unemployment benefits exceeding ½ per cent of GDP have occurred in Greece, Spain. More modest ones have also been observed in Ireland, Italy, Latvia, Luxembourg, the Netherlands and Portugal. A modest windfall

Table III.2.2: **Composition of consolidation in 2012**

	2012					
	Change in the structural balance	*of which % contribution of* revenues	expenditure	**Discretionary Fiscal Effort**	*of which % contribution of* revenue	expenditure
BE	0.5	>100	<0	1.1	93.1	6.9
BG	1.2	>100	<0	0.7	15.3	84.7
CZ	1.4	27.6	72.4	2.5	21.6	78.4
DK	0.1	<0	>100	0.9	78.4	21.6
DE	1.3	36.7	63.3	0.3	29.4	70.6
EE	0.8	>100	<0	-0.5	<0	>100
IE	0.2	<0	>100	2.6	46.7	53.3
EL	4.4	42.2	57.8	5.5	54.4	45.6
ES	1.8	31.0	69.0	4.6	32.6	67.4
FR	1.1	>100	<0	1.2	97.6	2.4
IT	2.2	86.1	13.9	4.5	64.7	35.3
CY	-0.2	>100	<0	4.1	20.3	79.7
LV	1.3	61.5	38.5	0.8	29.0	71.0
LT	1.7	<0	>100	2.7	19.1	80.9
LU	-0.1	<0	>100	-0.9	39.8	60.2
HU	3.4	66.1	33.9	3.1	58.6	41.4
MT	-0.5	<0	>100	-0.9	<0	>100
NL	1.0	88.1	11.9	0.9	12.7	87.3
AT	0.7	74.7	25.3	0.6	40.6	59.4
PL	1.7	<0	>100	3.3	39.2	60.8
PT	2.4	<0	>100	5.9	34.0	66.0
RO	1.4	<0	>100	2.2	<0	>100
SI	2.0	19.7	80.3	3.1	<0	>100
SK	1.1	0.7	99.3	2.1	24.6	75.4
FI	-0.7	44.5	55.5	0.6	>100	<0
SE	0.0	<0	>100	-0.7	11.2	88.8
UK	-0.2	>100	<0	0.7	68.9	31.1

Source: AMECO (Commission Spring 2013 forecast) and Commission Services calculations.

associated with a strong labour market has benefited Germany. Modest windfalls have also been observed in the Nordic Countries and Estonia. In other countries, the effect does not exceed 0.1% of GDP.

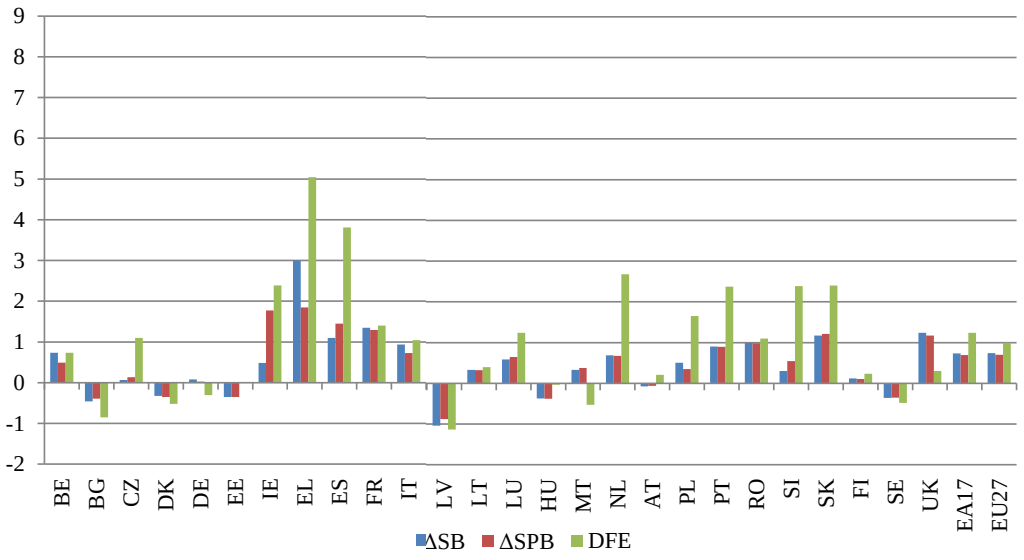
2.4.3. The composition of consolidation in 2012

The analysis of the composition of fiscal consolidation, in particular the degree to which it is expenditure-based or relying on revenues, can be made more robust by comparing the results obtained from cyclical adjustment with the DFE (Table III.2.2). For the purpose of simplicity, the analysis in this sub-section focuses on countries pursuing fiscal consolidation according to both the change in the structural balance and the discretionary fiscal effort. While difficult to summarise, the results suggest distinguishing three broad groups.

First are some countries where fiscal consolidation in 2012 appears essentially expenditure-driven as assessed both using the fiscal stance indicator divided in its revenue and expenditure components and the DFE.

This would be the case of the Czech Republic, Germany, Spain, Lithuania Romania, Slovenia and Slovakia. It is worth recalling, however, that the

Graph III.2.11: **Fiscal stance in 2013 according to the structural balance (ΔSB), structural primary balance (ΔSPB) and Discretionary Fiscal Effort (DFE) (% of GDP net of one-offs)**



Note: Cyprus is not part of the 2013 analysis because it did not submit the SCP and part of the measures for 2013 are under evaluation at the moment of publication
Source: AMECO (Commission Spring 2013 forecast).

extent of consolidation varies widely within this group, so the actual expenditure restraint is stronger in some of them.

The proportion of expenditure vs. revenues in consolidation is broadly the same according to the two indicators except for Poland and Portugal, where the DFE suggests a significant role for revenue measures, which is not reflected in the structural measure of revenues.

Second are some countries where, according to the change in the structural balance, the consolidation relies overwhelmingly on the revenue side, while the DFE approach suggests a prevailing role for the expenditure side. This applies to Member States such as Bulgaria, Cyprus, Latvia, the Netherlands and Austria.

A third group comprises countries that seem to have relied primarily on revenue measures to achieve consolidation in 2012 according to both indicators. In this situation are Belgium, Greece, France, Italy and Hungary. However, for some of these Member States (Greece and Italy) the decomposition based on the discretionary fiscal effort generally suggests a higher share of the consolidation stemming from expenditure restraint.

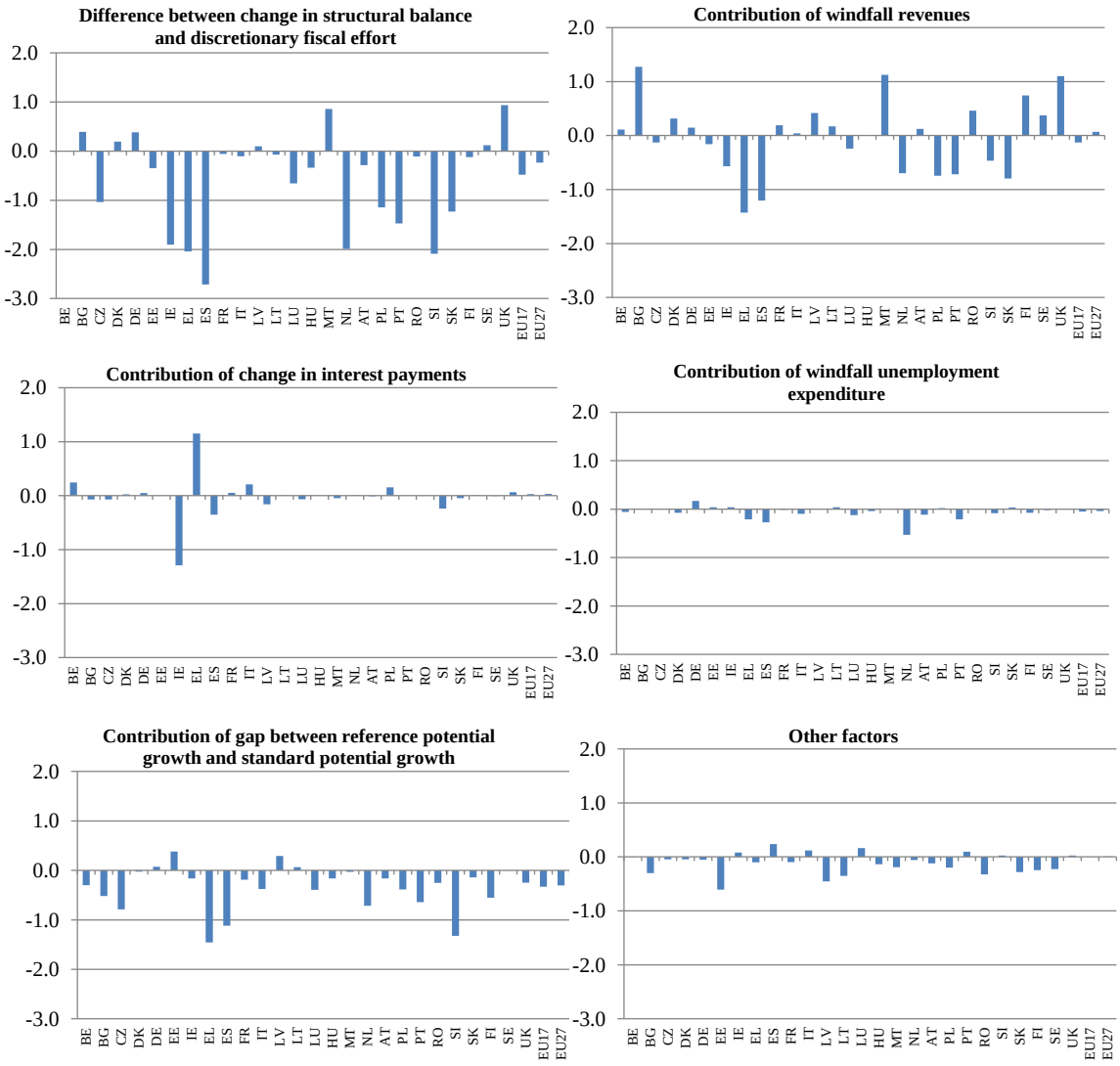
2.4.4. The fiscal stance in 2013

In 2013, according to the Commission's Spring forecast, fiscal policy would continue to be geared towards consolidation in many countries (Graph III.2.11). Fiscal consolidation is unambiguously foreseen in two-thirds of the countries (eighteen countries out of twenty-six), where both the change in the structural balance and the discretionary fiscal effort are expected to be positive.

