European Commission
Directorate-General for Economic and Financial Affairs

Numerical examples and technical aspects for “hands-on” experts

2019 edition

INTRODUCTION

This document is designed to complement the 2019 edition of the Vade Mecum on the Stability and Growth Pact (SGP). It presents material that may be useful for the application of fiscal surveillance by hands-on experts, in particular those working in the national administrations of EU Member States, in a way that is consistent with the EU's fiscal rules. These rules are described in a structured and pedagogical way in the Vade Mecum.

The material in this document includes numerical examples of various aspects of the SGP as well as relevant reporting tables. It has been assembled by the Directorate-General for Economic and Financial Affairs of the European Commission. In line with the practice for the Vade Mecum, it will be updated on an annual basis.

CONTENTS

TABLES TO BE SUPPLIED IN THE STABILITY AND CONVERGENCE PROGRAMMES

Provision of data on variables in bold characters is a requirement.

Provision of data on other variables is optional but highly desirable.

The tables should be submitted to the Commission by means of the dedicated web application.

Table 1a: **Macroeconomic prospects**

	ESA Code	**Year X-1**	**Year X-1**	**Year X**	**Year X+1**	**Year X+2**	**Year X+3**
		Level	rate of change	rate of change	rate of change	rate of change	rate of change
1. Real GDP	B1*g						
2. Nominal GDP	B1*g						
Components of real GDP							
3. Private final consumption expenditure	P.3						
4. Government final consumption expenditure	P.3						
5. Gross fixed capital formation	P.51g						
6. Changes in inventories and net acquisition of valuables (% of GDP)	P.52 + P.53						
7. Exports of goods and services	P.6						
8. Imports of goods and services	P.7						
Contributions to real GDP growth							
9. Final domestic demand		-					
10. Changes in inventories and net acquisition of valuables	P.52 + P.53	-					
11. External balance of goods and services	B.11	-					

Table 1b: **Price developments**

	ESA Code	**Year X-1**	**Year X-1**	**Year X**	**Year X+1**	**Year X+2**	**Year X+3**
		Level	rate of change	rate of change	rate of change	rate of change	rate of change
1. GDP deflator							
2. Private consumption deflator							
3. HICP[(1)]							
4. Government consumption deflator							
5. Investment deflator							

6. Export price deflator (goods and services)							
7. Import price deflator (goods and services)							

(1) Optional for stability programmes.

Table 1c: **Labour market developments**

	ESA Code	**Year X-1**	**Year X-1**	**Year X**	**Year X+1**	**Year X+2**	**Year X+3**
		Level	rate of change	rate of change	rate of change	rate of change	rate of change
1. Employment, persons(1)							
2. Employment, hours worked(2)							
3. Unemployment rate (%)(3)							
4. Labour productivity, persons(4)							
5. Labour productivity, hours worked(5)							
6.Compensation of employees	D.1						
7.Compensation per employee					optional	optional	optional

(1) Occupied population, domestic concept national accounts definition.
(2) National accounts definition. Please, provide the series in terms of average annual hours worked per person employed. This series is needed for internal calculations.
(3) Harmonised definition, Eurostat; levels.
(4) Real GDP per person employed.
(5) Real GDP per hour worked.

Table 1d: **Sectoral balances**

% of GDP	ESA Code	**Year X-1**	**Year X**	**Year X+1**	**Year X+2**	**Year X+3**
1.Net lending/borrowing vis-à-vis the rest of the world	B.9					
of which:						
–Balance on goods and services						
–Balance of primary incomes and transfers						
–Capital account						
2.Net lending/borrowing of the non-government sector	B.9					
3.Net lending/borrowing of general government	B.9					
4.Statistical discrepancy						

Table 2a: **General government budgetary prospects**

	ESA Code	**Year X-1**	**Year X-1**	**Year X**	**Year X+1**	**Year X+2**	**Year X+3**
		Level	% of GDP	% of GDP	% of GDP	% of GDP	% of GDP
Net lending (+) / net borrowing (–) (B.9) by sub-sector							
1.General government	S.13						
1a.Central government	S.1311						
1b.State government	S.1312						
1c.Local government	S.1313						
1d.Social security funds	S.1314						
General government (S13)							
2.Total revenue	TR						
3.Total expenditure	TE[(1)]						
4.Net lending/borrowing	B.9						
5.Interest expenditure	D.41						
6.Primary balance[(2)]	B.9+D.41						
7.One-off and other temporary measures[(3)]							
Selected components of revenue							
8.Taxes on production and imports	D.2					optional	optional
9.Current taxes on income, wealth, etc	D.5					optional	optional
10.Capital taxes	D.91					optional	optional
11.Social contributions	D.61					optional	optional
12.Property income	D.4					optional	optional
13.Other[(4)]						optional	optional
14=2.Total revenue	TR						
p.m.: Tax burden (D.2+D.5+D.61+D.91–D.995)[(5)]							
Selected components of expenditure							
15.Compensation of employees + intermediate consumption	D.1+P.2						
15a.Compensation of employees	D.1						
15b.Intermediate consumption	P.2						

16.Social payments (16=16a+16b)							
***of which* Unemployment benefits**[6]							
16a.Social transfers in kind – purchased market production	D.632						
16b.Social benefits other than social transfers in kind	D.62						
17=5.Interest expenditure	D.41						
18.Subsidies	D.3						
19.Gross fixed capital formation	P.51g						
20.Capital transfers	D.9						
21.Other[7]							
22=3.Total expenditure	TE[1]						
p.m.: Governments final consumption expenditure (nominal)	P.3						

[1]TR–TE=B.9
[2] The primary balance is calculated as B.9 (item 4) plus D.41 (item 5).
[3] A plus sign means deficit-reducing one-off measures.
[4] P.11+P.12+P.131+D.39rec+D.7rec+D.9rec (other than D.91).
[5] Including those collected by the EU and including an adjustment for uncollected taxes and social contributions (D.995), if appropriate.
[6] Includes social benefits other than social transfers in kind (D.62) and social transfers in kind via market produces (D.632) related to unemployment benefits.
[7] D.29pay+D4pay (other than D.41pay) + D.5pay+D.7pay+P.52+P.53+NP+D.8.

Table 2b: **No-policy change projections** [1]

	Year X–1	**Year X-1**	**Year X**	**Year X+1**	**Year X+2**	**Year X+3**
	Level	% of GDP	% of GDP	% of GDP	% of GDP	% of GDP
1.Total revenue at unchanged policies						
2.Total expenditure at unchanged policies						

[1] The projections shall start at the time when the Stability or Convergence Programme is drafted (please indicate the cut-off date) and show revenue and expenditure trends under a "no-policy change" assumption. Therefore, figures for X–1 should correspond to actual data for revenue and expenditure.

Table 2c: **Amounts to be excluded from the expenditure benchmark**

	Year X-1	**Year X–1**	**Year X**	**Year X+1**	**Year X+2**	**Year X+3**
	Level	% of GDP	% of GDP	% of GDP	% of GDP	% of GDP
1.Expenditure on EU programmes fully matched by EU funds revenue						
1a.*of which investments fully matched by EU funds revenue*						
2.Cyclical unemployment benefit						

expenditure(1)						
3.Effet of discretionary revenue measures(2)						
4.Revenue increases mandated by law						

(1) Please detail the methodology used to obtain the cyclical component of unemployment benefit expenditure. It should build on unemployment benefit expenditure as defined in COFOG under the code 10.5.
(2) Revenue increases mandated by law should not be included in the effect of discretionary revenue measures: data reported in rows 3 and 4 should be mutually exclusive.

Table 3: **General government expenditure by function**

% of GDP	COFOG Code	**Year X-2**	**Year X+3**
1.General public services	1		
2.Defence	2		
3.Public order and safety	3		
4.Economic affairs	4		
5.Environmental protection	5		
6.Housing and community amenities	6		
7.Health	7		
8.Recreation, culture and religion	8		
9.Education	9		
10.Social protection	10		
11.Total expenditure (=item 3=22 in Table 2a	TE		

Table 4: **General government debt developments**

% of GDP	ESA Code	**Year X-1**	**Year X**	**Year X+1**	**Year X+2**	**Year X+3**
		% of GDP	% of GDP	% of GDP	% of GDP	% of GDP
1.Gross debt[(1)]						
2.Change in gross debt ratio						
Contributions to changes in gross debt						
3. Primary balance[(2)]	B.9+D.41					
4.Interest expenditure[(3)]	D.41					
5.Stock-flow adjustment						
of which:						
–Differences between cash and accruals[(4)]						
–Net accumulation of financial assets[(5)]						
of which:						
–privatisation proceeds						
–Valuation effects and other[(6)]						
p.m.: Implicit interest rate on debt[(7)]						
Other relevant variables						
6.Liquid financial assets[(8)]						

7.Net financial debt (7=1–6)						
8.Debt amortization (existing bonds) since the end of the previous year						
9.Percentage of debt denominated in foreign currency						
10.Average maturity						

(1) As defined in amended Regulation 479/2009.
(2) Cf. item 6 in Table 2a.
(3) Cf. item 5=17 in Table 2a.
(4) The differences concerning interest expenditure, other expenditure and revenue could be distinguished when relevant or in case the debt-to-GDP ratio is above the reference value.
(5) Currency and deposits, government debt securities, government controlled enterprises and the difference between listed and unlisted shares could be distinguished when relevant or in case the debt-to-GDP ratio is above the reference value.
(6) Changes due to exchange rate movements, and operation in secondary market could be distinguished when relevant or in case the debt-to-GDP ratio is above the reference value.
(7) Proxied by interest expenditure divided by the debt level of the previous year.
(8) Liquid assets are here defined as stocks of AF.1, AF.2, AF.3 (consolidated for general government, i.e. netting out financial positions between government entities), AF.511, AF.52 (only if listed on stock exchange).

Table 5: **Cyclical developments**

% of GDP	ESA Code	**Year X-1**	**Year X**	**Year X+1**	**Year X+2**	**Year X+3**
		% of GDP	% of GDP	% of GDP	% of GDP	% of GDP
1.Real GDP growth (%)						
2.Net lending of general government	B.9					
3.Interest expenditure	D.41					
4.one-off and other temporary measures(1)						
5.Potential GDP growth (%)						
contributions: –labour –capital –total factor productivity						
6.Output gap						
7.Cyclical budgetary component						
8.Cyclically-adjusted balance (2 – 7)						
9.Cyclically-adjested primary balance (8 + 3)						
10.Structural balance (8 – 4)						

(1) A plus sign means deficit-reducing one-off measures.

Table 6: **Divergence from previous update**

	ESA Code	**Year X-1**	**Year X-1**	**Year X**	**Year X+1**	**Year X+2**	**Year X+3**
Real GDP growth (%)							
Previous update							
Current update							
Difference							
General government net lending (% of GDP)	B.9						
Previous update							
Current update							

Difference							
General government gross debt (% of GDP)							
Previous update							
Current update							
Difference							

Table 7: **Long-term sustainability of public finances**

% of GDP	**2007**	**2010**	**2020**	**2030**	**2040**	**2050**	**2060**
Total expenditure							
Of which: **age-related expenditures**							
Pension expenditure							
Social security pension							
Old-age and early pensions							
Other pensions (disability, survivors)							
Occupational pensions (if in general government)							
Health care							
Long-term care							
Educational expenditure							
Other age-related expenditures							
Interest expenditure							
Total revenue							
Of which: property income							
Of which: from pensions contributions (or social contributions if appropriate)							
Pension reserve fund assets							
Of which: consolidated public pension fund assets (assets other than government liabilities)							
Systemic pension reforms(1)							
Social contributions diverted to mandatory private scheme(2)							
Pension expenditure paid by mandatory private scheme(3)							
Assumptions							
Labour productivity growth							
Real GDP growth							
Participation rate males (aged 20–64)							
Participation rates females (aged 20–64)							
Total participation rates (aged 20–64)							

Unemployment rate							
Population aged 65+ over total population							

(1) Systemic pension reforms refer to pension reforms that introduce a multi-pillar system that includes a mandatory fully funded pillar.
(2) Social contributions or other revenue received by the mandatory fully funded pillar to cover for the pension obligations it acquired in conjunction with the systemic reform.
(3) Pension expenditure or other social benefits paid by the mandatory fully funded pillar linked to the pension obligations it acquired in conjunction with the systemic pension reform.

Table 7a: **Contingent liabilities**

% of GDP	**Year X–1**	**Year X**
Public guarantees		Optional
Of which: linked to the financial sector		Optional

Table 8: **Basic assumptions**

	Year X–1	**Year X–1**	**Year X–1**	**Year X–1**	**Year X–1**
Short-term interest rate(1) (annual average)					
Long-term interest rate (annual average)					
USD/€ exchange rate (annual average) (euro area and ERM II countries)					
Nominal effective exchange rate					
(for countries not in euro area or ERM II) exchange rate vis-à-vis the € (annual average)					
World excluding EU, GDP growth					
EU GDP growth					
Growth of relevant foreign markets					
World import volumes, excluding EU					
Oil prices (Brent, USD/barrel)					

(1) If necessary, purely technical assumptions.

ADDITIONAL TABLE FOR STABILITY AND CONVERGENCE PROGRAMMES OF MEMBER STATES APPLYING FOR USE OF THE STRUCTURAL REFORM CLAUSE

Table: Structural reforms (table to be included in both SCP and NRP) – To be completed for **each** structural reform under consideration

Description of the reform (1)	Methodological elements		Quantitative elements							In cases of ex ante implementation	
			Main outcome of macroeconomic simulations (4)						Other impacts/ indicators (7)	Timeline for adoption and implementation of measures (8)	Institutional process for approval of measures (9)
	Relevant features of the model used/estimation technique (2)	Main macroeconomic assumptions/simulation assumptions (3)	Description (5)	Yearly and cumulated effect on GDP and other main macroeconomic variables (6)							
				Year X+5	Year X+10	Year X+15	Year X+20	Year X+25*			
			GDP								
			Gross capital formation								
			Employment								
			Direct fiscal impact upon primary balance (10)								
			Total impact upon primary balance (11)								

***The impact at X+25 is akin to the final impact in a steady-state economic environment.**

(1) This column should contain "Measure 1", "Measure 2" etc and short titles e.g. labour market reform.

(2) This column should include all relevant information on the analytical and methodological approach used in the empirical exercise. This would include: (a) the type of the model used/estimation technique (e.g. econometric estimations or simulation based assessments with DSGE/dynamic CGE/static CGE models, etc.); (b) data

sources and the frequency of macroeconomic data used in the empirical exercise; (c) if available, the list of references related to the main methodological paper(s) that describes the structure of the country-specific model underlying the empirical exercise.

(3) This column should encompass the main macroeconomic and simulation assumptions underlying the estimation including transmission channels and elasticities.

(4) This column summarises the main macroeconomic variables involved as well as the quantitative results of the macroeconomic simulations exercise.

(5) Specifically, this column contains the list of the macroeconomic variables which are assumed to be affected by the enacted or planned structural reforms presented in the programmes. The list reported in the reporting table is illustrative (but not exhaustive) and can be changed and/or broadened according to the type of reforms implemented at national level.

(6) This column reports the quantitative impact of the structural reforms expressed as the yearly and/or cumulated effect on GDP and the other main macroeconomic variables involved in the simulation as well as the policy simulation horizon. The macroeconomic impact of structural reforms needs to take the form of a number expressing the difference (in percentage points) with respect to the reference scenario, i.e. the scenario that does not include the structural measures).

(7) This column shall contain other relevant indicators that can also demonstrate economic impacts, for example resource efficiency indicators. This can also include information on the expected direct results from the measure (e.g. how many people are expected to be supported by a new ALMP measures; or which increase in the proportion of unemployed will be covered by an increase ALMP budget).

(8) This column should set out the timeline for the adoption and implementation of any reform measures which justify an application for use of the structural reform clause on an ex ante implementation basis as detailed in the dedicated structural reform plan adopted by Government.

(9) This column should set out the institutional plans and processes for the implementation of reform measures which justify an application for use of the structural reform clause on an ex ante implementation basis

(10) This row should contain the direct budgetary impact (budgetary savings minus budgetary costs) of reform measures, excluding any impact through associated changes to output. The effects should be shown as a percentage of GDP.

(11) This row should contain the total budgetary impact of reform measures, including both direct fiscal effects and any indirect effects through associated changes to output. The effects should be shown as a percentage of GDP.

CALCULATING THE MINIMUM LINEAR STRUCTURAL ADJUSTMENT (MLSA) FOR THE APPLICATION OF THE DEBT CRITERION DURING THE TRANSITION PERIOD

Member States that were in EDP on the date that the Six Pack amendments to the SGP were adopted (8 November 2011) are subject to transitional arrangements –concerning the debt rule– for the three years following the correction of their excessive deficit, in order to ensure that they have time to adapt their structural adjustments to the level needed to comply with the debt reduction benchmark. During those three years, compliance with the debt criterion is judged according to whether the Member State makes sufficient progress towards compliance. The concept of "sufficient progress towards compliance" is set out in the Code of Conduct on the SGP. It is defined as the Minimum Linear Structural Adjustment (MLSA) ensuring that –if followed– Member States will comply with the debt rule at the end of the transition period.