It should be noted that, as shown in Section I.2.2, the fiscal effort is much reduced compared to 2012 given that the frontloading of fiscal retrenchment made necessary by the sovereign debt crisis allows the EU to lower the pace of adjustment.

Moreover, for a very large majority of consolidating countries, the pace of retrenchment

Graph III.2.12: **Decomposition of the difference between the change in the structural balance and the discretionary fiscal effort in 2013**



Note*:* Cyprus is not part of the 2013 analysis because it did not submit the SCP and part of the measures for 2013 are under evaluation at the moment of publication
Source: AMECO (Commission Spring 2013 forecast)

as measured by the discretionary fiscal effort exceeds that suggested by the change in the structural balance. As in 2012, this holds for most countries undergoing weak or negative growth and sustained rebalancing. The extent of fiscal consolidation would appear to be especially underestimated by using the structural balance (with a difference with the discretionary fiscal effort exceeding 1% of GDP) in ten countries (the Czech Republic, Ireland, Greece, Spain, the Netherlands, Poland, Portugal, Slovenia and Slovakia).

In Greece (above 5% of GDP) and to a lesser extent Spain (with almost 4% of GDP) the pace of consolidation as measured by the discretionary fiscal effort would be extremely large.

In a few countries, a modest fiscal relaxation appears to be in the pipeline according to both indicators (Bulgaria, Denmark, Latvia, Sweden). The situation is mixed, probably close to a broadly neutral stance in the remaining four countries (which, on top of Estonia, Malta and Austria, includes Germany).

Box III.2.1: **Breakdown of the difference between the change in the Structural Balance and the DFE**

The structural balance ([1]) is the cyclically-adjusted balance corrected for one-offs and other temporary measures:

$$SB_t = BAL_t - \left[(\rho_0^r - 1)\frac{R_0}{Y_0} - (\rho_0^g - 1)\frac{G_0}{Y_0}\right] OG_t$$

where BAL_t is the headline budget balance as a percentage of GDP (corrected for one-offs and other temporary measures) R refers to total revenues, G to total expenditure and ρ_0^r and ρ_0^g are the cyclical revenue and expenditure elasticities. ([2]) It is worth noting that the weights used to calculate the cyclical budgetary semi-elasticity are time invariant and obtained as the 10-average average of tax-revenues and expenditure-to-GDP ratios between 2002 and 2011 (denoted by the subscript 0). Hence, $\varepsilon = (\rho_0^r - 1)\frac{R_0}{Y_0} - (\rho_0^g - 1)\frac{G_0}{Y_0}$ is the semi-elasticity of the budget balance to the output gap.
As equation (2) shows the change in the structural balance (ΔSB) can be decomposed into a contribution from the revenue side (ΔSBR) and a contribution from the expenditure side (ΔSBG) based on the changes in the cyclically-adjusted revenues and expenditure, respectively. The revenue contribution can be expressed as:

$$\Delta SB_t^R = \frac{R_t}{Y_t} - \frac{R_{t-1}}{Y_{t-1}} - (\rho_0^r - 1)\frac{R_0}{Y_0}(OG_t - OG_{t-1})$$

or equivalently

$$\Delta SB_t^R = \frac{R_t}{Y_t} - \frac{R_{t-1}}{Y_{t-1}} - (\rho_0^r - 1)\frac{R_0}{Y_0}(y_t - y_t^*) \qquad (3)$$

where y_t and y_t^* denote the actual and potential GDP growth rates, respectively.

At the same time, the two measures are conceptually consistent. Over a smooth path of the economy where tax and spending elasticities stay in line with standard elasticities and in the absence of major shocks weighing on potential growth, the two measures would be essentially similar. However, they may offer a contrasted picture in the event of significant shocks.

The revenue side

The revenue contribution to the difference between ΔSB and the *DFE* is the difference between expression (3) and $\frac{N_t^R}{Y_t}$:

$$\Delta SB_t^R - DEF_t^R = \left(\frac{R_t}{Y_t} - \frac{R_{t-1}}{Y_{t-1}} - \frac{N_t^R}{Y_t}\right) - (\rho_0^r - 1)\frac{R_0}{Y_0}(y_t - y_t^*) \qquad (4)$$

The observed output elasticity of revenues (net of discretionary measures is defined as: $\rho_t^r = \frac{(R_t - N_t^R - R_{t-1})/R_{t-1}}{(Y_t - Y_{t-1})/Y_{t-1}}$

And rearranging this expression leads to $\left(\frac{R_t}{Y_t} - \frac{R_{t-1}}{Y_{t-1}} - \frac{N_t^R}{Y_t}\right) = (\rho_t^r - 1)y\frac{R_{t-1}}{Y_{t-1}}$

([1]) Starting from here and in the remaining, we make the usual assumption that the output gap is sufficiently small that terms of second order can be neglected as compared to first-order terms.
([2]) These elasticities are reported in Table III.4 in the Annex.

(Continued on the next page)

Box (continued)

This expression can be plugged into (4) and rearranging yields the following decomposition for the difference between ΔSB and the *DFE* on the revenue side:

$$\Delta SB_t^R - DEF_t^R = (\rho_t^r - \rho_0^r) y \frac{R_0}{Y_0} + (\rho_0^r - 1) y_t^* \frac{R_0}{Y_0} + (\rho_t^r - 1) y_t \left(\frac{R_{t-1}}{Y_{t-1}} - \frac{R_0}{Y_0} \right) \quad (5)$$

The three terms in (5) have a clear economic meaning. The first term in the right hand side is an approximate measure of revenue windfalls/shortfalls ([3]) which show up as a difference between the actual and average elasticities. The second term reflects the trend increase/decrease in the revenue-to-GDP ratio linked to potential growth, which is only captured by the SB approach. The last term stems from the used of fixed weights in the standard calculation of the cyclical component of revenues. Insofar as the revenue-to-GDP ratio does not deviate significantly from its average value, this third term will be small as compared with the other two ones.

The expenditure side

In turn, the contribution of public expenditure to the difference between ΔSB and the *DFE* is:

$$\Delta SB_t^g - DEF_t^G = -\left(\frac{G_t}{Y_t} - \frac{G_{t-1}}{Y_{t-1}} \right) + \left(\rho_0^g - 1 \right) \frac{G_0}{Y_0} (y_t - y_t^*) + \frac{G_t - I_t - U_t}{Y_t} - (1 + pot) \frac{G_{t-1} - I_{t-1} - U_{t-1}}{Y_t} \quad (6)$$

Notice that in (6) total unemployment expenditure, instead of non-discretionary unemployment expenditure is deducted. By rearranging terms (6) can be written as:

$$\Delta SB_t^g - DEF_t^G = (y - pot) \frac{G_{t-1}}{Y_{t-1}} + \left(\rho_0^g - 1 \right) \frac{G_0}{Y_0} (y_t - y_t^*) - \Delta \frac{I_t}{Y_t} - \frac{\Delta U_t}{Y_t} - (y_t - pot) \frac{I_{t-1} + U_{t-1}}{Y_{t-1}} \quad (7)$$

On the other hand, the cyclical unemployment expenditure elasticity is estimated as a regression between the change in unemployment expenditure over total public expenditure and the difference between actual and potential growth. Hence, the observed elasticity can be equated with:

$$\rho_t^g = \frac{(U_t - U_{t-1})/G_{t-1}}{y_t - y_t^*}$$

and substituting in (7) for the change in unemployment and assuming that the term $\rho_t^g (y_t - y_t^*) \frac{G_{t-1}}{Y_t}$ is at first order equivalent to $\rho_t^g (y_t - y_t^*) \frac{G_{t-1}}{Y_{t-1}}$ the following expression after some algebraic manipulation is obtained:

$$\Delta SB_t^g - DEF_t^G = \left(\rho_0^g - \rho_t^g \right) \frac{G_0}{Y_0} (y_t - y_t^*) + (y_t^* - pot) \frac{G_{t-1}}{Y_{t-1}} - \Delta \frac{I_t}{Y_t} + (1 - \rho_t^g)(y_t - y_t^*) \left(\frac{G_{t-1}}{Y_{t-1}} - \frac{G_0}{Y_0} \right) - (y_t - pot) \frac{I_{t-1} + U_{t-1}}{Y_{t-1}} \quad (8)$$

As in the case of revenues, the different terms in equation (8) have a clear economic interpretation. The first term on the right hand side reflects the "windfalls/shortfalls" in unemployment expenditure. The second stems from the variability of potential growth. The third one merely shows the effect of the increase in interest payment expenditure.

Such source of difference between both indicators is overcome by the use of the change in the cyclically adjusted primary balance (ΔSPB), instead of ΔSB. The fourth term shows up as due to the deviation of expenditure ratios with respect to the fixed weights used in the SB methodology. Finally, the fifth term only reflects the excess trend projection of interest and unemployment expenditure with respect to the medium-term potential growth rate. The last two terms are deemed to be small when compared to the other 3 ones.

([3]) See Morris et al. (2009) for a more precise definition of revenue windfalls/shortfalls.

A decomposition of the difference between the indicators (2013)

The difference between the two indicators of fiscal stance can be broken down into its main components, as done for 2012 (Graph III.2.12). Overall, the difference remains large, although a bit lower on average than in 2012. The latter point may reflect the fact that forecasts can only partially anticipate movements in tax or spending elasticities beyond standard cyclical responses. Correspondingly, the role of windfall/shortfall in revenues and in unemployment expenditure is slightly less pronounced than in 2012, while the part played by the potential growth remains broadly as significant. ([78])

Some substantial revenue shortfalls are anticipated, along with a few positive windfalls. Large revenues shortfalls (over 1% of GDP) are expected in Greece and Spain, and notable ones (exceeding ½ per cent of GDP) in six other countries (Ireland, the Netherlands, Poland, Portugal, Slovenia and Slovakia). Except for the cases of the Netherlands and Poland, revenue shortfalls are associated with countries strongly affected by the crisis and rebalancing pressures, although less strikingly so than in 2012, at least at this stage where forecasts remain highly uncertain. Notable positive revenue windfalls are also expected, notably in Bulgaria, Malta and the United Kingdom, but these do not seem to reflect an obvious common feature.

Contributions reflecting the volatility of potential growth are very similar to those observed in 2012 (as could be expected), with a large majority of negative contributions. These remain highest in countries in recession and/or having experienced a strong adjustment in recent years (most significantly in Greece, Spain and Slovenia). Limited positive contributions are obtained in a few countries.

Increases in interest payments (which are not included into the breakdown based on the primary structural balance) would be important in some countries. This concerns in particular Ireland (where they rise by over 1¼ per cent of GDP). More moderate increases are expected elsewhere, notably in Spain and Slovenia. Belgium, Greece and Italy would conversely benefit from some declines in interest charges.

With exceptions, changes in unemployment expenditure beyond standard cyclical elasticities are not expected to play a significant role in explaining differences between indicators of fiscal stance, at least at this stage of forecast. Non-negligible changes in unemployment expenditure beyond traditional cyclical elasticities are nevertheless foreseen in Greece, Spain, the Netherlands and Portugal.

2.4.5 The composition of consolidation in 2013

Like in the case of 2012, Table III.2.3 shows the consolidation effort undertaken by Member States in 2013 and the contribution of revenues and expenditures to the overall adjustment. Again, this section only focuses on countries that consolidate according to both indicators.

The adjustment in 2013 would be mainly expenditure-based in Ireland, Greece, Lithuania, Poland and Slovenia, for which the expenditure-revenue proportions with the two indicators broadly coincide.

Other consolidating countries would rely on a mix of revenue-based and expenditure-based consolidation, such as in Belgium, Spain, Italy and Romania. In these cases except Italy, the expenditure side plays a more prominent role when the DFE is used.

The adjustment is mostly revenue-based in the Czech Republic, France, Luxembourg, the Netherlands, Portugal and Finland, most of the adjustment would be achieved by revenue measures, although in the Czech Republic, Luxembourg and the Netherlands the DFE shows some significant contribution from expenditures.

Finally, in Slovakia and the United Kingdom the DFE offers a totally different picture from the change in the structural balance: in the former case the DFE reveals a balanced composition of the adjustment as opposed to the expenditure-based consolidation shown by the change in the structural balance; in the latter, the DFE unveils an adjustment that turns out to be mainly expenditure

([78]) The mean absolute value of windfalls/shortfalls in revenues is 0.6% of GDP. The figure is 0.5% of GDP for the potential growth wedge, 0.2% of GDP for the change in interest payments, and 0.1% for the windfalls/shortfalls in unemployment expenditure.

Table III.2.3: **Composition of consolidation in 2013**

	2013					
		of which % contribution of			*of which % contribution*	
	Change in the structural balance	revenues	expenditure	**Discretionary Fiscal Effort**	revenue	expenditure
BE	**0.7**	52.5	47.5	**0.7**	47.7	52.3
BG	**-0.5**	<0	>100	**-0.9**	<0	>100
CZ	**0.1**	>100	<0	**1.1**	51.2	48.8
DK	**-0.3**	>100	<0	**-0.5**	>100	<0
DE	**0.1**	42.8	57.2	**-0.3**	<0	>100
EE	**-0.4**	>100	<0	**0.0**	>100	<0
IE	**0.5**	44.7	55.3	**2.4**	32.0	68.0
EL	**3.0**	<0	>100	**5.0**	12.6	87.4
ES	**1.1**	58.8	41.2	**3.8**	46.8	53.2
FR	**1.3**	>100	<0	**1.4**	92.4	7.6
IT	**0.9**	68.5	31.5	**1.0**	53.3	46.7
LV	**-1.0**	68.9	31.1	**-1.1**	67.1	32.9
LT	**0.3**	<0	>100	**0.4**	10.4	89.6
LU	**0.6**	>100	<0	**1.2**	72.6	27.4
HU	**-0.4**	<0	>100	**0.0**	<0	>100
MT	**0.3**	>100	<0	**-0.5**	75.3	24.7
NL	**0.7**	97.4	2.6	**2.7**	54.5	45.5
AT	**-0.1**	<0	>100	**0.2**	>100	<0
PL	**0.5**	<0	>100	**1.6**	7.7	92.3
PT	**0.9**	>100	<0	**2.4**	>100	<0
RO	**1.0**	54.6	45.4	**1.1**	39.5	60.5
SI	**0.3**	35.2	64.8	**2.4**	25.3	74.7
SK	**1.2**	6.9	93.1	**2.4**	50.6	49.4
FI	**0.1**	>100	<0	**0.2**	>100	<0
SE	**-0.4**	53.5	46.5	**-0.5**	60.5	39.5
UK	**1.2**	97.9	2.1	**0.3**	38.5	61.5

Note: Cyprus is not part of the 2013 analysis because it did not submit the SCP and part of the measures for 2013 are under evaluation at the moment of publication
Source: AMECO (Commission Spring 2013 forecast) and Commission Services calculations.

-based, whereas the change in the structural balance shows just the opposite message.

2.5. CONCLUSIONS

The comparison between the change in the structural primary balance and the DFE suggests that in general the fiscal stance indicator is larger than the effort indicator (and thus yields a more optimistic view of discretionary fiscal policy in booms, while it tends to underestimate fiscal effort in recessions). The analysis shows that the main reason for this difference are revenue windfalls/shortfalls (and to a lower extent to windfalls/shortfalls in unemployment expenditure) that show up as a consequence of the fluctuations in tax (and unemployment) elasticities and by construction are included in the change of structural balances, but not in the DFE. Relying on enacted measures on the revenue side and on medium-term potential growth on the expenditure side, the DFE seems to yield a more precise indication of fiscal effort when economies are undergoing deep economic changes, large changes in interest payments, or sharp revisions in potential

Box III.2.2: **Measuring fiscal effort: the example of Latvia**

Difficulties in measuring fiscal consolidation can be illustrated on the example of Latvia as a Member State that had implemented very profound and wide-ranging fiscal consolidation. Particularly interesting in this context is year 2009, when the Latvian economy contracted by more than 18%, reflecting even higher contraction in the domestic demand and a reversal from a double-digit current account deficit in 2008 to surplus in 2009, which was accompanied by very substantial downward adjustment in private and public wages and other profound changes in the economy. At the same time, this was also a period when most radical fiscal consolidation measures were put in place. Given that Latvia benefitted at that time from the international financial assistance programme, the details of these measures are well documented .

The difference between self-reported fiscal consolidation based on the "narrative approach" and the change in the cyclically-adjusted primary balance as estimated by the European Commission reaches almost 9 percentage points in 2009, while it is smaller in following years (see Table X). Possible explanations to this difference are discussed in more detail below (for more detailed analysis, as well as the discussion on the macroeconomic impact of fiscal consolidation in Latvia, see European Commission (2012b)).

Table III.1.2

	2008	2009	2010	2011	2012
Change in cyclically-adjusted primary balance, % of GDP, EC 2013 spring forecast	-1.4	0.7	1.1	2.9	0.8
Self-reported fisal consolidation according to bottom-up approach, % of GDP, 2013 convergence programme	0.5	9.5	4.0	2.3	0.7

Given the profound changes that took place in the Latvian economy in the adjustment phase, variation between tax bases can offer the most obvious source of difference. The methodology in Lendvai et al (2011) bases the analysis on the absorption cycle rather than output cycle, given that indirect taxes are influenced rather by the former, and helps in explaining 1¾ percentage points of the difference. It is also clear from short-term elasticities that the tax behaviour – especially on the side of indirect taxes – was very severely affected by the crisis in Latvia, since the impact of substantial measures put in place from January 2009 on the side of VAT (increasing the standard rate from 18% to 21% and the reduced rate from 5% to 10%) and other indirect taxes, with an estimated impact of 2½ percentage points of GDP, was entirely offset by the falling short-term elasticity. On the side of labour taxes, the standard approach disregards sharp shifts in distribution between compensation of employees and gross operational profits that took place between 2008 and 2009 due to nominal wage cuts, possibly explaining another 1–1½ percentage point of the difference.

At the same time, the impact of crisis on expenditure might have been underestimated by the standard methodology. Traditionally, only unemployment benefits are considered to be cyclically driven; however, partly as the duration and coverage of unemployment benefits is rather limited in Latvia, other social outlays increased noticeably as well, likely due to behavioural incentives, possibly explaining another ½ percentage points of the difference. The crisis also revealed underlying problems in several public companies and banks, triggering various forms of loss recognition with the impact on government's accounts and respectively top-down estimate; however, only limited part of these losses can be considered truly "exceptional" or "one-off" in the sense of EU budgetary surveillance (i.e. deducted from the structural balance). The estimate by the

(Continued on the next page)

growth – that are ill-captured by standard estimates of cyclical tax and spending elasticities.