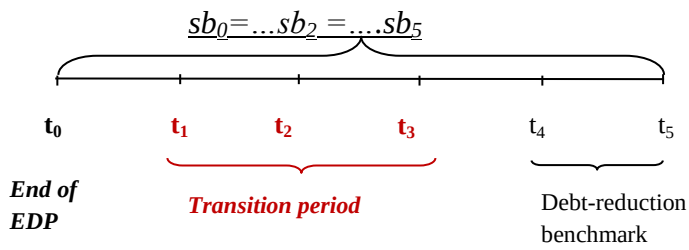
COMPUTATION OF THE MLSA

Two scenarios are considered for a Member State correcting its excessive deficit in year t0: a baseline scenario based on no adjustment and a counterfactual scenario based on a constant (linear) adjustment *adj* implemented for the three years of the transition period.

Baseline scenario

If no adjustment is implemented: the structural balance (*sb*) remains constant over the period ([1]) shown in Graph A5.1 below. This implies that during the transition period, which covers year t1 to year t3, the deficit: $bal_i^* = sb_0 + o_i + cb_i$ with i=1,…5, evolves according to the cyclical balance (the cyclical components of the general government balance *cb*) and the one-off measures (*o*), while the debt-to-GDP ratio: $b_i^* = \frac{b_{i-1}}{1+g_i} - bal_i^* + sfa_i$ with i=1,…5, evolves according to growth (*g*), the cyclical balance and the stock-flow adjustments (*sfa.*).

Graph A5.1: **Baseline scenario**

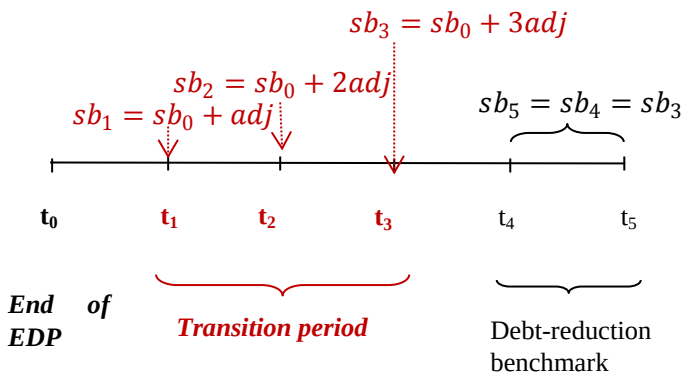


([1]) Years t_4 and t_5 are taken into account as relevant for the forward-looking debt benchmark.

Counterfactual scenario

A constant (linear) adjustment (*adj*) is implemented during the transition period, while keeping the structural balance constant after it.

Graph A5.2: **Counterfactual scenario**



Thus, the trajectories for debt: $b_i = \frac{b_{i-1}}{1+g_i} - bal_i + sfa_i$ and deficit: $bal_i = sb_0 + i \cdot adj + o_i + cb_i$ with i=1,…5, change accordingly under this scenario. In particular, for year t1-t5 the debt becomes:

- ✓ in year t_1: $b_1 = b_1^* - adj \times e_1$

  as $b_1^* - b_1 = \left(\frac{b_0}{1+g_1} - sb_0 - cb_1 - o_1 + sfa_1\right) - \left(\frac{b_0}{1+g_1} - (sb_0 + adj) - cb_1 - o_1 + sfa_1\right) = adj = adj \times e_1$ where $e_1 = 1$

- ✓ in year t_2: $b_2 = b_2^* - adj \times e_2$

  As $b_2^* - b_2 = \left(\frac{b_1^*}{1+g_2} - sb_0 - cb_2 - o_2 + sfa_2\right) - \left(\frac{b_1}{1+g_2} - (sb_0 + 2adj) - cb_2 - o_2 + sfa_2\right) = 2adj + \frac{b_1^* - b_1}{1+g_2} = adj \times e_2$

and, following the same logic:

- ✓ in year t_3: $b_3 = b_3^* - adj \times e_3$
  as $b_3^* - b_3 = 3adj + \frac{b_2^* - b_2}{1+g_3} = adj \times e_3$
- ✓ in year t_4: $b_4 = b_4^* - adj \times e_4$

  as $b_4^* - b_4 = 3adj + \frac{b_3^* - b_3}{1+g_4} = adj \times e_4$

- ✓ in year t_5: $b_5 = b_5^* - adj \times e_5$
  as $b_5^* - b_5 = 3adj + \frac{b_4^* - b_4}{1+g_5} = adj \times e_5$

with the sequence *e* defined as follows:

$$\begin{cases} e_0 = 0 \\ e_i = i + \dfrac{e_{i-1}}{1+g_i} \; if \; i \in [1;3] \\ e_i = 3 + \dfrac{e_{i-1}}{1+g_i} \; if \; i \in [4;5] \end{cases}$$

In order to identify the constant (linear) annual structural adjustment (*adj*) to be implemented during the transition period, the following equation has to be solved:

$$G_3(adj) = \min(b_3 - bb_3\,; b_5 - bb_5; b_3^{3-year-adjusted} - bb_3) = 0 \qquad (1)$$

which implies finding that minimum adjustment that assures, at the end of the transition period, the respect with at least one of the configurations of debt benchmarks based on the counterfactual scenario. This is done in three steps:

1. calculate the adjustment ($BLadj$) allowing closing the gap to the backward-looking debt benchmark: bb_3= 60% + 0.95/3 (b_2 - 60%) + 0.95^2/3 (b_1 - 60%) + 0.95^3/3 (b_0 - 60%)

$$b_3 = bb_3$$

$$<=> b_3^* - BLadj \times e_3 = 60 + \frac{0.95^3}{3}(b_0 - 60) + \frac{0.95^2}{3}(b_1^* - BLadj \times e_1 - 60) + \frac{0.95}{3}(b_2^* - BLadj \times e_2 - 60)$$

$$<=> BLadj = \frac{b_3^* - bb_3^*}{e_3 - \frac{0.95^3}{3}e_0 - \frac{0.95^2}{3}e_1 - \frac{0.95}{3}e_2}$$

where $b_3^* - bb_3^*$ is the gap to the backward-looking element of the debt reduction benchmark at the end of the transition period in the baseline scenario.

2. calculate the adjustment ($CYCLadj$) allowing closing the gap between the cyclically adjusted debt ([2]), at the end of the transition period, and the backward-looking debt ratio:

$$b_3^{3-year-adjusted} = bb_3$$

$$<=> CYCLadj = \frac{\alpha b_3^* \mp \beta - bb_3^*}{\alpha e_3 - \frac{0.95^3}{3}e_0 - \frac{0.95^2}{3}e_1 - \frac{0.95}{3}e_2}$$

3. calculate the adjustment ($FLadj$) allowing closing the gap to the forward-looking debt benchmark: $bb5$ = 60% + 0.95/3 (b_4 - 60%) + 0.95^2/3 (b_3 - 60%) + 0.95^3/3 (b_2 - 60%)

$$b_5 = bb_5$$

([2]) $b_3^{3-year-adjusted} = \frac{\prod_{i=1}^{3}(1+g_i)}{\prod_{i=1}^{3}(1+g_i^{pot})(1+p_i)} \times b_3 + \frac{\sum_{i=1}^{3} cb_i \prod_{j=1}^{i}(1+g_j)}{\prod_{i=1}^{3}(1+g_i^{pot})(1+p_i)} = \alpha \cdot b_3 + \beta$ where g represents the nominal growth g^{pot} the potential growth and p the GDP deflator growth.

$$<=> FLadj = \frac{b_5^* - bb_5^*}{e_5 - \frac{0.95^3}{3} e_2 - \frac{0.95^2}{3} e_3 - \frac{0.95}{3} e_4}$$

Finally, the Minimum Linear Structural Adjustment needed to ensure compliance with the debt criterion at the end of the transition period results from:

$$MLSA = \min(BLadj\,; FLadj\,; CYCLadj)$$

If the adjustment really implemented by the country under analysis in the first year (or second year) of the transition period, differs from the MLSA, one needs to follow the same logic, as presented above, and find the linear constant structural adjustment for the two (one) remaining years of the transition period assuring the respect of the debt rule at the end of the transition period. This implies to consider as a starting point a structural balance corresponding to year t2 (year t3) and a transition period lasting only two years (1 year).

A NUMERICAL EXAMPLE OF THE EXPENDITURE BENCHMARK

This section presents a calculation of the expenditure benchmark, in line with the methodology outlined in Box 1.11 in Section 1.3.2.6. The Table A8.1 at the end of this annex presents the data used for the calculation of the expenditure benchmark, expressed in nominal terms, for an indicative country and the further adjustments used for the overall assessment.

Expenditure benchmark calculations

As Box 1.11 sets out, the first data that enters the calculation is the government expenditure aggregate given in line 1. Interest expenditure (line 2), government expenditure on EU programmes fully matched by EU funds revenue (line 3), gross fixed capital formation for the year in question netted out of the EU funds revenues spent in investment projects (line7), cyclical unemployment benefit expenditure (line 9) and one-off measures on the expenditure side of the budget are all subtracted from the government expenditure aggregate, while the average annual gross fixed capital formation for years t-3 to t (line 8), netted out yearly of the EU funds revenues spent in investment projects, is added. The table shows how the average is computed from the nominal figures for the four years in question, using the information from lines 4 to 7. The modified expenditure aggregate is then given in line 17. This is then corrected for discretionary revenue measures (given in line 11) and revenue measures mandated by law (12).

The change in the net nominal expenditure is then computed in line 19 using the formula from Box 1.11. Note that in doing this, the corrected expenditure aggregate net of revenue measures in year t (line 18) is compared to the corrected expenditure for year t-1 that is not net of revenue measures (line 17). This is because the revenue measures from lines 11 and 12 are given on an incremental basis over the previous year.

In the example given in the table below, the country has an MTO of -0.45% of GDP for the entire period concerned and a structural balance of -1.1% in year t-1 and -0.6% in year t. Line 22 gives the reference rate for the country in question depending chiefly on whether it is at its MTO or not. The reference rate is then converted to nominal terms using the deflator in line 23, as from Commission's spring forecast of the previous year. The reference rate in nominal terms is given in line 24 according to the formula: (1+real)*(1+deflator)-1=nominal, which is to be used to judge compliance with the expenditure benchmark.

If one aims at verifying compliance with the expenditure benchmark for instance for year t+1, the first stage is to determine the initial position of this Member State at the start of the year (which implies comparing the structural balance in year t with the country's MTO). This implies that at the start of year t+1, the country in question is assessed to be at its MTO due to the 0.25% of GDP margin of tolerance (-0.6 vs. MTO = -0.45).

If line 19 is at or below the level given in line 24, the country is compliant with the expenditure benchmark for a given year. Otherwise it is not compliant. Line 25 calculates the excess of the growth in expenditure over the reference rate, and coverts into the national currency using the figure for the net expenditure aggregate. Using the figure for nominal GDP given in line 26, this difference of net expenditure growth relative to the reference rate is given as a share of GDP in line 27.

The figure in line 27 gives the excess (if it is negative) of net expenditure growth over the reference rate to be used to assess whether the deviation is significant or not. If the deviation exceeds 0.5, it is judged to be significant. As the significance of deviation is judged both in each year and over two years, line 28 gives the average over two years. If this is over 0.25, the deviation is judged to be significant over two years.

Expenditure benchmark calculations within the overall assessment

A further correction (in grey at the bottom of the table), at the time of the overall assessment, consists in netting out also the one-off measures referring to both sides of the budget. This adjustment affects the deviation via the total discretionary revenue measures, because of the role of the one-offs on the revenue side ([3]) (line 29), and the corrected expenditure aggregate, because of the role of the one-offs on the expenditure side ([4]) (30). As a result, the change in the net nominal expenditure aggregate (line 32), its deviation from the reference rate (in nominal and in % of GDP: lines 33 and 34 respectively) and the average deviation (line 35) are then affected.

([3]) When netting out the one-off measures on the revenue side of the budget, their recording in the AMECO database should be taken into account. In AMECO, one-off measures are recorded in levels while the total amount of discretionary revenue measures is reported on an incremental basis. When computing the Total discretionary measures net of one-offs for a given year t, we have to proceed by summing up first the discretionary measures referred to that year and then subtract the incremental contribution of the one-offs, obtained as the difference of the one- offs over two consecutive years (t and t-1):
Total discretionary measures net of one-offs$_t$= Discretionary measures current revenue$_t$+Discretionary measures capital transfers received-(One-offs on the revenue side$_t$- One-offs on the revenue side$_{t-1}$).

([4]) In the AMECO database, one-off expenditure measures are recorded with a positive sign when they imply expenditure decreases. This means that in order to net out the one-offs from the expenditure aggregate, these have to be added.

Table A8.1: **A numerical example of the expenditure benchmark**

		t-1	t	t+1
1	**General government expenditure**	173.5	175.1	177.4
2	**Interest expenditure**	8.1	7.9	7.8
3	**Government expenditure on EU programmes fully matched by EU funds revenue**	0.2	0.2	0.2
	Gross fixed capital formation t	*9.7*	*9.9*	*10.1*
4	Gross fixed capital formation t-3 net of EU funds revenues spent in investment projects	*9.2*	*9.2*	*9.7*
5	Gross fixed capital formation t-2 net of EU funds revenues spent in investment projects	*9.2*	*9.7*	*9.7*
6	Gross fixed capital formation t-1 net of EU funds revenues spent in investment projects	*9.7*	*9.7*	*9.9*
7	**Gross fixed capital formation t** net of EU funds revenues spent in investment projects	**9.7**	**9.9**	**10.1**
8	**Annual average gross fixed capital formation t-3 to t**	**9.5**	**9.6**	**9.9**
9	**Cyclical unemployment expenditure**	0.3	0.5	0.4
10	**One-offs on expenditure side**	**5.1**	**-2.1**	**-0.7**
11	*Discretionary measures current revenue*	*0.6*	*0.2*	*-1.9*
12	*Discretionary measures capital transfers received*	*0.0*	*0.0*	*0.0*
13	*One-offs on the revenue side*	0.3	0	0
14	**Total discretionary revenue measures** *=(11)+(12)*	**0.6**	**0.2**	**-1.9**
16	**Revenue measures mandated by law**	**0**	**0**	**0**
17	**Corrected expenditure aggregate (nominal)** *= (1) –(2) – (3) - (7) + (8) – (9)*	**164.7**	**166.2**	**168.7**
18	**Corrected expenditure aggregate net of (14) and (16) (nominal)** *= (17) – (14) – (16)*	**164.0**	**166.0**	**170.6**
19	**Net public expenditure annual growth in % (nominal)**	5.8	0.8	2.7
20	MTO	-0.45	-0.45	-0.45
21	Structural balance frozen to identify the initial position toward the MTO	-0.4	-0.6	n.a.
22.a	Applicable benchmark rate if already at MTO (i.e. if SB_{t-1} = MTO) ~	1.9	1.6	2.0
22.b	Convergence margin *	1.2	-0.1	0.3
22	Reference rate to be applied (real) *=(22.b)-(22.a)*	0.7	1.8	1.7
23	GDP deflator (% change)	1.7	1.6	1.5
24	**Reference rate to be applied (nominal)***=([1+(22)/100]*[1+(23)/100]-1}*100*	**2.4**	**3.4**	**3.2**
25	Deviation in year t (in national currency) if negative, it is an excess over the benchmark *= ((24)-(19))*(17 from the previous year)/100*	-5.2	4.3	0.9
26	GDP (nominal)	329.3	337.2	347.7
27	**Deviation in year t (in % GDP) if negative, it is an excess over the benchmark** *= (25)/(26)*100*	**-1.6**	**1.3**	**0.3**
28	**Average deviation in t-1 and t (in % GDP)**		**-0.2**	**0.8**
	Overall assessment further adjustments			
29	**Total discretionary revenue measures net of one-offs***=(11)+(12)-(13)+(13referred to the previous year)*	1.0	0.5	-1.9
30	**Corrected expenditure aggregate (nominal) net of one-offs** *= (1) –(2) – (3) - (7) + (8) – (9) + (10)*	169.8	164.1	168.0
31	**Corrected expenditure aggregate net of of one-offs (nominal)** *= (30) – (29) – (16)*	168.7	163.6	169.9
32	**Net public expenditure annual growth in % (nominal) net of one-offs**	9.4	-3.0	3.9
33	Deviation in year t (in national currency) net of one-offs = [(24)-(32)]*(30 from the previous year)/100 (if negative, it is an excess over the benchmark)	-10.9	11.0	-1.0
34	**Deviation net of one-offs in year t (in % GDP)** *if negative, it is an excess over the benchmark = (33)/(26)*1(	**-3.3**	**3.2**	**-0.3**
35	**Average deviation net of one-offs in t-1 and t (in % GDP)**		**0.0**	**1.5**

~ It corresponds to the 10-year average potential growth on the basis of the Commission spring forecast of year t-1, when the requirement is set.
* See Box 1.10 for details on calculation.

A NUMERICAL EXAMPLE OF AN ASSESSMENT OF EFFECTIVE ACTION TO AN ARTICLE 126(7) RECOMMENDATION OR ARTICLE 126(9) NOTICE

This annex presents an example of an assessment of effective action following an Article 126(7) recommendation or notice under Article 126(9).