Box (continued)

Latvian authorities quoted above does not cover these losses – and large part of such losses is unlikely to have been captured by any bottom-up estimate, since it does not involve any policy action but simply a statistical loss recognition; this could explain another ½ percentage point of the difference.

Finally, a following example related to pensions demonstrates the inherent differences between top-down and bottom-up approached. Expenditure related to old-age pensions increased by 20% in Latvia in 2009, compared with 2008 (Eurostat, COFOG data), resulting in almost 3 percentage points of GDP increase. This increase was a result of two main factors: firstly, change in policy (increase in bonus payments) from 1 January 2009, responsible for approximately one-third of the increase, and, secondly, the lagged impact of high wage and price growth of boom years on pension indexation implemented in particular in late 2008, which was responsible for approximately two-thirds of the increase. Whereas the first factor should have been captured by the bottom-up estimate (but wasn't in case of self-reported estimate quoted above), the second does not in fact constitute a policy change. On the other hand, freezing pension indexation in the course of 2009 is included in the bottom-up estimate.

The implications for the recent years are then straightforward: the DFE shows that, in the present context, in many cases the changes in structural balance do not fully reflect the actual consolidation effort. This issue is especially relevant in Member States that are most affected by the current downturn. Conversely, during the booming years that preceded the crisis, the structural balance tended to overestimate the progress on fiscal consolidation.

In general, the discretionary fiscal effort has the same sign of the change in the structural balance for 2012 and 2013. This notwithstanding, the DFE is large than the change in the structural primary balance. In this connection, the degree of pro-cyclicality differs somewhat across Member States, being more pronounced in the countries undertaking more sizeable fiscal efforts and, at the same time, more severely affected by the crisis.

3. DISCRETIONARY MEASURES AND CYCLICAL ELASTICITIES

The previous chapter presented the DFE, a new indicator of discretionary fiscal effort based partly on narrative revenue measures and partly on a conventional approach to the evolution of expenditures. The present chapter discusses discretionary tax measures (DTM), which form the bulk of discretionary revenue measures with the aim to analyse their relevance and pattern within the EU since the adoption of the euro and their impact on the observed elasticity of tax revenues to GDP, a crucial variable in determining the CAB-to-GDP ratio.

A DTM can be broadly defined as any legislative or administrative change in policy that has an impact on tax revenue, whether it is already finally adopted or only likely to be implemented. The availability of sound estimates of DTM is paramount for an appropriate assessment of the government fiscal stance. ([79])

Accurate data on DTM thus allow for better interpreting the annual development in the CAB and the structural budget balance, which are the other key indicators used in fiscal surveillance (Larch and Turrini, 2009; Mourre et al., 2013). ([80]) Those indicators could be affected by the short-term movements in tax elasticities, particularly during major economic booms and downturns. These movements could be substantially influenced in turn by DTM. Existing country-level evidence (Duchene and Levy, 2003; Wolswijk, 2007) shows that data on DTM play a role in explaining short-term variations in tax elasticities. This was confirmed by cross-country comparisons carried out over a EU country sample (Barrios and Fargnoli, 2010). Therefore, net tax elasticities should be considered when examining short-term fluctuation in tax elasticities, since they reflect the effect of the (endogenous) evolution of tax bases and abstract, to a large extent, from policy-induced (i.e. exogenous / discretionary) measures affecting tax yields.

In such context, the Output Gap Working Group (OGWG) of the Economic Policy Committee (EPC) is collecting and analysing data on DTM every year, by submitting to Member States an annual questionnaire. The questionnaire submitted to the OGWG is consistent with the information that EU Member States have to communicate to the European Commission in the context of the submission of their Stability and Convergence Programmes (SCPs). ([81]) However, its main purpose is analytical with a view to sharing a better understanding of DTM pattern over time (see Barrios and Fargnoli, 2010) for the design of the first OGWG questionnaire) and to more precisely assess tax revenue elasticities with respect to GDP. As discretionary tax policy is widely used by governments, discretionary measures are expected to amount to a sizable share of GDP, which could – at least in part – affect the short-term pattern of tax elasticities.

This chapter provides updated evidence of the size, composition and cyclicality of DTM in the EU over the period 2001-12. It shows that, while their average magnitude is fairly limited over a long period with the discretionary tax cuts being offset by discretionary tax hikes, they can be non-negligible at any given point in time. It also finds that discretionary measures do not follow a clear cyclical pattern across countries and depend on

([79]) This holds not only in the theoretical discussion on the appropriateness of the narrative approach. It is also relevant for fiscal surveillance as, the reformed Stability and Growth Pact (SGP) envisages a specific role for discretionary revenue measures both in the preventive and in the corrective arm. In the preventive arm, the growth path of expenditure is assessed in conjunction with the effect of discretionary revenue measures within the expenditure benchmark. In the corrective arm, effective action is assessed also on the basis of the budgetary impact of discretionary revenue measures communicated by Member States. For countries which are subject to the excessive deficit procedure (EDP), the reform of the SGP furthermore envisages that the reports submitted following recommendations under Article 126(7) and notices under Article 126(9) include targets for the government revenue and for the related discretionary measures consistent with the Council's recommendations and notices.

([80]) They are the traditional indicators adopted by the SGP to approximate the discretionary component of the changes in the budget balance. The annual improvement in the structural balance (i.e. CAB net of the impact of one-off and temporary measures) is used both to assess progress toward the Medium-Term Objective of budgetary policy (MTO) in the preventive arm of the SGP (Regulation 1466/97) and to establish the annual budgetary targets in the Excessive Deficit Procedure (EDP) (Regulation 1467/97). Recent updates in the CAB methodology can be found in Mourre et al. (2013).

([81]) Information reported is more detailed than in SCPs and presented as historical time series back to the early 2000s, extended by recent forecast. As of its 2013 issue, the questionnaire will be filled by Member States at the same time as the Stability and Convergence Programmes, that is, in April of each year and no later than the end of April. It should be noted that the data is only covering DTM, excluding non-tax revenue and public expenditure.

policy regimes. Based on those findings, the chapter analyses the impact of DTM on short-term tax elasticities and examines the fluctuations of gross and net elasticities in the short-term. ([82])

3.1. DATA ON DISCRETIONARY TAX MEASURES

Since mid-2008, DTM data, whose impact represents at least 0.05 (pp) of GDP and this over the full range of years concerned by the measure, are annually reported by the EU Member States and gathered together in a dataset. In order to analyse a sufficiently long time span and to include as many Member States as possible, the period 2001-12 was taken as sample period. ([83])

Data for three broad revenue categories - direct taxes, indirect taxes and social security contributions - were reported for most EU Member States. For a limited set of countries - Greece, Italy, Lithuania, Slovenia and Slovakia - social security data were not available. For half of EU countries, data on DTM were recorded on an accrual basis consistent with ESA 95 (European System of National and Regional Accounts), others reported data on a cash basis. ([84]) Moreover, estimates of DTM are usually made ex-ante with only few countries undertaking ex-post revisions (e.g. Estonia, Spain, Ireland, Lithuania, Latvia, Poland, and Slovakia).

Regarding 2012 – the last year in the series used here – discretionary measures, only measures known in sufficient detail at the time of the reporting and very likely to be concretely implemented were reported. Member States were asked to report following the logic of the no-policy change assumption used in the EU forecast framework. This 'baseline scenario' reflects the measures adopted or approved, including past or recurrent government's practices, but also the planned measures, with high probability of being eventually implemented and coming into force. This assumption aims at enhancing cross-country consistency, as (ideally) the same DTM impact is reported for the same economic event, regardless of the institutional arrangements prevailing at the country level (e.g. in terms of government decision or legislation).

For analytical purposes the DTM data from the Commission 2012 Autumn forecast were combined with macro-economic data. Combining these information allows assessing the size and composition of DTM as a percentage of GDP.

3.2. SIZE AND COMPOSITION OF DISCRETIONARY TAX MEASURES

In order to evaluate the size and importance of DTM, we express them as a share of GDP and compute an average across years and countries. Although values can be quite large for individual years or countries, the average share of DTM is almost nil (less than 0.1% of GDP) in the EU as a whole over the period 2001-12. This – at first sight surprising – result can be explained by three observations.