SETTING THE EDP TARGETS

The baseline, no-policy change scenario

Defining the EDP scenario –that is, the EDP targets and the underlying assumptions– always starts by looking at what would happen if no further fiscal policy measures were taken. This is known as the baseline, no-policy change scenario.

The baseline scenario is actually the Commission's most recent forecast available at the time of recommendation. Typically, it shows that the headline deficit breached the 3% of GDP limit in the previous year, which triggers the opening of an EDP. In some cases, the Commission's forecast horizon (which typically covers years T and T+1, and T+2 in the case of the autumn forecast) is extended in an ad hoc way, if a longer correction period is being contemplated.

In the example shown in Table A9.1, the headline deficit reached 4% of GDP in year T-1, based on notified data. The deficit is forecast to stay at 4% in years T and T+1, meaning that it would remain above 3% of GDP if no further measures were taken. By further measures we mean any measures that would come on top of those included in the Commission's no-policy change forecast.

Table A9.1: **The baseline, no-police change scenario**

	Year t–1	**Year t**	**Year t+1**
	Outturn	Forecast	
GDP growth (constant prices – in %)		1.5	1.5
GDP growth (current prices – in %)		3.5	3.5
Potential GDP growth (constant prices – in %)		1.0	1.0
Output gap (in % of potential GDP)	–3.0	–2.5	–2.0
General government balance (in % of GDP)	–4.0	–4.0	–4.0
Structural balance (in % of potential GDP)	–2.5	–2.7	–3.0
Change in structural balance (in % of potential GDP)		–0.2	–0.2

Note: Annual changes in the structural balance may not match annual levels due to rounding.

The headline deficit path is also dependent on the forecast macroeconomic outlook. Here we expect real GDP to grow by 1.5% in years T and T+1 and inflation to be 2% in both years.

With growth forecast above potential, the output gap is narrowing over the forecast horizon.

For the sake of simplicity, we assume that there are no one-off measures taken by the Member State, implying that all measures are of a permanent nature.

On this basis, and using the commonly agreed methodology for the cyclically-adjusted balance, the structural balance is estimated to deteriorate by 0.2% of potential GDP in both year T and year T+1.

The EDP scenario

The EDP scenario is composed of headline deficit targets and required annual improvements in the structural balance which – if followed – allow bringing the headline deficit below 3% of GDP by a given deadline while ensuring that an appropriate fiscal effort is pursued.

The EDP scenario is built in an iterative way. Specifically, starting from the baseline, no-policy change scenario, we look at whether a one-year deadline seems reasonable in terms of the underlying fiscal effort and the impact on the macroeconomic outlook. If this seems unrealistic, for example because it would imply too high of a fiscal effort and/or because it would have too negative impact on GDP growth, there may be a case for a two-year deadline. And so on.

Table A9.2: **The EDP scenario**

	Year t–1	**Year t**	**Year t+1**
	Outturn	Forecast	
GDP growth (constant prices – in %)		0.8	0.7
GDP growth (current prices – in %)		2.8	2.7
Potential GDP growth (constant prices – in %)		1.0	1.0
Output gap (in % of potential GDP)	–3.0	–3.2	–3.4
General government balance (in % of GDP)	–4.0	–3.4	–2.7
Structural balance (in % of potential GDP)	–2.5	–1.8	–1.0
Change in structural balance (in % of potential GDP)		0.7	0.8

Note: Annual changes in the structural balance may not match annual levels due to rounding.

In the example, the EDP scenario as shown in Table A9.2 is such that it brings the headline deficit to 3.4% of GDP in year T and 2.7%, i.e. below the 3% limit, in year T+1. The corresponding improvements in the structural balance are 0.7% of (potential) GDP in year T and 0.8% in year T+1.

The EDP targets are defined in terms of the expenditure benchmark, that is, the maximum allowable growth rate of expenditure consistent with, and conducive to, the fulfilment of the targets for the headline deficit and the underlying improvement in the structural balance. The expenditure benchmark is net of the possible fiscal policy (discretionary) measures assumed on the revenue side in the EDP scenario. It excludes the projected amounts of interest expenditure, expenditure on Union programmes fully matched by Union funds revenue and non-discretionary changes in unemployment benefit expenditure. Nationally financed government gross fixed capital formation is smoothed over a 4 four-year period. Any possible one-off measures, whether on the expenditure or on the revenue side, are also excluded.

In the example as shown in Table A9.3, in the EDP scenario total government expenditure is projected to reach 51.3 billion of national currency in year T and 52.5 billion in year T+1, from 50 billion in year T-1. The modified expenditure aggregate is 47.8 billion in year T and 49.0 billion in year T+1. The latter is then corrected for the non-one-off discretionary revenue measures assumed in the EDP scenario, which gives the expenditure benchmark (1.2% in year T, 1.4% in year T+1).

Table A9.3: **The expenditure benchmark as per the EDP scenario**

		Year t–1	Year t	Year t+1
	in billions of national currency	Outturn	Forecast	
1	**General government expenditure**	50.0	51.3	52.5
2	**Interest expenditure**	3.0	3.0	3.0
3	**Expenditure on EU programmes fully matched by EU funds revenue**	0.1	0.1	0.2
4	**Gross fixed capital formation t net of EU funds revenue spent in investment projects**	2.8	3.0	2.9
5	**Annual average gross fixed capital formation t–3 to t net of EU funds revenue spent in investment projects**	2.9	2.9	2.9
6	**Cyclical unemployment expenditure**	0.2	0.2	0.2
7	**One-off expenditure measures**	0.0	0.0	0.0
8	**Corrected expenditure aggregate** = *(1)–(2)–(3)–((4)–(5))–(6)+(7)*	46.8	47.8	49.0
9	**Non-one-off revenue measures**		0.5	0.6
10	**Expenditure benchmark (in %)** = $[((8)_t–(9)_t)/(8)_{t-1}–1]*100$		1.2	1.4

ASSESSING EFFECTIVE ACTION

A decision tree sets out the order of logical and procedural steps for the assessment of effective action under the EDP (see Graph 2.3 in Section 2.3.2.1). First, the headline balance and the change in the structural balance are assessed. When a Member State achieves both its headline deficit target and the recommended improvement in the structural balance, the Member State is considered to have acted in compliance with the recommendation and the EDP is held in abeyance – meaning it is put on hold until the excessive deficit is eventually corrected, as long as it continues to comply with the headline and structural targets. When this is not achieved, the Commission engages in a more detailed examination, known as the careful analysis, primarily based on an assessment of compliance with the expenditure benchmark.

In the example as shown in Table A9.4, the headline deficit is above the EDP targets (3.7% of GDP in year T and 3.4% in year T+1 versus 3.4% and 2.7%, respectively). A careful analysis is therefore needed to see whether the breach is due to the macroeconomic situation turning worse than forecast in the EDP scenario or to the Member State not delivering on its policy commitments. In the example, the growth rates of the modified expenditure aggregate net of non-off discretionary revenue measures (1.0% in year T and 1.3% in year T+1) are below the recommended growth rates (1.2% and 1.4%, respectively), which means that the expenditure benchmark is met and there is a presumption that the Member State has delivered on its policy commitments.

Table A9.4: **Most recent forecast/outturn data available at the time of assessment**

	Year t-1	Year t	Year t+1
	Outturn	Forecast/outturn	
GDP growth (constant prices - in %)		-0.1	-0.2
GDP growth (current prices - in %)		1.9	1.7
Potential GDP growth (constant prices - in %)		1.0	1.0
Output gap (in % of potential GDP)	-3.0	-4.0	-5.2
General government balance (in % of GDP)	-4.0	-3.7	-3.4
Structural balance (in % of potential GDP)	-2.5	-1.7	-0.8
Change in structural balance (in % of potential GDP)		0.8	0.9
Corrected expenditure aggregate net of non-one-off revenue measures (in %)		1.0	1.3

Table A9.5: **Calculating the growth rate of expenditure at the time of assessment**

		Year t-1	Year t	Year t+1
	in billions of national currency	Outturn	Forecast/outturn	
1	**General government expenditure**	50.0	51.0	51.9
2	**Interest expenditure**	3.0	3.0	3.0
3	**Expenditure on EU programmes fully matched by EU funds revenue**	0.1	0.2	0.2
4	**Gross fixed capital formation t net of EU funds revenue spent in investment projects**	2.8	2.8	2.7
5	**Annual average gross fixed capital formation t-3 to t net of EU funds revenue spent in investment projects**	2.9	2.8	2.8
6	**Cyclical unemployment expenditure**	0.2	0.3	0.4
7	**One-off expenditure measures**	0.0	0.0	0.1
8	**Corrected expenditure aggregate** *= (1)-(2)-(3)-((4)-(5))-(6)+(7)*	46.8	47.5	48.5
9	**Non-one-off revenue measures**		0.3	0.4
10	**Corrected expenditure aggregate net of non-one-off revenue measures (in %)** = $[((8)_t-(9)_t)/(8)_{t-1}-1]*100$		1.0	1.3

UPDATE OF THE SEMI-ELASTICITIES USED IN THE CONTEXT OF FISCAL SURVEILLANCE

1.1. INTRODUCTION ([5])

Fiscal elasticities measure the sensitivity of public spending and revenue to the economic cycle. For instance, the revenue semi-elasticity measures by how many percentage points the revenue to GDP ratio changes with a 1% increase in GDP. Combining the revenue and expenditure semi-elasticities one gets the budget balance semi-elasticity, which measures by how many GDP percentage points the public surplus/deficit changes with a 1% increase in GDP.

Fiscal elasticities are instrumental to the implementation of the Stability and Growth Pact (SGP). ([6]) In particular, the semi-elasticity of the governments' budget balance is required for the estimation of the cyclically-adjusted budget balance (CAB). The CAB corrects the budget balance for fluctuations caused by the business cycle, which are largely outside the control of the Member States' governments.

The revision of the semi-elasticities follows an institutional cycle involving the Member States (Table II.2.1). First, every 9 years (i.e. 3 MTO cycles), the *individual output elasticities* of the revenue and expenditure components of the government budget balance are re-estimated. The next update of this type will be completed by end-2024. The revised estimates will be used in fiscal surveillance as of Spring 2025, thus determining the fiscal requirements for 2026, 2027 and 2028. Second, the *weights* used to combine these elasticities into an aggregate semi-elasticity of the government balance to output are updated every 6 years (i.e. 2 MTO cycles). The present update is of this type and has been endorsed by the Member States (in the context of the Economic Policy Committee) and will be used in setting the next MTO as of spring 2019. For sake of consistency, the new elasticity will also be used as of spring 2019 to compute the structural balance. The next update of this type will coincide with the revisions of the individual revenue and spending elasticities and should be completed by end-2024. These updates are conducted in cooperation with Member States and overseen by the members of the Output Gap Working Group (OGWG).

Table II.2.1: **Timeline of the revisions of the semi-elasticities**

	2013 MTO cycle (2014-16)	2016 MTO cycle (2017-19)	2019 MTO cycle (2020-22)	2022 MTO cycle (2023-25)	2025 MTO cycle (2026-28)
	Update:	Update:	Update:	No update	Update:
New weights	✓		✓		✓
New individual elasticities		✓			✓

Note: The MTO cycle is identified by the year t, when the Member State appoints their new MTO, which is applied to determine the fiscal requirements applying the three following year (t+1, t+2 and t+3). These three years of application are shown in bracket.
Source: Commission services.

This Chapter presents the findings of the present update of the semi-elasticities of the budget balances of Member States, focusing on the weights used in the calculation. ([7]) The fiscal semi-elasticities are computed from the individual elasticities and weights of revenue and expenditure categories that together compose the government budget balance. The present revision focuses exclusively on the weights of revenue and expenditure categories, which are now taken as averages over the period 2008-2017 (compared to 2002-2011 previously). ([8]) Another potentially sizeable source of revision is the implementation of ESA 2010, which took place since the last update of the weights. The update will not affect individual elasticities, which are unchanged with respect to their last update in 2015. ([9])

([5]) This section is an extract of 2018 Report on Public Finances in EMU (Part II.2).
([6]) Larch and Turrini (2010).
([7]) Mourre et al. (2019).
([8]) Mourre et al. (2013) for the previous update of this kind.
([9]) Mourre et al. (2014), European Commission (2014) and Price et al. (2014).

Overall, the present revision has a limited impact on the estimated semi-elasticities. In the EU28, the average semi-elasticity of the budget balance remains unchanged at 0.50. Comparing the new estimates with the previous values, ([10]) the semi-elasticities are revised downward for 18 Member States and, in the great majority of cases, the change is lower than 0.04 in absolute terms.

The remainder of this Chapter is structured as follows. Section II.2.2. recalls the methodology applied to compute the updated semi-elasticities and details the treatment of the data. Section II.2.3. presents the results of this update and shows that the effect on fiscal surveillance will be minor. Section II.2.4. concludes.

1.2. APPROACH AND DATA

1.2.1. Recalling the standard methodology ([11])

The cyclical correction of the aggregate headline balance is built on the cyclical correction of its individual revenue and expenditure components. Four revenue categories (personal income taxes, corporate income taxes, indirect taxes, social security contributions, denoted $R_{1<i<4}$) and one spending category (unemployment-related expenditures, denoted G_u) are found to be sensitive to the economic cycle. Non-tax revenues (sales and capital transfers other than capital taxes) and other expenditures are assumed to be non-cyclical. For each Member State, the elasticities of total revenues (η_R) and total expenditures (η_G) are calculated as a weighted average of the elasticities of their components ($\eta_{R,i}$ and $\eta_{G,u}$). These aggregate elasticities can then be converted into the semi-elasticities ε_R and ε_G as follows:

$$\varepsilon = \varepsilon_R - \varepsilon_G = (\eta_R - 1)\frac{R}{Y} - (\eta_G - 1)\frac{G}{Y}$$

$$with\ \eta_R = \sum_{i=1}^{4} \eta_{R,i}\frac{R_i}{R}\ and\ \eta_G = \eta_{G,u}\frac{G_u}{G} \quad (2.1)$$

with Y being nominal GDP.

In line with the mandate agreed with the Member States, the present update only affects the weights used to aggregate the elasticities of the revenue and expenditure components into the headline budget balance semi-elasticity. The following weighting parameters are updated in order to derive the new budgetary semi-elasticities:

- The revenue and expenditure structure
  - the share of the five individual revenue categories in % of total general government revenues (R_i/R),
  - the share of the unemployment-related expenditure in % of total general government expenditures (G_U/G).
- The aggregate revenue and expenditure ratios
  - the weight of total general government revenues in % of GDP (R/Y),
  - the weight of total general government expenditures in % of GDP (G/Y).

([10]) Mourre et al. (2014).
([11]) See Box II.2.1 for details about the mathematical derivations.

1.2.2. Sources and data

We update the weights using macroeconomic and fiscal data from the Commission 2018 spring forecast (Table II.2.2). Fiscal data are those notified by Member States, as part of their excessive deficit procedure notification (EDP). While the calculations presented here are based on nominal data in national currency, we cross checked them with calculations based on data in percentage of GDP and in euro.

Two adjustments are necessary to compute the weights of the revenue categories. First, the sum of current taxes on income and wealth paid by corporations, households and NPISH ([12]) is not equal to total current taxes on income and wealth collected by the government (because of direct taxes received from or paid to the rest of the world). We redistribute the missing direct taxes in proportion to payments by corporations and households to ensure that the PIT and CIT amounts add up to the direct taxes received by the government. Second, capital taxes, which represent a relatively small amount, are used to compute total tax revenue and receive the average weighted elasticities of the four other tax categories. The individual elasticities calculated by the OECD do not specify the elasticity of capital taxes (included in capital transfers received by the government). As the elasticity of capital taxes is unlikely to be 0, the revenue generated by them is spread across personal income tax, corporate income tax, social security contributions, indirect taxes in proportion to their size.

Table II.2.2: **List of variables**

Description	ESA (Eurostat) code
GDP at current prices	B1g
General government revenue	
Total revenue; general government - ESA 2010	TR of S13
Current taxes on income and wealth (direct taxes); general government - ESA 2010	D5r (r for received) by S13
Current taxes on income and wealth; households and NPISH	D5 paid by S14 and S15
Current taxes on income and wealth; corporations	D5 paid by S11 and S12
Taxes linked to imports and production (indirect taxes); general government - ESA 2010	D2r S13
Net social contributions received; general government - ESA 2010	D61r S13
Capital transfers received; general government - ESA 2010	D9r S13
Capital taxes; general government - ESA 2010	D91r S13
Other current revenue including sales; general government - ESA 2010	P11+P12+P131+D39+D4+D7 of S13
General government expenditure	
General government; total expenditure	COFOG 01 to 10
General government; social protection; unemployment; total expenditure	COFOG 10.5
Total expenditure; general government - ESA 2010	TE

Source: Commission services.

On the expenditure side, the share of unemployment related expenditures is taken from the functions of government (COFOG) classification of expenditures. ([13]) Total government expenditures in COFOG are almost always equal to the baseline ESA estimates for total expenditures. However, to avoid small inconsistencies between the classifications, the ratio of unemployment-related expenditures to

([12]) Non-profit institutions serving households.
([13]) COFOG classification is tailored to the description of government spending and identifies the main broad objectives of public intervention.

the total in the COFOG classification is applied to the ESA total in order to compute the government's unemployment-related expenditures. ([14])

While data availability has improved since the last revision of the weights, some country-specific adjustments were needed to fill gaps in the data. The previous update encountered many data gaps, which were filled using other data sources or assumptions, especially for non-OECD EU countries. They are very limited now. To estimate the missing data points of several variables for the time period under consideration (all 2017 data points for total government expenditure according to COFOG; several data points for CIT, PIT, unemployment-related expenditures in the early 2000s), we apply a constant ratio to a total (e.g. total revenues, total expenditures) with respect to the previous or following year's value. To estimate the missing PIT and CIT series for Malta, we take their average annual weights in total income tax from the other 9 Member States that acceded to the EU in 2004.

The semi-elasticities of revenue and expenditure are rounded to the third decimal with the semi-elasticity of the budget balance being the difference of those two rounded estimates. This allows for the exact replication of the Commission's calculation of the CAB based on the last column in Table II.2.5 (without replicating our update of the semi-elasticities). This simplification does not come at the expense of precision, since the estimates of the "true" semi-elasticities, like all unobservable variables, are surrounded with some uncertainty.

1.3. RESULTS

1.3.1. The updated value of the fiscal semi-elasticities

Economic fluctuations affect revenue and expenditure categories in different ways. The individual elasticities of individual revenue and expenditure categories to output are presented in Table II.2.3. Depending on the tax base or the tax design, revenues can increase more or less than proportionally to output. The elasticities of cyclical revenues are: greater than 1 for personal income tax and corporate tax; less than 1 for social security contributions (except for Estonia, Ireland and Lithuania); and, by assumption, equal to 1 for indirect taxes (except for Italy) and to 0 for non-tax revenues. ([15]) The elasticity of unemployment related expenditures is (very) negative, as benefits increase sizeably in economic downturns, but its weight in total expenditures is no larger than 6%. Other expenditures are assumed to be acyclical and have an elasticity of 0. ([16])

The average semi-elasticity of the budget balance is equal to 0.5 and ranges from around 0.3 (Bulgaria) to 0.6% (France) (Table II.2.5). Due to disparities between Member States, the cyclical component of the budget balance corresponding to a one-percent output gap would be around 0.6% of (potential) GDP in France compared to around 0.3% of (potential) GDP in Bulgaria. Overall, the semi-elasticities of the budget balance are smaller in Central and Eastern European Countries (see also Graph II.2.1).

On the revenue side, the semi-elasticities are close to zero. This stems from the fact that revenue is almost as cyclical as GDP and, therefore, the revenue-to-GDP ratio remains broadly stable throughout the

([14]) To ensure the consistency of unemployment-related expenditures across Member States and respond to an issue raised by Denmark during past updates (including the 2013 one), we use the OECD database on Labour Market Programmes ("Public expenditure and participant stocks on LMP") and use the variable "Full unemployment benefits" instead of Ameco's COFOG variable. This is because the elasticity of unemployment-related expenditures was estimated based on the OECD data and those present a large discrepancy with the COFOG data for Denmark.

([15]) The elasticity of non-tax revenue is set at 0. Attempts in the past to identify a cyclical pattern proved to be inconclusive (Price, et al. 2014).

([16]) In this respect, it should be recalled that attempts to identify the cyclicality of other expenditures, such as income-based transfers, were inconclusive.

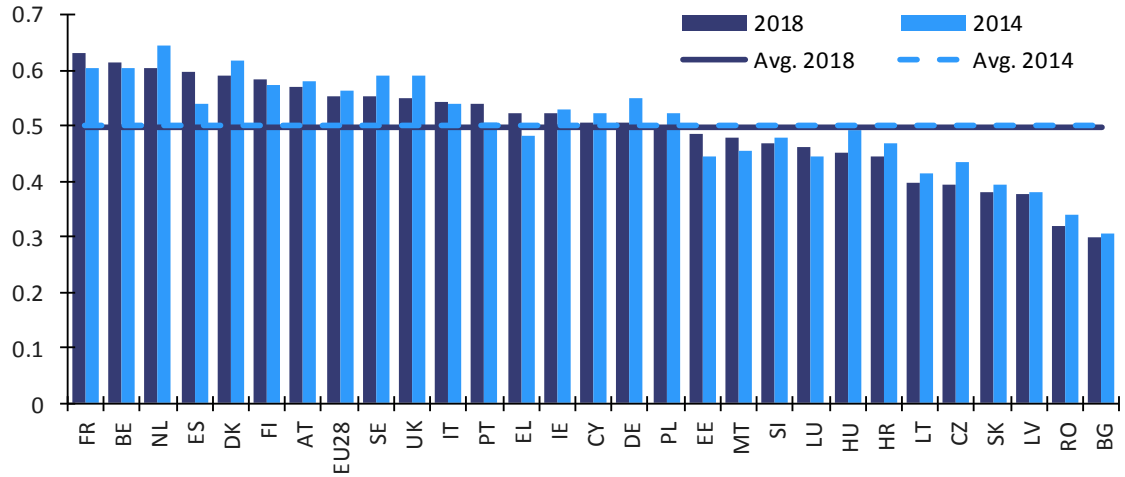
business cycle. The semi-elasticity of revenue ranges from -0.08 (Bulgaria) to 0.09 (United-Kingdom). It is positive for Estonia, Ireland, Spain, Italy, Cyprus, Malta, Netherlands, Poland and the United-Kingdom, which indicates that the tax system in those countries is overall (slightly) progressive, i.e. the revenue to GDP ratio increases (slightly) following an increase in GDP. In France, the tax system is almost neutral while, in the remaining Member States the tax system is (slightly) regressive.

The expenditure semi-elasticity is on average equal to -0.50, ranging from -0.37 (Romania) to -0.64 (Finland). Expenditure semi-elasticities contribute to a larger extent than revenue semi-elasticities to disparities between Member States. Their values broadly correspond to the share of total expenditures to GDP as, for the most part, expenditures are assumed to be a-cyclical. ([17]) This explains why Central and Eastern European Countries, which have on average lower expenditure-to-GDP ratios, have lower semi-elasticities of both expenditures and the budget balance.

1.3.2. By how much were the semi-elasticities revised?

The updated semi-elasticities of the budget balance are fairly close to the 2014 estimates (Table II.2.6 and Graph II.2.1). Overall, the revisions to the total semi-elasticities are negative in 18 cases out of 28. On average, they are equal to -0.01 and the standard deviation of the revisions is equal to 0.03, which remains small compared to the average semi-elasticity (0.50). The semi-elasticities changed by 0.04 in absolute terms in Estonia, Greece, Czech Republic, Hungary, Netherlands, Sweden and United-Kingdom, by 0.05 in Germany and 0.06 in Spain. For the other Member States, the revisions are lower.

Graph II.2.1: **Revised budget balance semi-elasticities**



Note: EU28 estimates correspond to the case of the EU treated as a single entity. It differs from the EU average, which is the simple average across Member States.
Source: Commission 2018 spring forecast and 2014 spring forecast, Mourre et al. (2014) and Commission services.

On the expenditure side, there are downward revisions in 15 cases out of 28. These downward revisions are associated with increases in the shares of public expenditures to GDP, primarily due to the fact that the sample period is centred around the years of the financial crisis. The new national accounts system (ESA 2010) generally has a positive contribution to the revision of the expenditure semi-

([17]) We recall here that $\varepsilon = \varepsilon_R - \varepsilon_G$ and $\varepsilon_G = \left(\eta_{G,u}\frac{G_u}{G} - 1\right)\frac{G}{Y}$

elasticities. On the budget balance semi-elasticities, the contributions from the expenditure side will, therefore, be reversed, i.e. downward for the ESA revision and upward for the new time window.

On the revenue side, all but five revisions are downward. These revisions are slightly smaller than those on the expenditure side. They are linked to the shift in time period and the new national accounts system (ESA 2010), contributing both negatively in the majority of cases.

The shift of the time window for the weights and the data update equally contributed to the –fairly moderate– revisions. The minor data updates correspond to the changeover to ESA 2010 and the availability of new data for some Member States, instead of the reliance to sensible assumption (which has been proven reasonable in retrospect).

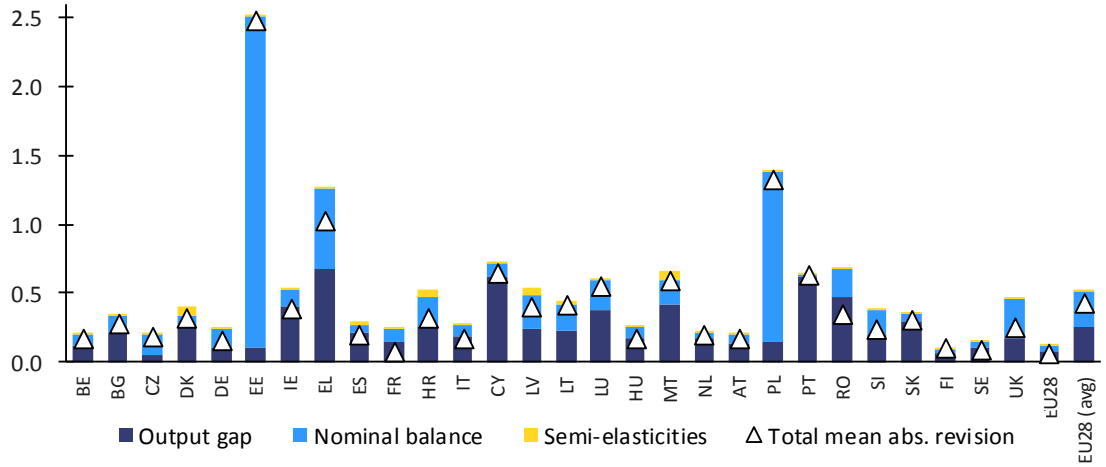
Incidentally, smoothing out the effect of the financial crisis and its aftermath would only marginally lower the revised semi-elasticities. We do so in two ways. First, we exclude capital transfers from total expenditure in order to remove one-off capital transfers (bank recapitalisations) that might have occurred during the financial crisis. Excluding capital transfers from public expenditures would automatically decrease the semi-elasticities compared to the proposed update. The effect on the semi-elasticity is on average a difference of only -0.01 and ranges between 0 and -0.03. Second, we calculate the semi-elasticities using the full 2002-17 time window in order to lower the weight of the crisis in our sample. This gives rise to negative revisions for most Member States, which are also -0.01 on average and range from 0.02 to -0.04. The decrease in the semi-elasticities would be the largest for the three countries where the weights are the most time varying (-0.04 for Estonia and Spain, -0.03 for Ireland). In the case of Estonia or Spain, this would mitigate the upward revision of the semi-elasticity. For Ireland, it would mean a larger downward revision of the semi-elasticity.

1.3.3. Impact on the cyclically-adjusted budget balance

The revision of the fiscal elasticities has only a minor impact on Member States' cyclically-adjusted balances (Graph II.2.2). The large annual revisions of Estonia, Poland and (to some extent) Greece are outliers caused by large revisions in the headline balance. Apart from these cases, the CAB revisions are caused primarily by output gap revisions, with semi-elasticity revisions having a marginal effect. ([18]) In particular, for Spain and Germany, the two Member States with the largest revisions of their semi-elasticities, the effect on the CAB revision remains small. For other Member States (Malta, Latvia, Croatia, Denmark) the effect of the semi-elasticity revision can be more pronounced, even though the revision of the semi-elasticities itself is not large, as it is amplified by the magnitude of the Member States' output gaps.

([18]) Mean absolute contributions to the revision do not add up to the mean absolute revision as the different sources of revisions do not cancel each other out in absolute terms.

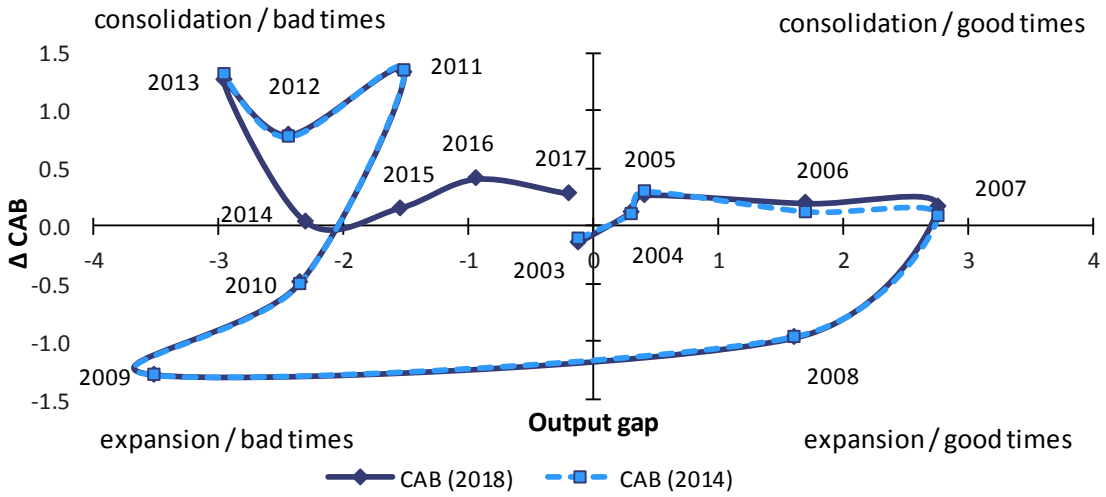
Graph II.2.2: **Absolute mean contribution to cyclically-adjusted balance revision across Member States (2002-13)**



Note: EU28 calculations are based on elasticities and weights of the EU28 while the EU28 (avg.) is the arithmetic average of the 28 countries.
Source: Commission 2018 spring forecast and 2014 spring forecast, Mourre et al. (2014) and Commission services.

For the EU28, our assessment of the fiscal stance between 2003 and 2013 is unchanged (Graph II.2.3). Changes in the cyclically adjusted balance are a key measure of the fiscal effort analysed in perspective of the position in the economic cycle (output gap). For the EU as a whole, the CAB is equal to the aggregation of the 28 CAB of the Member States. The revisions of the semi-elasticities do not generate sizeable revisions, the more sizeable revisions of the nominal balances and (most importantly) output gaps broadly cancel out across Member States. In all, over the period common with the previous update (2003-2013), the revisions of the aggregate CAB are minor.

Graph II.2.3: **Fiscal stance over the business cycle in the EU**



Source: Commission 2018 spring forecast and 2014 spring forecast, Mourre et al. (2014) and Commission services.

1.4. CONCLUSIONS

Fiscal elasticities are crucial for the implementation of fiscal surveillance. Budget balance semi-elasticities measure by how many GDP percentage points the public surplus/deficit changes with a 1 percent increase in GDP. They provide an important input to the fiscal surveillance process, since they are needed to compute the minimum medium-term budgetary objective and the cyclical adjustment of the budget balance.

This Chapter presents the findings of the periodic update of the fiscal elasticities, which will be used in fiscal surveillance over the next six years. The update of the semi-elasticities will be used for setting the MTO in 2019 and the fiscal requirements in 2020-2022. In line with the institutional calendar, the update consists in applying new weights in the aggregation of individual expenditure and revenue components' elasticities. The next revision will be conducted in 2024 and will require an update of both the weights and the underlying individual elasticities.

Overall, the revisions of the semi-elasticities are small. The revisions of the semi-elasticities are small despite the change in the system of national accounts (ESA 2010). The revisions are negligible on average across Member States and do not change our assessment of recent fiscal developments in the EU as a whole.

Table II.2.3: **Elasticities of individual revenue and expenditure categories**

Country	Revenue					Expenditure	
	Income tax	Corporate tax	Social security contributions	Indirect tax	Non-tax revenue	Unemp.-related expenditure	Other expenditure
	(A)	*(B)*	*(C)*	*(D)*	*(E)*	*(F)*	*(G)*
BE	1.31	2.48	0.71	1.00	0.00	-3.70	0.00
BG	1.15	2.13	0.61	1.00	0.00	-3.91	0.00
CZ	1.65	1.78	0.86	1.00	0.00	-2.45	0.00
DK	1.00	3.15	0.41	1.00	0.00	-4.97	0.00
DE	1.87	1.91	0.60	1.00	0.00	-3.30	0.00
EE	1.58	1.78	1.40	1.00	0.00	-5.18	0.00
IE	1.58	1.25	1.04	1.00	0.00	-5.45	0.00
EL	2.22	1.90	0.58	1.00	0.00	-3.15	0.00
ES	1.84	1.56	0.72	1.00	0.00	-5.83	0.00
FR	1.86	2.76	0.63	1.00	0.00	-3.23	0.00
HR	1.71	2.29	0.70	1.00	0.00	-2.39	0.00
IT	1.46	3.07	0.58	1.10	0.00	-2.29	0.00
CY	2.28	2.26	0.91	1.00	0.00	-3.08	0.00
LV	1.50	1.99	0.81	1.00	0.00	-3.94	0.00
LT	1.79	1.67	1.04	1.00	0.00	-5.60	0.00
LU	1.34	2.36	0.39	1.00	0.00	-3.06	0.00
HU	1.73	2.21	0.76	1.00	0.00	-1.25	0.00
MT	2.07	2.11	0.71	1.00	0.00	-1.96	0.00
NL	2.37	3.13	0.62	1.00	0.00	-5.76	0.00
AT	1.66	2.74	0.65	1.00	0.00	-4.71	0.00
PL	1.88	2.92	0.97	1.00	0.00	-6.18	0.00
PT	1.97	1.33	0.79	1.00	0.00	-6.04	0.00
RO	1.29	2.02	0.62	1.00	0.00	-3.91	0.00
SI	1.63	3.76	0.66	1.00	0.00	-2.81	0.00
SK	1.93	1.58	0.89	1.00	0.00	-2.98	0.00
FI	1.41	2.03	0.77	1.00	0.00	-3.66	0.00
SE	1.32	1.56	0.71	1.00	0.00	-4.42	0.00
UK	1.68	3.92	0.60	1.00	0.00	-4.21	0.00
EU28	1.68	2.27	0.74	1.00	0.00	-3.91	0.00

Source: Price et al. (2014), Mourre et al. (2014).