- First, as country business cycles are not fully synchronised and political cycles differ, discretionary tax hikes in one country tend to be offset by discretionary tax cuts in another country, in any given year. Evidence of varying DTM patterns across countries are provided in Graph III.3.1, which plots the total DTM for each Member State and year. A quite large dispersion across Member States can be observed. ([85])

- A second element explaining the small average share of DTM is that positive and negative DTM tend to cancel out over the business cycle. Evidence is reported in Graph III.3.2,

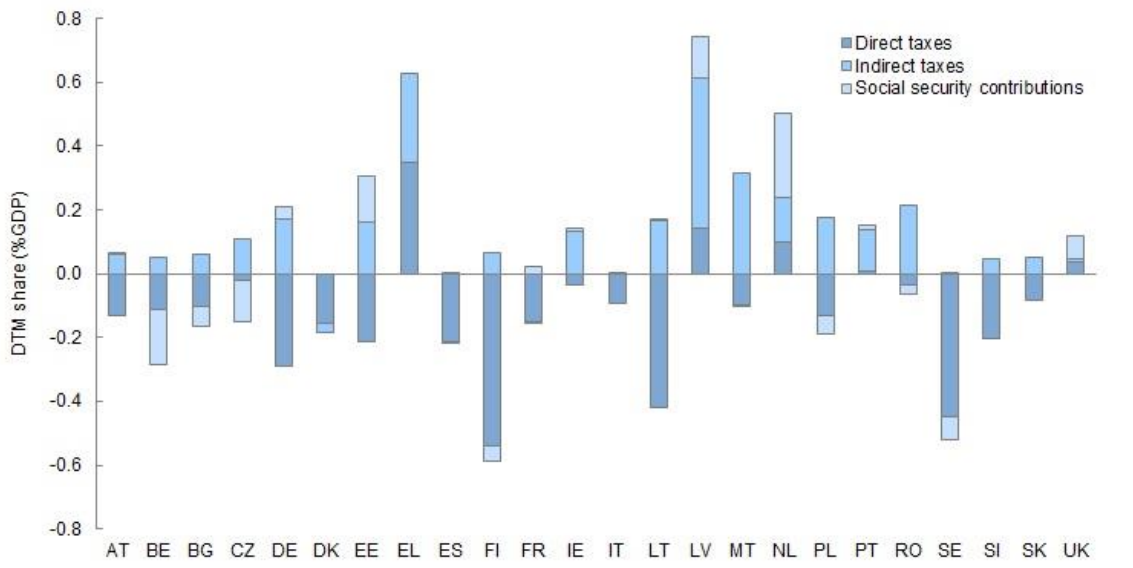
([82]) The definition of elasticity in this context is provided in Box II.3.1. Gross elasticity refers to the percentage change of revenues to changes in GDP computing the total amount of revenues. Net elasticity is computed by netting revenues from the amount of discretionary revenues. See also below.

([83]) 20 out of 27 EU Member States reported at least 10 out of 12 years of the sample period. Of the remaining countries, four reported more than half of the sample period (i.e. Bulgaria, Estonia, Greece and Romania) and were included in the analysis. For three countries (i.e. Cyprus, Hungary and Luxembourg) the data covered a too short time span to be considered for analytical purposes.

([84]) The accrual principle records revenues when they are earned and records expenses when they are incurred. The cash principle records revenue when cash is received and records expenses when cash is paid. A few Member States (i.e. Austria, Cyprus, Hungary, Lithuania and Poland) reported data on a mixed cash/accrual basis.

([85]) As 2008 values for Spain, 2009-10 values for Latvia and 2011-12 values for Greece are considerably larger than the other country-year observations, they were not represented within this graph.

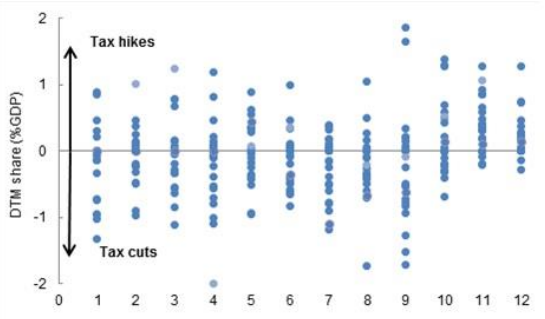
Graph III.3.1: **Composition of discretionary tax measures (% of GDP)**



Source: Commission services

which provides an analysis by country of DTM. At the same time, the average size of discretionary measures over the whole period differs considerably among countries, as they range from -0.5% of GDP (tax cuts) in Finland to 0.7% of GDP (tax increases) in Latvia. More than half of the countries display an average share of DTM below zero, reflecting tax cuts.

Graph III.3.2: **Variation of discretionary tax measures across countries**



Source: Commission services

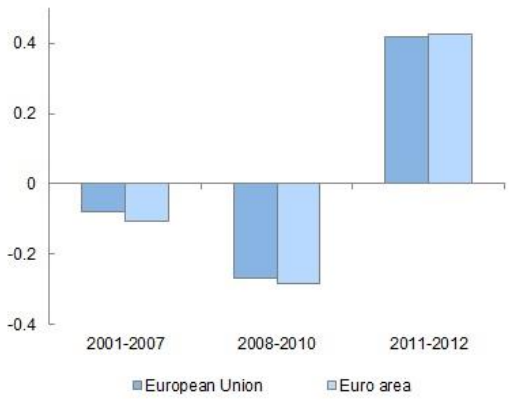
- A third reason for the small average share of DTM is the composition of DTM: within each country compensating shifts among tax categories seem to be a common pattern. Based on Graph III.3.2, it can be observed that discretionary tax cuts are mainly accounted for by direct taxes. In a considerable number of countries (Austria, Belgium, Bulgaria, the Czech Republic, Germany, Estonia, Finland, Ireland, Lithuania, Malta, Poland, Romania, Slovenia and Slovakia) the discretionary cuts of direct taxes are (partially) compensated by discretionary increases of indirect taxes, presumably as part of a growth-friendly tax shift.

As those three observations entail as many offsetting patterns (compensation across countries, across years and across tax categories), the small share of DTM seems less surprising. This is also consistent with a much larger average gross share of DTM (0.4% of GDP in the EU). DTM may therefore still play a relevant role in explaining the variation in short-term elasticities of tax revenues to GDP. Before studying the impact of DTM on short-term tax elasticities, the next section analyses the cyclicality of DTM and aims at determining whether a cyclical pattern can be observed.

3.3. CYCLICALITY OF DISCRETIONARY TAX MEASURES

The relationship between discretionary policy and the business cycle is far from obvious. Unlike the cyclical component of the budget balance, the cyclical pattern of discretionary policy is not the result of an automatic process stabilising business

Graph III.3.3: **Average discretionary tax measures over time (total levies)**



Source: Commission services

cycle fluctuations, but the result of the reaction function of the government, which is not predetermined theoretically. When examining the issue empirically, different elements matter: the methodology used to identify discretionary policies but also the moment when discretionary policy is observed. Cimadomo (2008) estimates the "policy reaction functions" of the government, ([86]) i.e. its fiscal behaviour in times of upturns or slowdowns, based on revised estimates of revenue and expenditure measures to study the nature of discretionary fiscal policy. He finds that it depends on the perspective from which the fiscal stance is assessed: when using ex-post data it seems to be pro-cyclical, when using ex-ante data, the fiscal stance appears to be counter-cyclical. Based on data on legislated revenue changes provided by the National Central Banks of EU Member States, Agnello and Cimadomo (2009) find that, by and large, legislated changes in taxes and social security contributions responded in a strongly pro-cyclical manner to the business cycle, (while cyclical adjustment methods point to a-cyclicality). Using 2000-08 data on DTM, Barrios and Fargnoli (2010) also find evidence of pro-cyclical fiscal policy.

Our dataset allows analysing discretionary policy from the revenue side over the period 2001-12 and hence covers the financial crisis period 2008-10, as well as the period following the crisis. It, therefore, enables us to observe three distinct policy regimes, which – as will be observed – will all three have a distinct fiscal nature. For each of the periods, Graph III.3.3 shows the average size of the total DTM, expressed as percentage of GDP. The weighted averages of the EU and the euro area are reported for the three policy regimes.

- A *pre-crisis regime* (2001-07), characterised by a booming economy, the convergence of spreads and the creation of macroeconomic and financial imbalances, with a positive output gap in both the EU (1.4%) and the euro area (0.9%) on average. During this period, DTM mainly consisted of tax cuts (i.e. entailing lower revenues), providing evidence of mildly pro-cyclical tax policy. This 'benign neglect' was common in good fiscal times, when countries felt they could afford tax cuts, partly because of tax windfalls from booming asset prices.

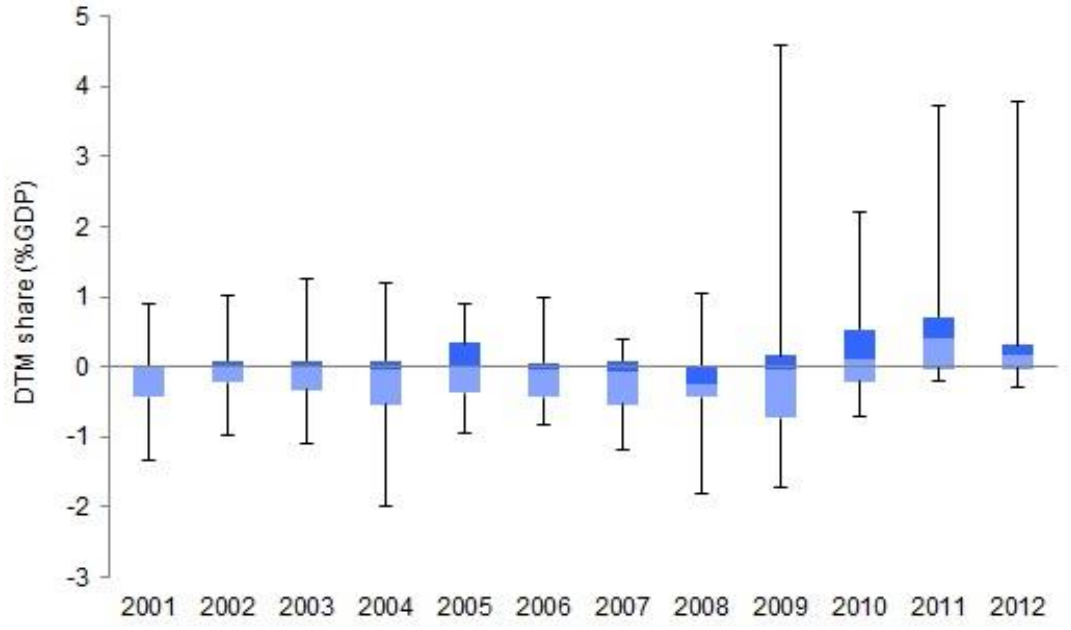
- A *crisis regime* (2008-10), characterised by the crisis in the financial sector with a negative output gap in both the EU (-1.3%) and the euro area (-1.6%) on average. The crisis regime consisted of large stimulus measures implemented in face of a deep economic recession, including tax cuts and was therefore largely counter-cyclical.