Table II.2.4: **Shares of revenue categories (% of total revenues) and expenditure categories (% of total expenditure)**

Country	Revenue					Expenditure	
	Income tax	Corporate tax	Social security contrib.	Indirect tax	Non-tax revenue	Unemp.-related expenditure	Other expenditure
	(H)	*(I)*	*(J)*	*(K)*	*(L)*	*(M)*	*(N)*
BE	25.95	6.42	32.72	25.82	9.10	4.15	95.85
BG	8.70	6.18	21.04	42.32	21.76	0.24	99.76
CZ	9.93	8.18	36.62	29.45	15.82	0.65	99.35
DK	50.28	4.82	2.14	30.32	12.44	2.07	97.93
DE	21.33	5.53	37.49	24.50	11.15	4.55	95.45
EE	14.28	3.95	29.77	34.94	17.06	2.91	97.09
IE	29.13	8.48	17.02	32.26	13.11	4.52	95.48
EL	13.11	7.95	29.91	32.00	17.02	1.38	98.62
ES	21.10	5.97	34.23	28.90	9.80	5.69	94.31
FR	18.73	4.87	35.98	29.93	10.48	3.34	96.66
HR	11.09	4.12	27.30	42.58	14.91	1.05	98.95
IT	26.21	5.08	28.54	31.14	9.04	2.00	98.00
CY	9.58	16.65	21.01	38.36	14.40	1.94	98.06
LV	17.07	4.68	24.29	35.04	18.92	1.38	98.62
LT	11.80	4.36	34.27	33.59	15.99	1.47	98.53
LU	19.46	13.43	28.14	28.44	10.53	3.59	96.41
HU	12.81	3.85	28.44	38.67	16.23	1.07	98.93
MT	22.44	11.24	17.41	33.80	15.11	1.13	98.87
NL	19.84	5.82	33.80	25.97	14.57	3.56	96.44
AT	22.56	4.49	30.62	29.25	13.07	2.64	97.36
PL	12.35	5.82	33.19	34.31	14.33	1.58	98.42
PT	15.60	7.43	27.59	32.70	16.68	2.45	97.55
RO	10.85	7.90	27.56	36.50	17.20	0.49	99.51
SI	13.81	3.75	33.92	32.84	15.68	1.39	98.61
SK	9.09	8.06	34.89	27.68	20.28	0.52	99.48
FI	25.35	5.03	23.43	25.84	20.35	4.22	95.78
SE	30.44	5.48	6.59	43.83	13.65	2.69	97.31
UK	30.29	7.44	20.19	32.44	9.65	0.62	99.38
EU28	23.00	5.79	30.07	29.72	11.42	3.06	96.94
EU28 (avg.)	19.18	6.65	27.18	32.52	14.47	2.29	97.71

Note: EU28 calculations are based on elasticities and weights of the EU28, while EU28 (avg.) is the arithmetic average of the 28 Member States.
Source: Commission services.

Table II.2.5: **Decomposition of fiscal semi-elasticities**

Country	Elasticities				Weights (% of GDP) of		Semi-elasticity		
	Revenues	Expen-diture	Revenue-to-GDP ratio	Expenditure-to-GDP ratio	Total revenue	Total expenditure	Revenue	Expen-diture	Budget balance
	(a)	*(b)*	*(c) = a - 1*	*(d) = b - 1*	*(e)*	*(f)*	*(g) = c * e*	*(h) = d * f*	*(i) = g - h*
BE	0.99	-0.15	-0.01	-1.15	50.74	53.84	-0.006	-0.621	0.615
BG	0.78	-0.01	-0.22	-1.01	35.73	37.14	-0.077	-0.375	0.298
CZ	0.92	-0.02	-0.08	-1.02	40.09	42.08	-0.033	-0.428	0.395
DK	0.97	-0.10	-0.03	-1.10	54.04	54.93	-0.017	-0.606	0.589
DE	0.97	-0.15	-0.03	-1.15	44.26	44.77	-0.011	-0.515	0.504
EE	1.06	-0.15	0.06	-1.15	39.72	40.10	0.025	-0.461	0.486
IE	1.06	-0.25	0.06	-1.25	31.60	40.21	0.021	-0.501	0.522
EL	0.93	-0.04	-0.07	-1.04	45.45	53.11	-0.030	-0.554	0.524
ES	1.02	-0.33	0.02	-1.33	37.32	44.39	0.006	-0.591	0.597
FR	1.01	-0.11	0.01	-1.11	51.99	56.50	0.004	-0.626	0.630
HR	0.90	-0.03	-0.10	-1.03	43.09	47.31	-0.042	-0.485	0.443
IT	1.05	-0.05	0.05	-1.05	46.76	49.96	0.022	-0.522	0.544
CY	1.17	-0.06	0.17	-1.06	38.10	41.48	0.064	-0.440	0.504
LV	0.90	-0.05	-0.10	-1.05	36.30	39.50	-0.038	-0.416	0.378
LT	0.98	-0.08	-0.02	-1.08	34.25	37.63	-0.008	-0.407	0.399
LU	0.97	-0.11	-0.03	-1.11	43.67	42.71	-0.012	-0.474	0.462
HU	0.91	-0.01	-0.09	-1.01	45.67	48.79	-0.041	-0.494	0.453
MT	1.16	-0.02	0.16	-1.02	39.05	40.66	0.063	-0.416	0.479
NL	1.12	-0.21	0.12	-1.21	43.37	45.73	0.054	-0.551	0.605
AT	0.99	-0.12	-0.01	-1.12	48.96	51.37	-0.006	-0.577	0.571
PL	1.07	-0.10	0.07	-1.10	38.95	43.07	0.026	-0.473	0.499
PT	0.95	-0.15	-0.05	-1.15	42.75	48.66	-0.021	-0.559	0.538
RO	0.83	-0.02	-0.17	-1.02	32.73	36.80	-0.054	-0.375	0.321
SI	0.92	-0.04	-0.08	-1.04	43.68	48.53	-0.036	-0.504	0.468
SK	0.89	-0.02	-0.11	-1.02	37.75	41.52	-0.041	-0.422	0.381
FI	0.90	-0.15	-0.10	-1.15	53.57	55.08	-0.054	-0.636	0.582
SE	0.97	-0.12	-0.03	-1.12	50.62	50.66	-0.014	-0.567	0.553
UK	1.24	-0.03	0.24	-1.03	38.41	44.44	0.094	-0.456	0.550
EU28	1.04	-0.12	0.04	-1.12	44.40	47.94	0.017	-0.537	0.554
EU28 (avg.)	0.99	-0.10	-0.01	-1.10	42.45	45.75	-0.006	-0.502	0.496

Note: This table shows how the semi-elasticities are derived from the individual elasticities and weights (Table II.2.2 and Table II.2.3). The parameters (a) and (b) are derived from Table II.2.2 and Table II.2.3; (a) = (A * H + B * I + C * J + D * K + E * L) / 100; (b) = (F * M)/ 100.
The calculations here are made using the exact value of weights coming from Table 2 (where figures are only shown down to the third decimal, but are not rounded). The final value of the semi-elasticities (column g, h and i) are rounded to the third decimal and then used to compute the cyclically-adjusted budget balance.
Source: Commission services.

Table II.2.6: **Comparison of fiscal semi-elasticities 2014 and 2018**

Country	Revenue		Expenditure		Budget balance	
	2014	2018	2014	2018	2014	2018
BE	0.015	-0.006	-0.591	-0.621	0.605	0.615
BG	-0.084	-0.077	-0.391	-0.375	0.308	0.298
CZ	-0.012	-0.033	-0.446	-0.428	0.433	0.395
DK	-0.001	-0.017	-0.620	-0.606	0.619	0.589
DE	-0.009	-0.011	-0.560	-0.515	0.551	0.504
EE	0.037	0.025	-0.406	-0.461	0.443	0.486
IE	0.019	0.021	-0.508	-0.501	0.528	0.522
EL	-0.023	-0.030	-0.506	-0.554	0.483	0.524
ES	0.011	0.006	-0.528	-0.591	0.539	0.597
FR	0.002	0.004	-0.601	-0.626	0.603	0.630
HR	-0.011	-0.042	-0.479	-0.485	0.467	0.443
IT	0.038	0.022	-0.501	-0.522	0.539	0.544
CY	0.071	0.064	-0.452	-0.440	0.523	0.504
LV	-0.028	-0.038	-0.408	-0.416	0.380	0.378
LT	0.022	-0.008	-0.391	-0.407	0.413	0.399
LU	0.003	-0.012	-0.442	-0.474	0.445	0.462
HU	-0.019	-0.041	-0.511	-0.494	0.492	0.453
MT	0.007	0.063	-0.449	-0.416	0.456	0.479
NL	0.066	0.054	-0.579	-0.551	0.646	0.605
AT	0.012	-0.006	-0.569	-0.577	0.580	0.571
PL	0.027	0.026	-0.494	-0.473	0.521	0.499
PT	-0.019	-0.021	-0.525	-0.559	0.506	0.538
RO	-0.045	-0.054	-0.384	-0.375	0.339	0.321
SI	-0.006	-0.036	-0.483	-0.504	0.477	0.468
SK	-0.005	-0.041	-0.398	-0.422	0.393	0.381
FI	-0.030	-0.054	-0.604	-0.636	0.574	0.582
SE	-0.020	-0.014	-0.609	-0.567	0.590	0.553
UK	0.120	0.094	-0.471	-0.456	0.591	0.550
EU28	0.024	0.017	-0.539	-0.537	0.563	0.554
EU28 (avg.)	0.005	-0.006	-0.497	-0.502	0.502	0.496

Note: EU28 calculations are based on elasticities and weights of the EU28 while the EU28 (avg.) is the arithmetic average of the 28 Member States. The 2014 columns refer to Mourre et al. (2014) estimates, while the 2018 columns refer to the re-estimations presented in this paper.
Source: Commission 2018 spring forecast, Mourre et al. (2014) and Commission services.

Box II.2.1: **Semi-elasticities and the cyclically-adjusted balance, a mathematical summary**

In what follows, *R*, *G*, *B*, *Y*, *OG* and *CAB* refer to public revenue, public expenditure, government headline balance, GDP, output gap and the cyclically-adjusted balance, respectively.

The subscript t refers to the time period t, the superscript p refers to the level of a variable if the economy was at its potential. Revenue categories are indexed with the subscript i ($R_{1<i<4}$). Only one spending category is isolated: unemployment related expenditure (G_u). Elasticities to output are denoted η while semi-elasticities to output are denoted ε.

From the headline balance to the cyclically-adjusted balance

The cyclically-adjusted budget balance is computed as the difference between the actual balance-to-GDP ratio and an estimated cyclical component.

$$CAB_t = \frac{(R_t - G_t)}{Y_t} - \varepsilon\, OG_t \tag{2.2}$$

This formula can be derived from the definition of the *CAB*:

$$CAB_t = \frac{B_t^p}{Y_t^p} = \frac{\left(R_t^p - G_t^p\right)}{Y_t^p} = \frac{R_t}{Y_t^p}\frac{R_t^p}{R_t} - \frac{G_t}{Y_t^p}\frac{G_t^p}{G_t} \tag{2.3}$$

The revenue and expenditure elasticities allow us to link the deviation of R and G from potential to the deviation of output from its potential: ([1])

$$\frac{R_t^p}{R_t} = \left(\frac{Y_t^p}{Y_t}\right)^{\eta_{R,t}} \; and \; \frac{G_t^p}{G_t} = \left(\frac{Y_t^p}{Y_t}\right)^{\eta_{G,t}} \tag{2.4}$$

Replacing equation (2.4) in equation (2.3) yields:

$$\begin{aligned} CAB_t &= \frac{R_t}{Y_t^p}\left(\frac{Y_t^p}{Y_t}\right)^{\eta_R,t} - \frac{G_t}{Y_t^p}\left(\frac{Y_t^p}{Y_t}\right)^{\eta_{G,t}} = \frac{R_t}{Y_t}\left(\frac{Y_t^p}{Y_t}\right)^{\eta_{R,t}-1} - \frac{G_t}{Y_t}\left(\frac{Y_t^p}{Y_t}\right)^{\eta_{G,t}-1} \\ CAB_t &= \frac{R_t}{Y_t}(1+OG_t)^{1-\eta_{R,t}} - \frac{G_t}{Y_t}(1+OG_t)^{1-\eta_{G,t}} \end{aligned} \tag{2.5}$$

It is then possible to approximate equation (2.5) with a first order development around OG=0:

$$\begin{aligned} CAB_t = \frac{R_t}{Y_t} - \frac{G_t}{Y_t} + \left[\left(1-\eta_{R,t}\right)\frac{R_t}{Y_t} - \left(1-\eta_{G,t}\right)\frac{G_t}{Y_t}\right]OG_t \; &= \frac{R_t - G_t}{Y_t} - \left(\varepsilon_{R,t} - \varepsilon_{G,t}\right)OG_t \\ &= \frac{B_t}{Y_t} - \varepsilon_t * OG_t \end{aligned} \tag{2.6}$$

This equation takes the same form as equation (2.2), with semi-elasticities of revenue and expenditure $(\varepsilon_R, \varepsilon_G)$ that are not *a priori* constant, both because of the time varying shares of revenue and expenditure to GDP and the underlying elasticities. For practical reasons, semi-elasticities are computed based on constant weights and elasticities, which constitutes an additional simplification. Under this assumption, Equation (2.4) is no longer

([1]) This formula is the result of a first order Taylor development of R and G (in logs) around their potentials. Note that elasticities are not assumed to be constant in time since we only compare two states of the economy within the same period.

(Continued on the next page)

Box (continued)

In all, one can therefore see equation (2.2) as the results of one assumption (constant elasticities of the revenue and expenditure components), two first order approximations (see equations (2.4) and (2.6)) and a simplification (constant weights of total revenue and expenditure in GDP and of their components).

From elasticity to semi-elasticity

The budgetary semi-elasticity (ε) measures the sensitivity of an economic variable as a share of GDP (e.g. revenue) to the economic cycle. It measures by how many percentage points the revenue to GDP ratio changes for a 1% increase in GDP.

$$\varepsilon_R = \frac{d\left(\frac{R}{Y}\right)}{\frac{dY}{Y}} \tag{2.7}$$

By comparison to the semi-elasticity, the elasticity captures the relative variation of one variable to the relative variation of another variable, i.e. measures by how many percent revenues changes for a 1% increase in GDP:

$$\eta_R = \frac{dR/R}{dY/Y} \tag{2.8}$$

The same definition and relation between the elasticity and semi-elasticity apply to the expenditure side of the headline budget balance and to the subcomponents.

There is a direct link between the elasticities and semi-elasticities of revenues and expenditure to GDP:

$$\varepsilon_R = \frac{d\left(\frac{R}{Y}\right)}{\frac{dY}{Y}} = \frac{\frac{dR}{Y} - \frac{dY}{Y^2}R}{\frac{dY}{Y}} = \frac{\frac{R}{Y}\left(\frac{dR}{R} - \frac{dY}{Y}\right)}{\frac{dY}{Y}} = \frac{R}{Y}(\eta_R - 1) \Rightarrow \eta = \varepsilon_R \frac{Y}{R} + 1 \tag{2.9}$$

The term 1 between the two concepts corresponds to the elasticity of the denominator (GDP) of the revenue-to-GDP ratio to itself. The fraction $\frac{R}{Y}$ corrects for the different reference (changes in the revenue-to-GDP ratio for the semi elasticity, changes in revenue as a fraction of total revenue for the elasticity).

Aggregation of elasticities

The aggregate elasticities are the weighted average of their components' elasticities. Taking the revenue elasticities as an example, one can write:

$$\eta_R = \frac{dR/R}{dY/Y} = \frac{\frac{\sum_{i=1}^{n} dR_i}{R}}{dY/Y} = \sum_{i=1}^{n} \frac{\frac{dR_i}{R_i}}{dY/Y}\frac{R_i}{R} = \sum_{i=1}^{n} \eta_{R,i}\frac{R_i}{R} \tag{2.10}$$

Five individual revenue categories η_{Ri} (personal income taxes, corporate income taxes, indirect taxes, social security contributions, non-tax revenue) and one spending category η_{GU} (unemployment-related expenditure) are found to be sensitive to the economic cycle (their elasticity is not zero). One can therefore write the aggregate revenue and expenditure elasticities as:

$$\eta_R = \sum_{i=1}^{5} \eta_{R,i}\frac{R_i}{R} \text{ and } \eta_G = \eta_{G,u}\frac{G_u}{G} \tag{2.11}$$

MODEL STRUCTURE AND TABLES TO BE CONTAINED IN DRAFT BUDGETARY PLANS

A. MODEL STRUCTURE FOR DRAFT BUDGETARY PLANS

Macroeconomic Forecasts.