- A consolidation regime (2011-12), characterised by the rise of the sovereign debt crisis. The balance-sheet recession displays a negative output gap in both the EU (-2.4%) and the euro area (-2.8%). During the consolidation period, characterised by the debt crisis and the lack of fiscal space, EU Member States engaged in tax hikes, as a way to consolidate their public finances and as a response to the debt crisis and the loss of confidence in the financial markets.

These shifts may be even stronger when looking at the largest countries of the euro area. In the pre-crisis period, France, Germany, Italy and Spain used DTM in a pro-cyclical way, as was the case for the euro area as a whole. Discretionary tax cuts were limited and amounted from -0.1% to approximately -0.2% of GDP. Over the period 2008-10, France, Germany (almost -0.4% of GDP) and in particular Spain (more than -0.6% of GDP) substantially increased their tax cuts compared to other euro area countries. Italy, however, reduced

([86]) Policy reaction functions relate a policy indicator to the output gap and other explanatory variables.

Graph III.3.4: **Discretionary tax measures over time (total levies)**

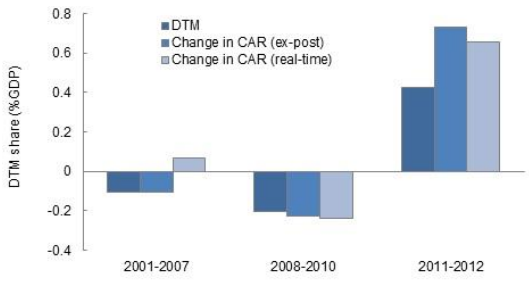


Source: Commission services

its tax cuts over that same period. In the 2011-12 period, France used marked discretionary tax hikes for consolidation purposes (0.5% of GDP), whereas DTM in Germany were rather limited (0.3% of GDP) compared to the euro area average. Based on those observations, it seems that cyclicality is only a weak determinant of DTM and that the use of DTM is mainly related to shifts in policy regimes, caused by changes in the economic context. It should be reminded that this analysis of pro-cyclicality only looks at the tax side, while the expenditure side considerably matters when assessing the global pro-cyclicality of fiscal policy.

When representing DTM using box-plots across years to explore the cyclical pattern of discretionary policy, similar observations are made (Graph III.3.4). The lower and upper quartiles of DTM form the bottom and top of the boxes. The horizontal line within the boxes indicates the median total DTM and the ends of the whiskers represent the maximum and minimum DTM values for each year. Three periods can be identified. A first period regroups the years for which the median DTM is approximately zero (2001-07), a second period clusters the years with a negative or zero median (2008-10) and a third period regroups the years with a positive DTM median (2011-12).

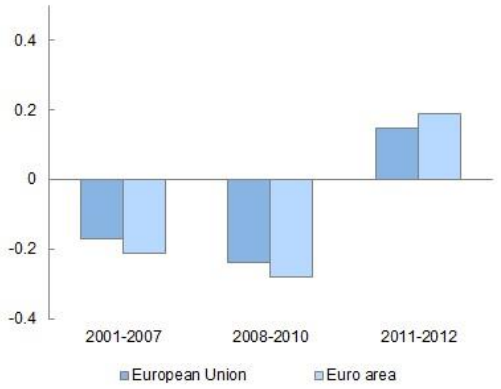
Graph III.3.5: **Aggregated discretionary tax measures versus the change in the cyclically adjusted balance in the euro area**



Source: Commission services

As aggregating DTM is a way to measure consolidation efforts on the tax side, Graph III.3.5 compares the sum of DTM with the change in the cyclically adjusted revenue (using the COM 2012 Autumn forecast) computed using both real time output gap and ex post output gap. As in times of large shocks the top-down approach of estimating the annual change in the cyclically adjusted revenue does not always give an accurate reflection of the discretionary fiscal efforts on the revenue side, consolidation efforts are also measured by adding up all the individually defined discretionary measures. It is the approach that

Graph III.3.6: **Discretionary tax measures over time (direct taxes)**



Source: Commission services

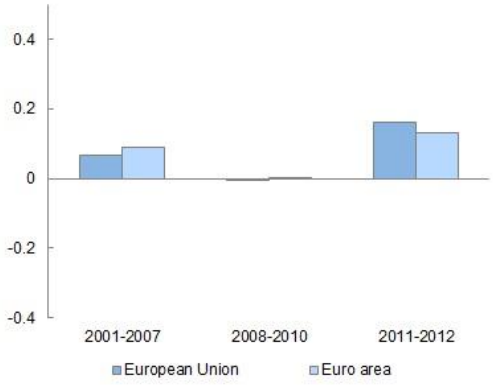
underlies the DFE measure of fiscal stance presented in the previous chapter. Graph III.3.5 shows that both approaches indicate the same trend. Aggregate DTM and cyclical adjusted revenues are very close for the pre-crisis and the start of the crisis (although real-time data shows a different picture, i.e. tax increase, in the pre-crisis period). In the consolidation period, the cyclical-adjusted revenues, both real-time and ex post, suggest a stronger tax increase than DTM data.

Those differences could be explained by the different benchmark used by the two approaches: the benchmark underlying the cyclically-adjusted revenue corresponds to the nominal revenue increasing at the same pace as potential output, while the bottom-up benchmark is the development of the nominal budget balance in absence of new policy actions.

Graph III.3.6 and Graph III.3.7 show the regime shifts by tax category. In the pre-crisis period (2001-07), direct tax breaks were the prevailing pattern. They were partly financed by the tax shift toward indirect taxation, in particular consumption taxes. Over the period 2008-10, direct tax cuts averaged at around ¼ pp of GDP in both the euro area and the EU, while the trend increase of indirect taxes came to a halt presumably to avoid further depressing consumption in a period of strong contraction of the economic activity. In the 2011-12 period, consolidation measures in the form of discretionary tax hikes can be observed for both direct and indirect taxes. The reversal of the policy regime, however, is more evident for direct taxes.

To sum up, the use of DTM is mainly related to shifts in policy regimes, caused by changes in the economic context, rather than to the business cycle. While small pro-cyclical tax cuts were observed during the pre-crisis period (2001-07), larger counter-cyclical tax breaks were adopted during the crisis period (2008-10), as part of the stimulus package. During the consolidation period (2011-12), characterised by the debt crisis and the lack of fiscal space, EU Member States have engaged in pro-cyclical tax hikes, as a way to consolidate their public finances. Moreover, the analysis showed that discretionary tax cuts are mainly accounted for by direct taxes. In half of the countries, those cuts are partially compensated by discretionary increases of indirect taxes as part of a shift towards more growth-friendly tax bases.

Graph III.3.7: **Discretionary tax measures over time (indirect taxes)**



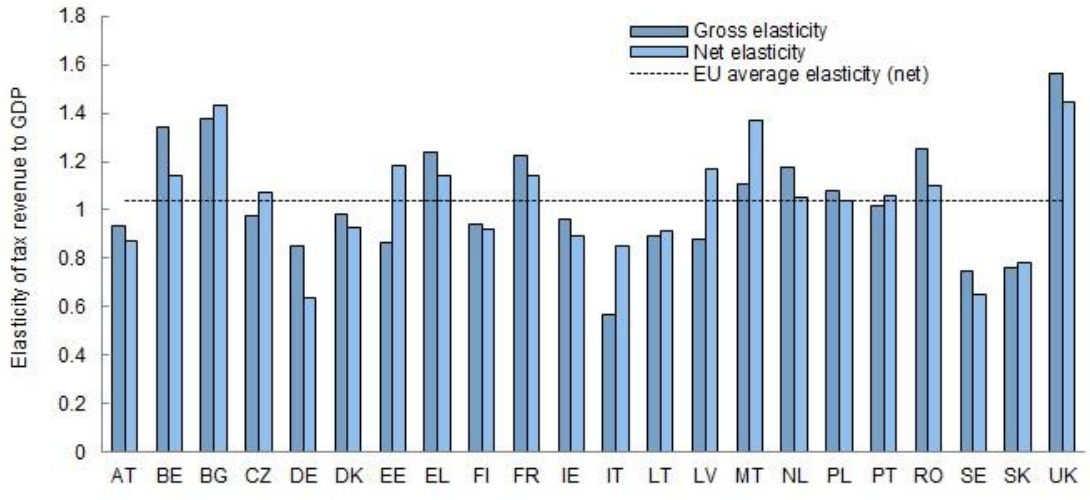
Source: Commission services

3.4. IMPACT OF DISCRETIONARY TAX MEASURES ON SHORT-TERM TAX ELASTICITIES

Revenue elasticities are standard parameters used to measure the sensitivity of tax revenues to their respective tax base. Three different concepts of revenue elasticities are currently used:

- *the elasticity of revenue with respect to the output gap*. This corresponds to the percentage change in revenue level induced by an output

Graph III.3.8: **Gross and net tax elasticities (average total levies 2001-2012)**



Source: Commission services

gap of 1%. It can be decomposed into two components: the elasticity of revenues to their base and the elasticity of the revenue base to the output gap. This is the concept defined by the OECD and used by the European Commission in the fiscal surveillance framework, in particular for the computation of the cyclically adjusted budget balance (CAB). The elasticity of revenue with respect to the output gap is one component of the semi-elasticity used to directly derive the CAB from the output gap and the budget balance. The fiscal semi-elasticity corresponds to the change in budget-to-GDP ratio induced by an output gap of 1% (see Box II.3.1). It should be noted that the elasticity of revenue with respect to the output gap takes into account non-tax revenue, which is considered to be little influenced by the business cycle.