Budgetary targets.

Expenditure and revenue projections under the no-policy change scenario.

Expenditure and revenue targets. General government expenditure by function.

Discretionary measures included in the draft budget.

Possible links between the draft budgetary plan and the targets set by the Union's Strategy for growth and jobs and CSRs.

Comparison with latest Stability Programme.

Distributional impact of the main expenditure and revenue measures.

Annex: Methodological aspects, including the estimated impact of aggregated budgetary measures on economic growth.

B. TABLES TO BE CONTAINED IN DRAFT BUDGETARY PLANS ([19])

1. *Macroeconomic forecasts*

Table 0.i): **Basic assumptions**

	Year t-1	Year t	Year t+1
Short-term interest rate[1] (annual average)			
Long-term interest rate (annual average)			
USD/€ exchange rate (annual average)			
Nominal effective exchange rate			
World excluding EU, GDP growth			
EU GDP growth			
Growth of relevant foreign markets			
World import volumes, excluding EU			
Oil prices (Brent, USD/barrel)			

(1) If necessary, purely technical assumptions.

Table 0.ii): **Main assumptions. Non-exhaustive check list. (Similar information can be provided in different formats)**

			Year t-1	Year t	Year t+1
1.	*External environment*				
	a.	Prices of commodities			
	b.	Spreads over the German bond			
2.	*Fiscal policy*				
	a.	General government net lending / net borrowing			
	b.	General government gross debt			
3.	*Monetary policy / Financial sector / interest rates assumptions*				
	a.	Interest rates:			
		i. Euribor			
		ii. Deposit rates			
		iii. Interest rates for loans			
		iv. Yields to maturity of 10 year government bonds			
	b.	Evolution of deposits			
	c.	Evolution of loans			
	d.	NPL trends			
4.	*Demographic trends*				
	a.	Evolution of working-age population			
	b.	Dependency ratios			
5.	*Structural policies*				

([19]) Provision of data on variables in bold characters is a requirement. Provision of data on other variables is optional but highly desirable.

Table 1.a.: **Macroeconomic prospects**

	ESA Code	**Year t-1**	**Year t-1**	**Year t**	**Year t+1**	Year t+2	Year t+3	Year t+4
		Level	rate of change	rate of change	rate of change	rate of change	rate of change	rate of change
1. Real GDP	B1*g							
Of which								
1.1. Attributable to the estimated impact of aggregated budgetary measures on economic growth[(1)]		---	---					
2. Potential GDP						✓	✓	✓
contributions:								
- labour								
- capital								
- total factor productivity								
3. Nominal GDP	B1*g					✓	✓	✓
Components of real GDP								
4. Private final consumption expenditure	P.3							
5. Government final consumption expenditure	P.3							
6. Gross fixed capital formation	P.51g							
7. Changes in inventories and net acquisition of valuables (% of GDP)	P.52 + P.53							
8. Exports of goods and services	P.6							
9. Imports of goods and services	P.7							
Contributions to real GDP growth								
10. Final domestic demand			-					
11. Changes in inventories and net acquisition of valuables	P.52 + P.53		-					
12. External balance of goods and services	B.11		-					

(1) Please report here the estimated impact on real GDP growth of the aggregated budgetary measures contained in the DBP.

Table 1.b.: **Price developments**

	ESA Code	**Year t-1**	**Year t-1**	**Year t**	**Year t+1**	Year t+2	Year t+3	Year t+4
		Level	rate of change	rate of change	rate of change	rate of change	rate of change	rate of change
1. GDP deflator						✓	✓	✓
2. Private consumption deflator								
3. HICP								
4. Public consumption deflator								
5. Investment deflator								
6. Export price deflator (goods and services)								
7. Import price deflator (goods and services)								

Table 1.c.: **Labour market developments**

	ESA Code	**Year t-1**	**Year t-1**	**Year t**	**Year t+1**
		Level	rate of change	rate of change	rate of change
1. Employment, persons[(1)]					
2. Employment, hours worked[(2)]					
3. Unemployment rate (%)[(3)]					
4. Labour productivity, persons[(4)]					
5. Labour productivity, hours worked[(5)]					
6. Compensation of employees	D.1				
7. Compensation per employee					

(1) Occupied population, domestic concept national accounts definition.
(2) National accounts definition. Please, provide the series in terms of average annual hours worked per person employed. This series is needed for internal calculations.
(3) Harmonised definition, Eurostat; levels.
(4) Real GDP per person employed.
(5) Real GDP per hour worked.

Table 1.d.: **Sectoral balances**

	ESA Code	**Year t-1**	**Year t**	**Year t+1**
1. Net lending/net borrowing vis-à-vis the rest of the world	B.9	% GDP	% GDP	% GDP
of which:				
- Balance on goods and services				
- Balance of primary incomes and transfers				
- Capital account				
2. Net lending/net borrowing of the private sector	B.9			
3. Net lending/net borrowing of general government	B.9			
4. Statistical discrepancy				

2. Budgetary Targets

Table 2.a.: **General government budgetary targets broken down by subsector**

	ESA Code	**Year t**	**Year t+1**	Year t+2	Year t+3	Year t+4
		% GDP	% GDP	% GDP	% GDP	% GDP
Net lending (+) / net borrowing (-) (B.9) by sub-sector[1]						
1. General government	S.13			✓	✓	✓
1a. Central government	S.1311					
1b. State government	S.1312					
1c. Local government	S.1313					
1d. Social security funds	S.1314					
2. Interest expenditure	D.41					
3. Primary balance[2]						
4. One-off and other				✓	✓	✓

temporary measures[3]						
5. Real GDP growth (%) (=1 in Table 1.a)						
6. Potential GDP growth (%) (=2 in Table 1.a)				✓	✓	✓
contributions:						
- labour						
- capital						
- total factor productivity						
7. Output gap (% of potential GDP)				✓	✓	✓
8. Cyclical budgetary component (% of potential GDP)				✓	✓	✓
9. Cyclically-adjusted balance (1 - 12) (% of potential GDP)						
10. Cyclically-adjusted primary balance (13 + 6) (% of potential GDP)						
11. Structural balance (13 - 8) (% of potential GDP)				✓	✓	✓

(1) TR-TE= B.9.
(2) The primary balance is calculated as (B.9, item 1) plus (D.41, item 2).
(3) A plus sign means deficit-reducing one-off measures.

Table 2.b.: **General government debt developments**

	ESA Code	**Year t**	**Year t+1**	Year t+2	Year t+3	Year t+4
		% GDP	% GDP	% GDP	% GDP	% GDP
1. Gross debt[(1)]				✓	✓	✓
2. Change in gross debt ratio						
Contributions to changes in gross debt						
3. Primary balance (= item 3 in Table 2.a)						
4. Interest expenditure (= item 2 in Table 2.a)	D.41					
5. Stock-flow adjustment				✓	✓	✓
of which:						
- Differences between cash and accruals[(2)]						
- Net accumulation of financial assets[(3)]						
of which:						
- *privatisation proceeds*						
- Valuation effects and other[(4)]						
p.m.: Implicit interest rate on debt[(5)]						
Other relevant variables						
6. Liquid financial assets[(6)]						
7. Net financial debt (7=1-6)						
8. Debt amortization (existing bonds) since the end of the						

previous year				
9. Percentage of debt denominated in foreign currency				
10. Average maturity				

(1) As defined in amended Regulation 479/2009.
(2) The differences concerning interest expenditure, other expenditure and revenue could be distinguished when relevant or in case the debt-to-GDP ratio is above the reference value.
(3) Currency and deposits, government debt securities, government controlled enterprises and the difference between listed and unlisted shares could be distinguished when relevant or in case the debt-to-GDP ratio is above the reference value.
(4) Changes due to exchange rate movements, and operation in secondary market could be distinguished when relevant or in case the debt-to-GDP ratio is above the reference value.
(5) Proxied by interest expenditure divided by the debt level of the previous year.
(6) Liquid assets are here defined as stocks of AF.1, AF.2, AF.3 (consolidated for general government, i.e. netting out financial positions between government entities), AF.511, AF.52 (only if listed on stock exchange).

Table 2.c.: **Contingent liabilities**

	Year t	Year t+1
	% GDP	% GDP
Public guarantees		
Of which: linked to the financial sector		

3. Expenditure and Revenue Projections under the no-policy change scenario[20]

Table 3.: **General government expenditure and revenue projections at unchanged policies broken down by main components**

	ESA Code	**Year T**	**Year t+1**
General government (S13)		% GDP	% GDP
1. Total revenue at unchanged policies	TR		
Of which			
1.1. Taxes on production and imports	D.2		
1.2. Current taxes on income, wealth, etc	D.5		
1.3. Capital taxes	D.91		
1.4. Social contributions	D.61		
1.5. Property income	D.4		
1.6. Other[(1)] **p.m.: Tax burden** (D.2+D.5+D.61+D.91-D.995)[(2)]			
2. Total expenditure at unchanged policies	TE[3]		
Of which			
2.1. Compensation of employees	D.1		
2.2. Intermediate consumption	P.2		

[(20)] Please note that the no-policy change scenario involves the extrapolation of revenue and expenditure trends before adding the impact of the measures included in the forthcoming year's budget.

2.3. Social payments	D.62+D.632		
of which Unemployment benefits[4]			
2.4. Interest expenditure	D.41		
2.5. Subsidies	D.3		
2.6. Gross fixed capital formation	P.51g		
2.7. Capital transfers	D.9		
2.8. Other[5]			

4. Expenditure and Revenue targets

Table 4.: **General government expenditure and revenue targets, broken down by main components**

	ESA Code	**Year T**	**Year t+1**
General government (S13)		% GDP	% GDP
1. Total revenue target	TR		
Of which			
1.1. Taxes on production and imports	D.2		
1.2. Current taxes on income, wealth, etc.	D.5		
1.3. Capital taxes	D.91		
1.4. Social contributions	D.61		
1.5. Property income	D.4		
1.6. Other [1] **p.m.: Tax burden** (D.2+D.5+D.61+D.91-D.995)[2]			
2. Total expenditure target	TE[3]		
Of which			
2.1. Compensation of employees	D.1		
2.2. Intermediate consumption	P.2		
2.3. Social payments	D.62+D.632		
of which Unemployment benefits[4]			
2.4. Interest expenditure (=item 2 in Table 2.a)	D.41		
2.5. Subsidies	D.3		
2.6. Gross fixed capital formation	P.51		
2.7. Capital transfers	D.9		
2.8. Other[5]			

(1) P.11+P.12+P.131+D.39rec+D.7rec+D.9rec (other than D.91rec).
(2) Including those collected by the EU and including an adjustment for uncollected taxes and social contributions D.995), if appropriate.
(3) TR-TE = B.9.
(4) Includes social benefits other than social transfers in kind (D.62) and social transfers in kind via market producers (D.632) related to unemployment benefits.
(5) D.29pay + D.4pay (other than D.41pay) +D.5pay +D.7pay +P.52+P.53+NP+D.8.

Table 4.b: **General government expenditure and revenue targets, broken down by main components**

	ESA Code	**Year t–1**	**Year t–1**	**Year t**	**Year t+1**
		Level	% GDP	% GDP	% GDP
1. Expenditure on EU programmes fully matched by EU funds revenue					
1a. *of which investments fully matched by EU funds revenue*					
2. Cyclical unemployment benefit expenditure(1)					
3. Effect of discretionary revenue measures(2)					
4. Revenue increases mandated by law					

Table 4.c: **General government expenditure by function**

4.c.i) General government expenditure on education, healthcare and employment

	Year t		Year t+1		
	% GDP	% general government expenditure	% GDP	% general government expenditure	
Education(1)					
Healthcare(1)					
Employment(2)					

(1) These expenditure categories should correspond respectively to items 9 and7 in table 4.c.ii).
(2) This expenditure category should contain, inter alia, government spending related to active labour market policies (ALMPs) including public employment services. On the contrary, items such as compensation of public employees or vocational training programmes should not be included here.

4.c.ii) Classification of the functions of the Government

Functions of the Government	COFOG Code	Year t	Year t+1
		% GDP	% GDP
1. General public services	1		
2. Defense	2		
3. Public order and safety	3		
4. Economic affairs	4		
4. Environmental protection	5		
6. Housing and community amenities	6		
7. Health	7		
8. Recreation, culture and religion	8		
9. Education	9		
10. Social protection	10		
11. Total Expenditure (= item 2 in Table 4.a)	TE		

5. Description of discretionary measures included in the draft budget

Table 5.a: **Discretionary measures taken by General Government**

List of measures	Detailed description[1]	Target (Expenditure / Revenue component) ESA Code	Accounting principle	Adoption Status	Budgetary impact				
						Year t	Year t+1	Year t+2	Year t+…
						% GDP	% GDP	% GDP	% GDP
(1)									
(2)									
…									
					TOTAL				

(1) Please describe in further detail in case of major fiscal policy reform plans with potential spillover effects for other Member States in the Euro Area.

Table 5.b: **Discretionary measures taken by Central Government**

List of measures	Detailed description[1]	Target (Expenditure / Revenue component) ESA Code	Accounting principle	Adoption Status	Budgetary impact				
						Year t	Year t+1	Year t+2	Year t+…
						% GDP	% GDP	% GDP	% GDP
(1)									
(2)									
…									
					TOTAL				

(1) Please describe in further detail in case of major fiscal policy reform plans with potential spillover effects for other Member States in the Euro Area.

Table 5.c: **Discretionary measures taken by sub-sectors of the General Government[1]**

List of measures	Detailed description[2]	Target (Expenditure / Revenue component) ESA Code	Accounting principle	Adoption Status	Budgetary impact				
						Year t	Year t+1	Year t+2	Year t+…
						% GDP	% GDP	% GDP	% GDP
(1)									
(2)									
…									
					TOTAL				

(1) Please name whether State Government, Local Government and/or Social Security Funds.
(2) Please describe in further detail in case of major fiscal policy reform plans with potential spillover effects for other Member States in the Euro Area.

6. Indications on how the measures in the DBP address CSR and the targets set by the Union's Strategy for growth and jobs

Table 6.a: **CSR recommendations**

CSR number	List of measures	Description of direct relevance

Table 6.b: **Targets set by the Union's Strategy for growth and jobs**

National 2020 headline targets	List of measures	Description of direct relevance to address the target
National 2020 employment target […]		
National 2020 R&D target […]		
GHG emission reduction target […]		
Renewable energy target […]		
National energy efficiency target […]		
National early school leaving target […]		
National target for tertiary education […]		
National poverty target […]		

7. Divergence from latest SP

Table 7: **Divergence from latest SP**

	ESA Code	**Year t–1**	**Year t**	**Year t+1**
		% GDP	% GDP	% GDP
Target general government net lending/net borrowing	B.9			
Stability Programme				
Draft Budgetary Plan				
Difference				
General government net lending projection at unchanged policies	B.9			
Stability Programme				
Draft Budgetary Plan				
Difference[(1)]				

(1) This difference can refer to both deviations stemming from changes in the macroeconomic scenario and those stemming from the effect of policy measures taken between the submission of the SP and the submission of the DBP. Differences are expected due to the fact that the no-policy change scenario is defined differently for the purpose of this Code of Conduct with respect to the Stability Programme.

8. Distributional impact of the main expenditure and revenue measures

In accordance with Article 6(3)(d) of Regulation 473/2013, Member States should provide, to the extent possible, qualitative information and quantitative estimations on the distributional effects of budgetary measures, presented as best fits each Member State's specific measures and available analytical frameworks.

Quantifying the distributional impact of budgetary measures is a challenging task. For this reason no standardized table on this aspect of DBPs is included in this Annex. Quantitative estimations of the distributional impact of budgetary measures could be assessed by computing the expected changes in the Gini index, the S80/S20 indicator or the poverty rates as a result of them. This methodology could represent one possible way forward among others.

Annex to the DBP: Methodology, economic models and assumptions underpinning the information contained in the DBP

Table 8: **Methodological aspects**

Estimation Technique	Step of the budgetary process for which it was used(1)	Relevant features of the model/ technique used	Assumptions
Tool n.1			
Tool n.2			
…			

(1) Modeling tools may have been used:
- when doing macro forecasts
- when estimating expenditure and revenue under the no policy change scenario
- when estimating the distributional impact of the main expenditure and revenue measures
- when quantifying the expenditure and revenue measures to be included in the draft budget
- when estimating how reforms included in the DBP address targets set by the Union's Strategy for growth and jobs and CSRs.

TABLES TO BE INCLUDED UNDER THE ADDITIONAL REPORTING INTRODUCED IN THE TWO PACK

These tables are to be submitted in accordance with Article 10(3) of Regulation (EU) No 473/2013 on common provisions for monitoring and assessing draft budgetary plans and ensuring the correction of excessive deficit of the Member States in the euro area. In all tables, year t corresponds to the year of submission of the report. Reporting for the items indicated in bold is compulsory. The conceptual framework agreed in the context of Directive 2011/85/EU should be implemented.

Table 1a: **In-year quarterly budgetary execution on cash basis[a] for the general government and its sub-sectors[b]**

EUR millions	**Year t[*]**			
	Q1	**Q2**	**Q3**	**Q4**
Overall balance by sub-sector (6-7)				
1. General government				
2. Central government				
3. State government				
4. Local government				
5. Social security funds				
For each sub-sector (please indicate which)				
6. Total revenue / inflows				
Of which (indicative list)				
Taxes, of which:				
Direct Taxes				
Indirect taxes, of which:				
VAT				
Social contributions				
Sales				
Other current revenue				
Capital revenue				
Inflows from operations in financial instruments				
7. Total expenditure / outflows				
Of which (indicative list)				
Purchase of goods and services				
Compensation of employees				
Interest				
Subsidies				
Social benefits				
Other current expenditure				
Capital transfers payable				
Capital investments				
Outflows from operations in financial instruments				

(*) The reporting is mandatory up to the current quarter included. If the data for the current quarter is not available, please provide latest available monthly data, indicating which month it corresponds to. For the overall balance of the general government, please provide the information until the latest available quarter (i.e. q-1). The normal quality assurance and revision policy should apply.
(a) Equivalent figures from public accounting may be provided if cash-based data are not available; please specify the accounting basis used to fill all the information provided in this table.
(b) Corresponding to the reporting to be provided in accordance with Article 3(2) of Directive 2011/85/EU.

Table 1b: **In-year quarterly budgetary execution and prospects in accordance with ESA standards and seasonally non-adjusted[(a)] for the general government and its sub-sectors**

The data of budgetary execution provided in Tables 1a and 1b should be consistent; a reconciliation table showing the methodology of transition between the two tables should be communicated.

EUR millions	ESA code	**Year t[(*)]**			
		Q1	**Q2**	**Q3**	**Q4**
Net lending (+)/ net borrowing (-)					
1. General government[(a)]	S.13				
2. Central government	S.1311				
3. State government	S.1312				
4. Local government	S.1313				
5. Social security funds	S.1314				
For the general government (voluntary for the sub-sectors)					
6. Total revenue[(a)]	TR				
Of which					
Taxes on production and imports	D.2				
Current taxes on income, wealth, etc.	D.5				
Capital taxes	D.91				
Social contributions	D.61				
Property income	D.4				
Other[(b)]					
7. Total expenditure[(a)]	TE				
Of which					
Compensation of employees	D.1				
Intermediate consumption	P.2				
Social payments	D.62, D.632[(c)]				
Interest expenditure	D.41				
Subsidies	D.3				
Gross fixed capital formation[(a)]	P.51				
Capital transfers	D.9				
Other[(d)]					
8. Gross debt[(e)]					

(*)The reporting shall span until the end of the current Year t; quarterly prospects are not binding and reported as estimates (possibly subject to revisions) for informational and monitoring purposes.
(a) For the general government, the items labelled with "a" are to be additionally provided in seasonally-adjusted terms; if it cannot be provided by the national authorities, the seasonal adjustment will be performed by Eurostat, in liaison with the Member State concerned.
(b) P.11+P.12+P.131+D.39rec +D.7rec +D.9rec (other than D.91rec).
(c) Under ESA95: D6311_D63121_D63131pay; in ESA2010 D632pay.
(d) D.29pay+D.4pay (other than D.41pay) +D.5pay+D.7pay+P.52+P.53+K.2+D.8.
(e) As defined in Regulation (EC) No 479/2009.

Table 1c: **Annual budgetary targets in accordance with ESA standards for the general government and its sub-sectors**

	ESA Code	**Year t-1**	**Year t**	**Year t + …[(*)]**
Net lending(+)/ net borrowing (-) by sub-sector (% GDP)				
1. General government	S.13			
2. Central government	S.1311			
3. State government	S.1312			
4. Local government	S.1313			

5. Social security funds	S.1314			
General government (S.13) (% GDP)				
6. Total revenue	TR			
7. Total expenditure	TE			
8. Interest expenditure	D.41			
9. Primary balance[(a)]				
10. One-off and other temporary measures[(b)]				
		rate of change	rate of change	rate of change
11. Real GDP growth				
12. Potential GDP growth				
contributions:				
- labour				
- capital				
- total factor productivity				
		% potential GDP	% potential GDP	% potential GDP
13. Output gap				
14. Cyclical budgetary component				
15. Cyclically-adjusted balance (1 – 14)				
14. Cyclically-adjusted primary balance (13 + 6)				
15. Structural balance (13 – 10)				

(*)Following the request from the Commission to activate the reporting requirements provided for by Article 10(3) of Regulation (EU) No 473/2013, the reporting starts from the year of the opening of the excessive deficit procedure in accordance with Article 126(6) TFEU, and spans until the excessive deficit is planned to be corrected, in accordance with the deadline set by the Council recommendation in accordance with Article 126(7) TFEU or decision to give notice in accordance with Article 126(9) TFEU.
(a) The primary balance is calculated as (B.9, item 8) plus (D.41, item 9).
(b) A plus sign means deficit-reducing measures.

Table 2: **Targets for the expenditure and revenues of the general government (S.13) in accordance with ESA standards**

% GDP	ESA Code	**Year t-1**	**Year t**	**Year t+1**	Year t + …[(*)]
1. Total revenue target (= table 1c. 6)	TR				
Of which					
1.1. Taxes on production and imports	D.2				
1.2. Current taxes on income, wealth, etc.	D.5				
1.3. Capital taxes	D.91				
1.4. Social contributions	D.61				
1.5. Property income	D.4				
1.6. Other[(a)]					
p.m.: Tax burden (D.2+D.5+D.61+D.91-D.995)[(b)]					

2. Total expenditure target (= table 1c.7)	TE[(c)]				
Of which					
2.1. Compensation of employees	D.1				
2.2. Intermediate consumption	P.2				
2.3. Social payments	D.62, D.6311, D.63121, D.63131[(f)]				
of which Unemployment benefits[(d)]					
2.4. Interest expenditure	D.41				
2.5. Subsidies	D.3				
2.6. Gross fixed capital formation	P.51				
2.7. Capital transfers	D.9				
2.8. Other[(e)]					

(*)Following the request from the Commission to activate the reporting requirements provided for by Article 10(3) of Regulation (EU) No 473/2013, the reporting starts from the year of the opening of the excessive deficit procedure in accordance with Article 126(6) TFEU, and spans until the excessive deficit is planned to be corrected, in accordance with the deadline set by the Council recommendation in accordance with Article 126(7) TFEU or decision to give notice in accordance with Article 126(9) TFEU.
(a) P.11+P.12+P.131+D.39rec+D.7rec+D.9rec (other than D.91rec).
(b) Including those collected by the EU and including an adjustment for uncollected taxes and social contributions D.995), if appropriate.
(c) TR-TE = B.9.
(d) Includes cash benefits (D.621 and D.624) and in kind benefits (D.631) related to unemployment benefits.
(e) D.29+D.4 (other than D.41) +D.5+D.7+P.52+P.53+K.2+D.8.
(f) In ESA2010: D.62, D.632.

Table 3a: **Budgetary measures adopted and envisaged by the general government and its sub-sectors on both the expenditure and the revenue side to achieve the targets presented in Table 2**

Expected budgetary impact of measures adopted and envisaged[(a)]										
List of measures	**Detailed description[(b)]**	**Target (Expenditure / Revenue) ESA Code**	**Accounting principle [(c)]**	**Adoption Status**	**Incremental budgetary impact (EUR million) on year**					
						t-1	**t**	**t+1**	**t+2**	**t + (*)**
					TOTAL					

(*)Year when the excessive deficit is planned to be corrected, in accordance with the deadline set by the Council recommendation in accordance with Article 126(7) TFEU or decisions to give notice in accordance with Article 126(9) TFEU.
(a) Only measures sufficiently detailed and credibly announced should be reported.
(b) Including reporting on which sub-sector is taking the measure.
(c) By default, the impact of the measures will be reported on accrual basis, but, if impossible and reporting is in cash, it should be indicated explicitly. The impact is to be recorded in incremental terms – as opposed to levels – compared to the previous year's baseline projection. Simple permanent measures should be recorded as having an effect of +/- X in the year(s) they are introduced and zero otherwise (the overall impact on the level of revenues or expenditures must not cancel out). If the impact of a measure varies over time, only the incremental impact should be recorded in the table. By their nature, one-off measures should be always recorded as having an effect of +/-X in the year of the first budgetary impact and -/+ X in the following year, i.e. the overall impact on the level of revenues or expenditures in two consecutive years must be zero.

Table 3b: **In-year quarterly reporting on the budgetary impact of the measures presented in Table 3a**

List of measures[(a)]	In-year reporting for measures having an effect on year t (choose one of the alternatives below)[(b)]					Expected annual budgetary impact for year t (EUR million) (= Table 3a)
	Quarterly observed budgetary impact (EUR million)[(c)]				Cumulative observed budgetary impact since the start of the year (EUR million)	
	Q1	Q2	Q3	Q4		
TOTAL						

(a) Select the measures reported in Table 3a which have a budgetary impact in year t.
(b) Filling one of the two alternatives is mandatory: quarterly reporting (estimates possibly subject to revisions) at least until the current quarter and/or sum of the observed budgetary impact until the current date.
(c) Indicate for each quarter whether the data reported corresponds to observed data; the reporting is mandatory up to the current quarter included.

Table 4: **General government (S.13) debt developments and prospects**

		Year t-1	Year t	Year t + … *
	ESA Code	% GDP	% GDP	% GDP
1. Gross debt[(a)] (=Table 1b.8 for the general government)				
2. Change in gross debt ratio				
Contributions to changes in gross debt				
3. Primary balance (= Table 1c. 9)				
4. Interest expenditure (= Table 1c.8)	D.41			
5. Stock-flow adjustment				
of which:				
- Differences between cash and accruals[(b)]				
- Net accumulation of financial assets[(c)]				
of which:				
- Privatisation proceeds				
- Valuation effects and other[(d)]				
p.m.: Implicit interest rate on debt[(e)] (%)				
Other relevant variables				
6. Liquid financial assets[(f)]				
7. Net financial debt (7=1-6)				
8. Debt amortization (existing bonds) since the end of the previous year				
9. Percentage of debt denominated in foreign currency (%)				
10. Average maturity (years)				

11. Real GDP growth (%) (= Table 1c row 11)				

(*)Following the request from the Commission to activate the reporting requirements provided for by Article 10(3) of Regulation (EU) No 473/2013, the reporting starts from the year of the opening of the excessive deficit procedure in accordance with Article 126(6) TFEU, and spans until the excessive deficit is planned to be corrected, in accordance with the deadline set by the Council recommendation in accordance with Article 126(7) TFEU or decision to give notice in accordance with Article 126(9) TFEU.
(a) As defined in Regulation (EC) No 479/2009.
(b) The differences concerning interest expenditure, other expenditure and revenue could be distinguished when relevant or in case the debt-to-GDP ratio is above the reference value.
(c) Liquid assets (currency), government securities, assets on third countries, government controlled enterprises and the difference between quoted and non-quoted assets could be distinguished when relevant or in case the debt-to-GDP ratio is above the reference value.
(d) Changes due to exchange rate movements, and operation in secondary market could be distinguished when relevant or in case the debt-to-GDP ratio is above the reference value.
(e) Proxied by interest expenditure divided by the debt level of the previous year.
(f) Liquid assets are here defined as AF.1, AF.2, AF.3 (consolidated for general government, i.e. netting out financial positions between government entities), A.F511, AF.52 (only if quoted in stock exchange).

A NUMERICAL EXAMPLE OF THE FLEXIBILITY CLAUSES IN THE PREVENTIVE ARM

The aim of this annex is to guide the reader through the use of "flexibility" clauses within the rules of the SGP. It illustrates how the adjustment path towards the MTO or the adherence to the MTO is impacted by the temporary deviation allowed under i) the structural reform clause (introduced in Section 1.3.2.3), ii) the investment clause (introduced in Section 1.3.2.4) and iii) the cumulation of both clauses.

The methodology applied to determine the eligibility to the clauses and the impact of flexibility clauses on the achievement of the MTO is displayed in the two Sections mentioned above. Those conditions are summarized in Table A13.1.

Table A13.1: **Overview of conditions displayed in Section 1.3.2.3 and 1.3.2.4 related to the Structural reform clause and the Investment Clause**

<table>
<tr><th></th><th>Structural Reform Clause</th><th>Investment Clause</th></tr>
<tr><td rowspan="2">Eligibility criteria</td><td colspan="2">▪ Remain in the preventive arm
▪ Safety margin with respect to the 3% of GDP reference value for the deficit (minimum benchmark)</td></tr>
<tr><td>▪ Major structural reform with positive long-term budgetary effects</td><td>▪ Negative GDP growth or output gap inferior to -1.5% of GDP

▪ Additionality principle: total public investments are not reduced, i.e. co-financed expenditure should not substitute for nationally financed investments</td></tr>
<tr><td>Integrity of the MTO</td><td colspan="2">▪ Achievement of the MTO within the four-year horizon of the current SCP should be sought (less than 1.5% deviation from MTO in initial year)
▪ Additional application of the clauses restricted until achievement of the MTO</td></tr>
<tr><td rowspan="3">Temporary deviation from the MTO (or adjustment path)</td><td>▪ The deviation cannot exceed 0.5% of GDP, except in the case of pension reforms introducing a mandatory fully-funded pillar</td><td>▪ The deviation cannot exceed 0.5% of GDP
▪ Applies to national expenditure on projects co-financed by the EU under the Structural and Cohesion policy (including the YEI), TEN, CEF, EAFRD, EMFF and the EFSI</td></tr>
<tr><td colspan="2">▪ The cumulated deviation for the two clauses cannot exceed 0.75% of GDP</td></tr>
<tr><td colspan="2">▪ The temporary deviation remains valid over a period of three years</td></tr>
</table>

1. The low output gap condition: eligibility criterion specific to the Investment Clause

While the temporary deviation stemming from the structural reform clause does not depend on the economic situation of a Member State, this is not the case for the investment clause. The application of the investment clause is only possible for a Member State in bad (or worse) economic times (output gap below -1.5% of GDP or negative growth).

2. The safety margin (i.e. respect of the minimum benchmark): a constraint on the temporary deviation for both clauses

When assessing a Member State's application for use of the clause, it is checked that Member States continuously preserve a safety margin with respect to the 3% reference value.([21]) This means that the structural balance should always be equal to or above the minimum benchmark, a measurement which is detailed in Annex 2.([22]) In other words, the temporary deviation stemming from the application of the clauses should not imply that the structural balance goes below the minimum benchmark. According to the 2015 European Commission spring forecast, only eight Member States in the preventive arm would fulfil that criterion in 2016 before any temporary deviation is even applied.

Table A13.2: **Respect of the safety margin and available fiscal scope – spring forecast 2015 (forecast available when assessing eligibility of the clauses at the occasion of the 2015European Semester)**

	Minimum Benchmark	Structural Balance	Respect of the safety margin	Fiscal scope		Minimum Benchmark	Structural Balance	Respect of the safety margin	Fiscal scope
BE	-1.7	-2.1	No	0.0	HU	-1.5	-2.6	No	0.0
BG	-1.7	-2.4	No	0.0	MT	-1.9	-1.7	Yes	0.2
CZ	-1.7	-1.4	Yes	0.3	NL	-1.4	-1.4	No	0.0
DK	-0.7	-1.4	No	0.0	AT	-1.8	-1.0	Yes	0.8
DE	-1.5	0.7	Yes	2.2	PL	-1.9	-2.6	No	0.0
EE	-1.8	0.2	Yes	2.0	PT	-1.8	-2.3	No	0.0
IE	-1.2	-2.1	No	0.0	RO	-1.8	-2.7	No	0.0
IT	-1.7	-1.5	Yes	0.2	SI	-1.7	-2.5	No	0.0
LV	-1.8	-1.9	No	0.0	SK	-1.5	-2.0	No	0.0
LT	-1.8	-1.4	Yes	0.4	FI	-0.5	-1.5	No	0.0
LU	-1.7	0.9	yes	2.6	SE	-0.9	-1.0	No	0.0

Note: Minimum benchmarks as updated in 2012.
Source : European Commission spring forecast 2015.

3. The Maximum initial distance to the MTO: the starting point for considering eligibility to both clauses

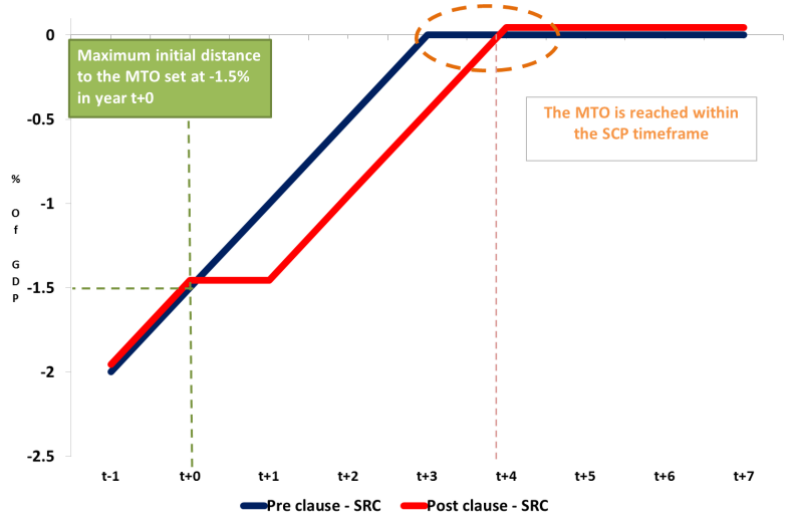
In order to respect the requirement to return to the MTO within the four-year timeframe, while assuring for a maximum deviation of 0.5% of GDP under the structural reform clause, it is necessary to introduce a maximum initial distance that a Member State's structural balance can be from the MTO when applying for the clause. The following considerations must be allowed for in determining this distance:

The year that a Member State is required to reach its MTO will be a function of, amongst other things, the adjustment that it is required to make in each individual year as defined by the matrix (displayed in Box 1.6). Consequently, it is not possible to define ex ante a year in which a Member State, whether availing of the structural reform clause or not, must reach its MTO. It was therefore proposed to make the simplifying assumption that the requirement to return to MTO within the four-year timeframe should be based on the benchmark adjustment being applied.