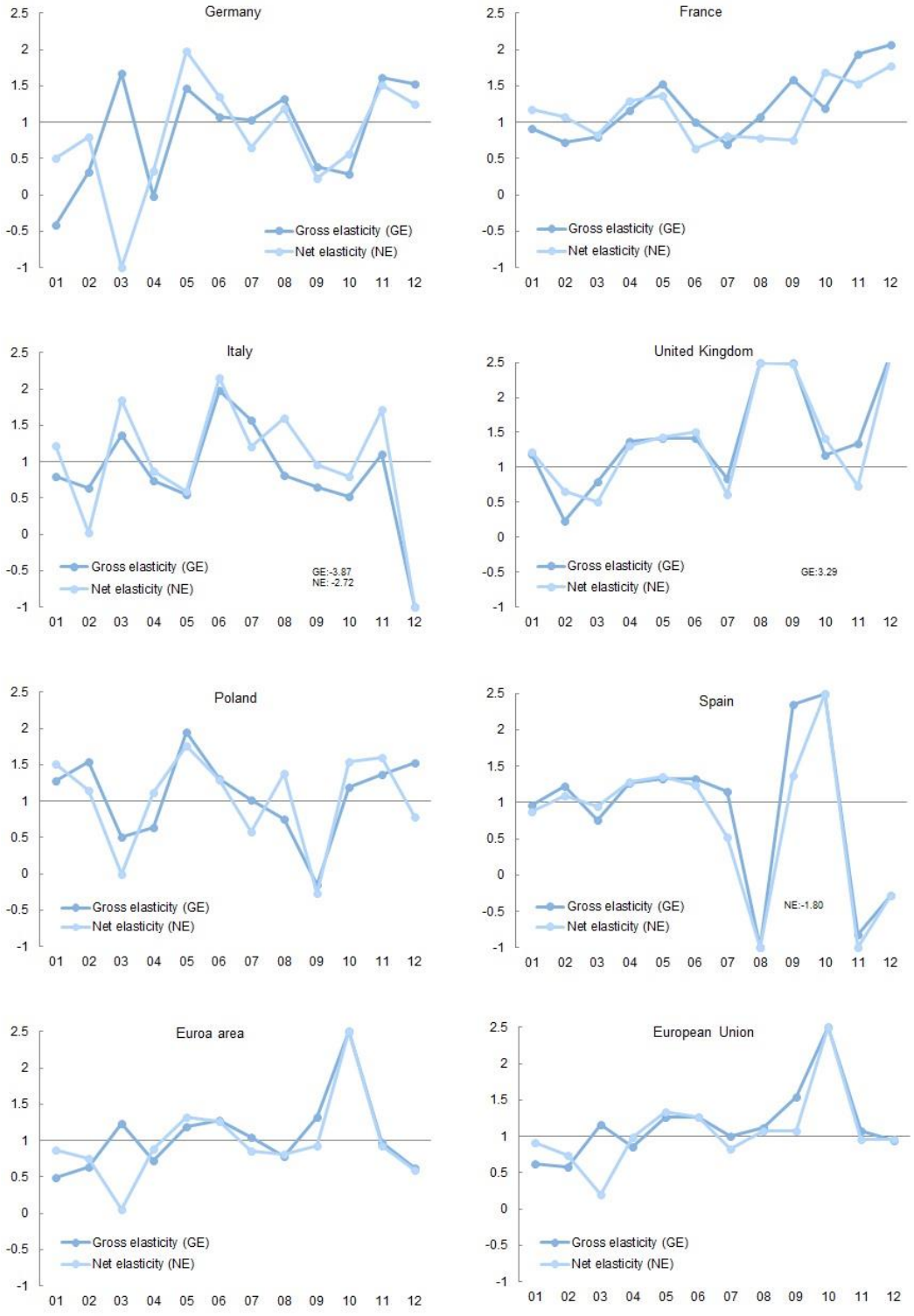
- *the elasticity of tax revenues with respect to their tax bases*. Appropriate tax bases for personal income taxes, corporate income taxes, indirect taxes and social security contributions are the total wage bill, profits, total consumption and total compensation respectively.

- *the elasticity of tax revenue with respect to GDP*. This hybrid concept, used in this chapter and proposed by Barrios and Fargnoli (2010), turns out to be close to the OECD concept in practice, although not identical. Choosing the same tax base for each tax category, i.e. nominal GDP, to compute tax elasticities, allows comparing across different tax categories. Tax elasticities have therefore been computed by dividing the annual growth of the revenue series (both gross and net) by the nominal GDP annual growth rate.

As DTM may considerably bias the fiscal stance, short-term elasticities based on tax revenue purged from DTM come closer to the 'true' value of the short-term elasticities. Specifically, a discretionary tax hike (break) will *ceteris paribus* tend to increase (decrease) the observed gross revenue elasticity. Therefore, net tax elasticities should in principle only reflect the endogenous effect of the evolution of tax bases and abstract, to a large extent, from the exogenous effect of discretionary policy measures affecting tax yields.

Graph III.3.8 compares tax elasticities gross and net of DTM for total levies and for each country. For the EU as a whole, both gross and net elasticities are very close to unity for the period 2001-12, indicating an evolution of tax revenue in line with nominal output growth. As tax elasticities for Slovenia (2.8) and Spain (5.1) are considerably larger than for other countries, they were not represented on the graph. Graph III.3.8 also highlights a differentiated picture across countries, partly related to the composition of GDP growth.

Graph III.3.9: **Gross and net tax elasticities (total levies) for selected countries**



Source: Commission services

Countries characterised by gross and net elasticities below one often tend to display relatively more buoyant dynamics for exports, which are typically tax poor, compared to domestic demand, which is more tax rich. Below-one elasticities are exhibited by Austria, Germany, Denmark, Finland, Ireland, Italy, Lithuania, Sweden and Slovakia. On the other side, gross and net elasticities well exceed one in more domestic demand oriented economies or countries which have experienced an overheating on domestic demand over the past decade. Above-one elasticities are exhibited by Belgium, Bulgaria, Greece, France, Spain, Malta, Romania, Slovenia and the United Kingdom and to a lesser extent the Netherlands, Poland and Portugal.

Although net elasticities are lower than gross elasticities on average over the period 2001-12, several Member States have net elasticities that are higher than gross elasticities (Bulgaria, the Czech Republic, Estonia, Italy, Lithuania, Latvia, Malta, Portugal and Slovakia). This corresponds to discretionary tax increases, as long as the denominator (i.e. nominal GDP growth) is positive. Indeed, for any given output growth, the discretionary tax increase is included in the computation of the gross elasticity while it is excluded from the net elasticity. ([87])

Analysing gross and net short-term tax elasticities over time allows comparing short-term elasticities with the long-term assumption. Graph III.3.9 plots the evolution of short-term tax elasticities in selected countries. Both gross and net elasticities are displayed. ([88])

While time-varying elasticities hover around a long run value of one, they may depart from it significantly in the short term, as shown by Graph III.3.9. The discrepancy between short- and long-term elasticities is only in few cases mostly accounted for by the effect of discretionary measures. If the difference between long- and short-term elasticities were mainly due to the effect of DTM, a disconnection between gross and net elasticities would be observed, with the latter approximating the OECD (constant) elasticity benchmark. This however cannot be detected in Graph III.3.9 as the original revenues series for gross tax elasticities and the corrected series for net tax elasticities are highly correlated. Still, the impact of discretionary measures on the tax elasticity can be large in certain countries/years, yielding substantial discrepancies between net and gross elasticities in these cases. Overall, for the majority of the countries considered here, DTM do not alter significantly the value of gross vis-à-vis net elasticities, with net elasticities remaining fairly volatile.

Hence, the cyclical pattern of short-term elasticities, even net of discretionary measures, seems irregular and not to follow a common pattern across countries. The discrepancy between short-term and long-term tax elasticities may largely be the result of cyclical fluctuations during downturns and upswings, which are outside the control of the government. These fluctuations could be explained by four factors.

- *Composition effect of growth*: The actual development of individual tax bases does not always follow that of GDP but, rather, a component of GDP with its own trend. For instance, the share of consumption in GDP may fluctuate according to whether growth is driven by exports, generating relatively smaller tax revenue, or internal demand, generating relatively larger tax revenue. The same is true for the share of wages in GDP. Spain is a case in point, as, thanks to internal demand, the country enjoyed revenue windfalls during the period 2001-07, but was faced with a sharp reduction in tax revenue from 2008 on. In addition, macroeconomic variables are only an imperfect proxy for individual tax bases. Actual tax bases are defined by the tax law (tax code), which may be complex and allow for various special tax regimes. For instance, during downturns consumption may shift towards basic goods and generate less VAT revenue.

- *Asset price cycle effects*: Some taxes, such as housing transaction taxes, are linked to the asset cycle (equity or housing), which can differ strongly from GDP cycle. This effect is

([87]) A discretionary tax cut (both pro-cyclical and counter-cyclical) yields a net tax elasticity higher than gross elasticity.

([88]) At the aggregate level, the OECD/EU Commission (constant) elasticity relates the annual percentage change in total revenues to the output gap, not to nominal GDP growth.

Box III.3.1: **Correcting tax revenue for the impact of discretionary tax measures**

A straightforward way to filter tax revenues from their policy-driven component would be to subtract the annual amount of DTM from the corresponding tax revenue figure. This simple approach, however, implicitly neglects the dynamic effects of tax law changes, which naturally make the assessment of tax revenue for a given year dependent on previous' year tax policy decisions. The correction of tax revenue series for the impact of discretionary measures has therefore to consider all years where these measures are expected to operate. This is done through the so-called 'proportional adjustment method', used by Barth and Hemphil (2000) and Barrios and Fargnoli (2010).

This method consists in correcting previous tax revenue to reflect how it would have looked like if the current year's tax system had been in place from the first year on. The intuition behind this method is to back-cast the series by 'adding' from the very first year on all the discretionary measures taken at a later stage. This 'addition' is done by imputing the weight of DTM (in total taxes) in a given year to all previous years in cascade. This backward proportional adjustment allows for 'neutralising' the impact of various DTM when considering tax developments over time. The adjusted series obtained are thus 'cleaned' from DTM effects and only reflect the evolution of non-discretionary revenue.

Specifically, if year t is taken as the current year, are the discretionary measures in year t and is the tax revenue in year t, the method assumes that the DTM in the current year are nil (i.e.) and therefore that the adjusted tax revenue for year t. The adjusted tax revenue of year j is then computed as follows.

$$A_j = T_j * \prod_{k=j+1}^{t} \left(\frac{T_k}{T_k - DTM_k}\right) \text{ for all } j < t$$

The formula makes clear that the variation in adjusted tax revenue (*net* tax revenue) between t-1 and t will be larger/smaller than the variation of unadjusted tax revenue (*gross* tax revenue) when DTM_t is smaller/larger than zero. Filtering the impact of policy-driven measures, the method helps to compare tax revenue across the years and allows the calculation of revenue elasticities net of the effect of discretionary measures

also related to the fact that GDP could be imperfect approximation of tax bases. In Ireland, for instance, the boom in construction and renovation activity pushed prices and transactions up and generated considerable tax revenue in the early 2000's. The burst of the housing bubble at the end of the same decade resulted in revenue shortfalls.

- *Dynamic effects*: Tax revenue may follow the evolution of tax bases with some delays, owing to specific collection mechanisms or declaration based on past income or transactions. Under the personal income tax system of many Member States (where there is no withholding tax), for instance, taxes are collected with a one-year time lag, as income needs to be declared one year after it has been earned. For corporate income tax purposes, tax losses can in some countries be carried-forward (e.g. Belgium, the Czech Republic, Greece) or backward (e.g. the Netherlands, the United Kingdom) for several years. Also value-added tax is collected with a few weeks delay, which may make a substantial difference especially in times of consumption peaks, like the Christmas season.

- *Tax compliance effects*: In bad times, due to liquidity constraint effects, more economic agents may underreport their income or go to the shadow economy (see Sancak et al., 2010). The increase in bankruptcy may increase further the revenue losses for corporate income tax.

An important implication of these various sources of fluctuation is that, particularly during major economic booms and downturns, policy makers may need to look beyond simple, long-run revenue elasticities and incorporate into their analysis these effects.

The constant (long-term) individual tax elasticities, which are estimated by the OECD for each main tax category, are used in particular to compute the CAB, i.e. the budget-balance-to-GDP ratio that would prevail if the economy was at potential. Therefore, it may be insightful to compute the CAB based on time-varying elasticities, netted out of DTM, and to compare it with the value of the CAB (see Box III.0).

3.5. CONCLUSIONS

This Chapter analysed the size, composition and cyclicality of discretionary tax measures (DTM), as well as their impact on tax elasticities in the EU over the period 2001-12, using a new database developed by the Output Gap Working Group.

Several noteworthy results emerge regarding the size and composition of DTM. On average over the period 2001-12, the share of DTM is almost nil (less than 0.1% of GDP) in the EU as a whole, largely because DTM cancel out over the period 2001-12 and differ widely across countries, ranging from -0.5% (tax cuts) to 0.7% of GDP (tax increases). When measured in absolute values, the share of DTM is larger, amounting to 0.4% of GDP in the EU.

On the relationship between discretionary measures and the business cycle, several findings can be highlighted:

– The use of DTM is mainly related to shifts in policy regimes, caused by changes in the economic context. While small pro-cyclical tax cuts were observed during the pre-crisis period (2001-07), larger counter-cyclical tax breaks were adopted during the crisis period (2008-10), as part of the stimulus package. During the consolidation period (2011-12), characterised by the debt crisis and the lack of fiscal space, EU Member States have engaged in pro-cyclical tax hikes, as a way to consolidate their public finances. Overall, the business cycle is only a weak determinant of DTM.

– Discretionary tax cuts are mainly accounted for by direct taxes. In half of the countries, those cuts are partially compensated by discretionary increases of indirect taxes, particularly in VAT, as part of a shift towards more growth-friendly tax bases.

DTM affect the short-term pattern of tax elasticities. Several results emerge when examining the impact of DTM on tax elasticities:

– Both gross and net elasticities average at around one in the EU as a whole for the period 2001-12, indicating an evolution of tax revenues broadly in line with nominal output growth over the medium run.

– Although net elasticities are not so different from gross elasticities on average, large discrepancies are seen between gross and net tax elasticities in some countries.

– Both net and gross tax elasticities display significant departures in the short run from the long-term elasticity assumption. Therefore, discretionary measures do not seem to explain the bulk of the short-term fluctuation in gross elasticities.

4. CONCLUSIONS

The traditional top-down indicator of the fiscal stance is discussed in the recent literature in relation to its limitations when used as a measure of fiscal effort. Proposals in the literature go in the direction of using bottom-up or narrative approach for the fiscal effort, based on the sum of the budgetary impact of the measures implemented by governments.

Taking also into account the limitations inherent in the narrative approach, the part has illustrated the use of a mixed indicator, the discretionary fiscal effort, which consists of a "bottom-up" approach on the revenue side, while on the expenditure side centres on the gap between the growth of actual expenditure (net of interest payments and unemployment benefits) and medium-term growth.

As expected, looking at the 2004-2013 period the DFE provides a less favourable view of the fiscal stance in booms with respect to the CAB. This highlights the reliance of the CAB on revenue windfalls in booms with an opposite effect in recessions, when large revenue shortfalls show up as a consequence of the fluctuations in tax elasticities. This is confirmed by the focus on 2012, where – if the DFE conveys the same broad message about the orientation of fiscal policies when compared to the CAB – it however implies a significantly higher degree of fiscal retrenchment.

Given that the largest difference between two indicators stems from the revenue side, Chapter III.3 further presents an analysis of discretionary tax measures, as well as their impact on tax elasticities in the EU over the period 2001-12. It highlights three tax policy 'regimes': one of prevailing discretionary easing of the tax burden before the crisis; a policy of aggressive tax cuts at the onset of the crisis; and prevailing tax hikes in the subsequent consolidation phase.

These broadly correspond to the observed differences between the SPB and the DFE, which are often positive in the first period, close to zero in the second period and very negative in the third one, thus suggesting that cyclical elasticities are playing a large role in explaining the difference between the two indicators.

The analysis further shows that, while tax elasticities average at around one in the EU as a whole for the period 2001-12, indicating an evolution of tax revenues broadly in line with nominal output growth over the medium to long run, they display significant departures *in the short run* from the long-term unitary value, irrespective of whether or not discretionary measures are netted off. Therefore, discretionary measures do not seem to explain the bulk of the short-term fluctuation in gross elasticities.

The DFE indicator seems therefore a good complement to existing indicators of fiscal stance when analysing fiscal effort.

ANNEX 1

Table III.A1.1: **Semi-elasticities used in the calculation of the CAB**

	Elasticities		Weights		Semi-elasticities		
	revenues	expenditure	revenues	expenditure	revenues	expenditure	Budget balance
BE	0.9	-0.1	49.0	50.7	0.0	-0.6	0.6
BG	0.8	0.0	37.8	38.1	-0.1	-0.4	0.3
CZ	0.9	0.0	39.9	43.8	-0.1	-0.4	0.4
DK	0.9	-0.2	55.8	54.3	-0.1	-0.7	0.6
DE	0.9	-0.3	44.0	46.5	0.0	-0.6	0.6
EE	0.7	-0.1	37.6	37.0	-0.1	-0.4	0.3
IE	1.0	-0.2	35.2	41.1	0.0	-0.5	0.5
EL	0.9	-0.1	39.9	48.1	0.0	-0.5	0.5
ES	1.0	-0.2	38.1	41.1	0.0	-0.5	0.5
FR	0.9	-0.1	49.9	54.1	-0.1	-0.6	0.5
IT	1.1	0.0	45.1	48.8	0.0	-0.5	0.5
CY	1.0	0.0	40.3	43.5	0.0	-0.5	0.4
LV	0.7	-0.1	35.1	38.3	-0.1	-0.4	0.3
LT	0.8	0.0	32.9	36.1	-0.1	-0.4	0.3
LU	1.1	-0.1	41.9	41.1	0.0	-0.4	0.5
HU	0.9	0.0	45.0	50.3	-0.1	-0.5	0.5
MT	0.9	0.0	39.5	43.7	-0.1	-0.5	0.4
NL	0.9	-0.3	45.2	47.4	-0.1	-0.6	0.6
AT	0.9	-0.1	48.5	50.8	-0.1	-0.6	0.5
PL	0.8	-0.1	38.8	43.8	-0.1	-0.5	0.4
PT	0.9	-0.1	41.1	46.4	0.0	-0.5	0.5
RO	0.8	0.0	33.0	36.8	-0.1	-0.4	0.3
SI	0.9	-0.1	43.5	46.5	0.0	-0.5	0.5
SK	0.8	-0.1	34.2	38.6	-0.1	-0.4	0.3
FI	0.8	-0.3	53.1	51.1	-0.1	-0.7	0.5
SE	0.8	-0.3	54.0	53.1	-0.1	-0.7	0.6
UK	1.0	0.0	40.4	45.6	0.0	-0.5	0.5

Source: Commission services