([21]) For the sake of predictability, clauses are not retracted once granted, if compliance with the Minimum Benchmark is altered due to future Minimum Benchmark revisions.
([22]) The minimum benchmark is a level of structural balance which takes into account past output volatility and budgetary sensitivity to output fluctuations.

On that basis, the maximum initial distance which the structural balance of a Member State applying for the structural reform clause can be from the MTO is 1.5% of GDP in year t. That limit will ensure that, in the benchmark case of an annual adjustment of 0.5% of GDP, the Member State can regain its MTO within the required four-year timeframe.([23])

Benchmark simulation: Member State with a structural balance of -1.5% of GDP the year prior to the application of the structural reform clause



4. Underlying working assumptions for further simulations

To undertake credible simulations, some working assumptions are necessary.

a. The MTO

The MTO is illustratively set at 0% of GDP.

b. The size of the temporary deviation

For the structural reform clause, the illustrative requested temporary deviation (by a Member State) has been set at 0.5% of GDP.

For the investment clause, the illustrative requested temporary deviation (by a Member State) has been set at 0.5% of GDP.

([23]) For the investment clause, the maximum initial distance to the MTO is set at 1.5% of GDP, in order to ensure consistency with the structural reform clause. However, benefiting from the investment clause is only possible in bad economic times, which is associated with a lower fiscal effort stemming from the matrix. This may imply that a maximum initial distance from the MTO of 1.5% of GDP does not necessarily ensure the attainment of the MTO within the SCP time frame.
When both clauses are cumulated, the maximum initial distance to the MTO is also set 1.5% of GDP for consistency purposes. Such cumulation is only possible in bad economic times (otherwise the investment clause cannot apply), implying here again that the maximum initial distance from the MTO of 1.5% does not necessarily ensure the attainment of the MTO within the SCP time frame.

For the cumulation of the structural reform clause and the investment clause, the illustrative requested temporary deviation (by a Member State) has been set at 0.75% of GDP.

In the three cases, the requested temporary deviation corresponds to the maximum temporary deviation that can be granted and corresponds to the individual caps of 0.5% of GDP (for the structural reform clause and the investment clause) and to the cap on the cumulated temporary deviation (0.75% of GDP). Those assumptions are conservative as the temporary deviation could be lower.

c. The benchmark adjustment stemming from the Matrix

The benchmark adjustment represents the adjustment path stemming from the Matrix and which should be implemented when adjusting towards MTO. It depends on the level of debt and the cyclical conditions.

For the structural reform clause, the benchmark adjustment has been set at 0.5% of GDP for each and every year under consideration. It corresponds to the situation of a Member State with low debt and in normal economic times.

For the investment clause as well as for the cumulation of both clauses, the benchmark adjustment has been set at 0% of GDP the year the clause(s) apply and 0.5% of GDP for the other years. It reflects the fact that a Member State needs to be in bad economic times in order to benefit from the investment clause or the cumulation of both clauses. Being in bad economic conditions implies a lower adjustment effort stemming from the Matrix.

Those adjustments have been chosen for illustrative purposes. Member States with high debts (above 60%) can be subject to higher adjustment requirements under the Matrix. The underlying assumptions are here again conservative: the benchmark adjustment from the Matrix could thus be higher in practice than in the simulations below.

5. The simulations

A set of four simulations are displayed. They aim at covering a wide range of potential cases under realistic assumptions for the structural balance and the safety margin.

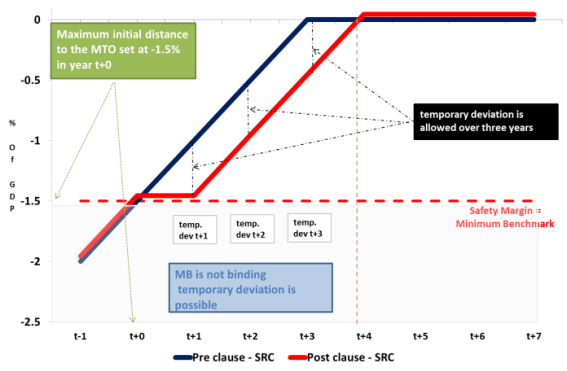
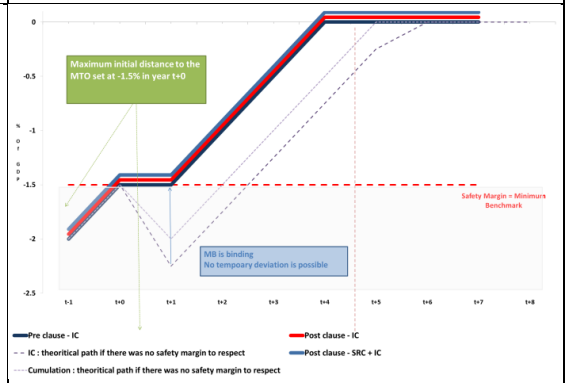
The simulations are performed for four initial levels of structural balance (-1.5%, -1%, -0.5% and 0%). That range aims at illustrating the impact of the initial position of the structural balance on the adjustment path towards MTO both with and without the application of the clauses. In economic terms, it sets out the adjustment path towards MTO for two different types of Member States:

- Member States faced with a relatively deteriorated fiscal situation with respect to their MTO (SB of -1.5%, -1% and -0.5% of GDP)

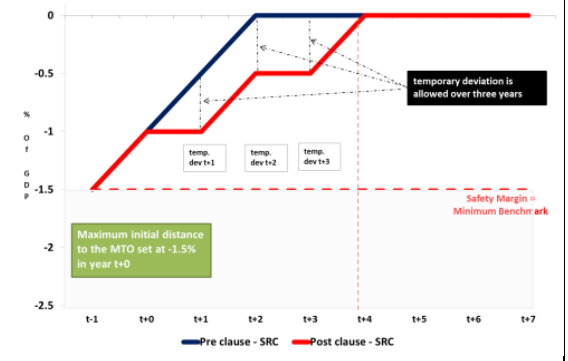
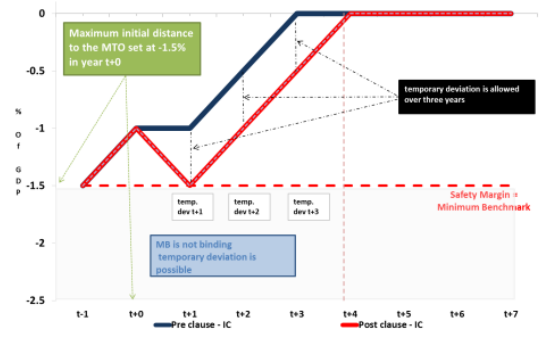
- Member States with sound public finances, i.e. Member States at MTO (SB of 0% of GDP).

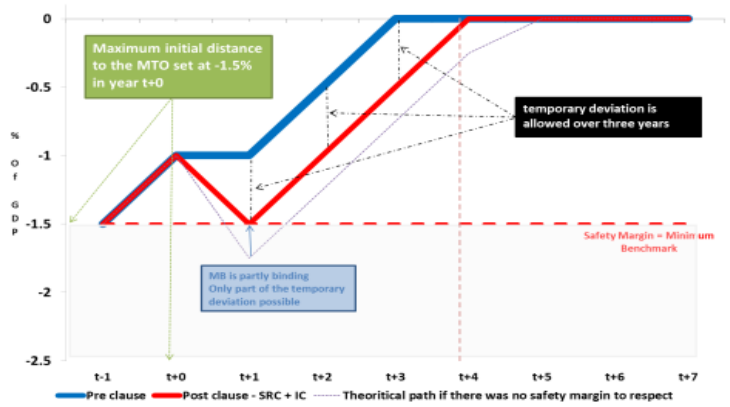
Each simulation takes into account the need to preserve the safety margin with respect to the 3%. For illustrative purposes, the minimum benchmark is assumed to be at -1.5% of GDP, which is the average minimum benchmark for the European Union. In the simulations, the clause is applied for in year t+0 with the temporary deviation to be implemented in t+1.

Simulation 1: **Member State with a Structural balance of -1.5% of GDP the year prior to the application of the clause**

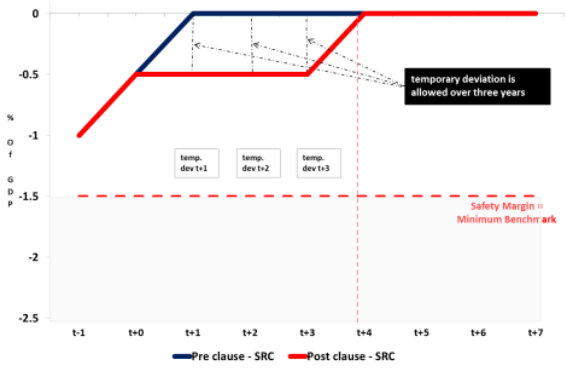
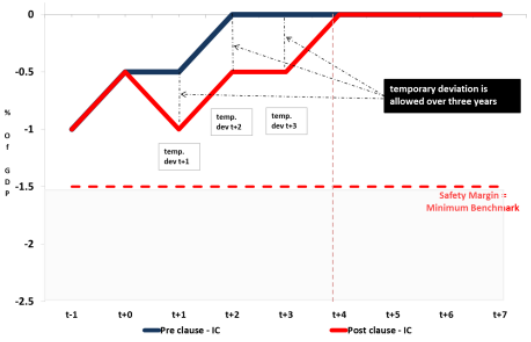
Structural reform clause (benchmark simulation)	**Investment clause /Cumulated clauses**
	
Comment: 1. Maximum initial distance to the MTO: the initial structural balance is at the maximum initial distance from the MTO in t+0 (1.5% of GDP). The Member State is eligible for the clauses on that basis.	
2. Safety margin: the temporary deviation stemming from the application of the clause in t+1 does not imply that the structural balance goes below the minimum benchmark. The Member State preserves the safety margin. 3. Integrity of the MTO: Following the new adjustment path, the MTO is reached in t+4 instead of t+3.	2. Safety margin: the temporary deviation stemming from the application of the clause in t+1 implies that the structural balance goes below the minimum benchmark. The Member State would not preserve the safety margin. 3. Integrity of the MTO: The adjustment path remains unchanged and the MTO is reached in t+4 (consequence of the absence of adjustment when the Member State is in bad economic times)

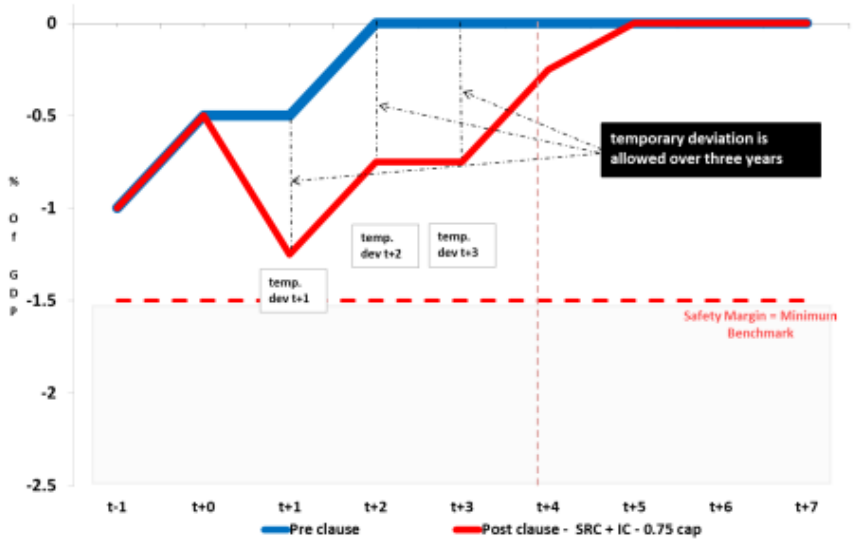
Simulation 2: **Member State with a Structural balance of -1% of GDP the year prior to the application of the clause**

Structural reform clause	**Investment clause**
	
Comment: 1. Maximum initial distance to the MTO: The Member State is eligible for the clauses on that basis. 2. Safety Margin: The Member State preserves the safety margin. 3. Integrity of the MTO: Following the new adjustment path, the MTO is reached in t+4 instead of t+3.	

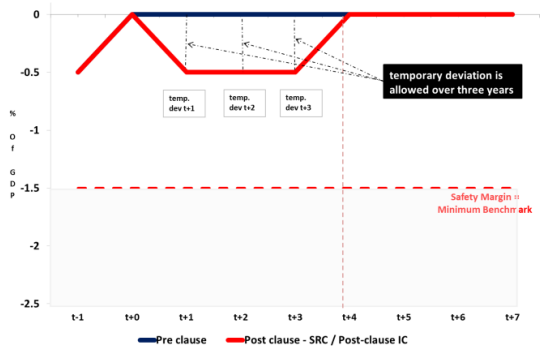
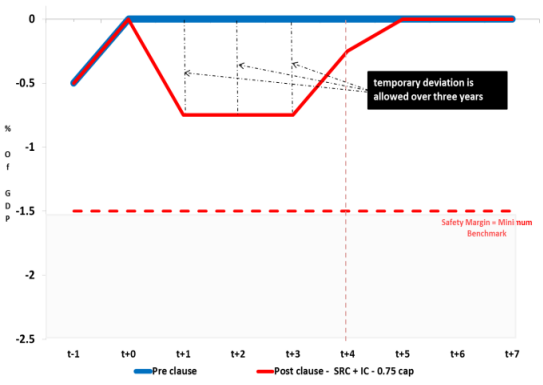
Cumulated clauses

Comment: 1. Maximum initial distance to the MTO: The Member State is eligible for the clauses on that basis. 2. Safety Margin: the temporary deviation stemming from the application of the clause in t+1 implies that the structural balance goes partly below the minimum benchmark. To preserve the safety margin, the cumulated deviation needs to be limited to 0.5% of GDP (i.e. the difference between the structural balance, -1% of GDP, and the minimum benchmark, -1.5% of GDP. 3. Integrity of the MTO: Following the new adjustment path, the MTO is reached in t+4 instead of t+3.

Simulation 3: **Member State with a Structural balance of -0.5% of GDP the year prior to the application of the clause**

Structural reform clause	**Investment clause**
	
Comment: 1. Maximum initial distance to the MTO: The Member State is eligible for the clauses on that basis. 2. Safety Margin: The Member State preserves the safety margin.	
3. Integrity of the MTO: Following the new adjustment path, the MTO is reached in t+4 instead of t+1.	3. Integrity of the MTO: Following the new adjustment path, the MTO is reached in t+4 instead of t+2.

Cumulated clauses

Comment: 1. Maximum initial distance to the MTO: The Member State is eligible for the clauses on that basis. 2. Safety Margin: The Member State preserves the safety margin. 3. Integrity of the MTO: Following the new adjustment path, the MTO is reached in t+5 instead of t+2.

Simulation 4: **Member State with a structural balance at MTO (structural balance at 0% of GDP) the year prior to the application of the clause**

Structural reform clause / Investment Clause	**Cumulated clauses**
	
Comment: 1. Maximum initial distance to the MTO: The Member State is eligible for the clauses on that basis. 2. Safety Margin: The Member State preserves the safety margin.	
3. Integrity of the MTO: Following the new adjustment path, the MTO is reached in t+4 while it would have remained at the MTO without a temporary deviation.	3. Integrity of the MTO: Following the new adjustment path, the MTO is reached in t+5 while it would have remained at the MTO without a temporary deviation.

6. Conclusions

The MTO would be met in t+4 or before in most of the cases presented.

In a limited number of cases, the MTO would be met in t+5. This is the case when a Member States is allowed to cumulate both clauses and benefits from the maximum allowed temporary deviation (0.75% of GDP), while at the same time having sound public finances, i.e. initial structural balance close to (-0.5% of GDP) or at MTO.

All in all, the simulations show that under some specific circumstances it is possible to extend the deadline to reach the MTO by one year. This is justified by the need to encourage structural reforms and preserve public investments in Member States faced with difficult economic conditions (sole eligible to the investment clause and consequently allowed to cumulate clauses).

PLAUSIBILITY ANALYSIS FOR ESTIMATING IMPACT OF STRUCTURAL REFORMS

The Commission Communication of 13 January 2015 on "Making the best use of the flexibility within the existing rules of the Stability and Growth Pact", provided additional guidance on how the Commission would operationalise the so-called "structural reform clause" of Regulation (EC) 1466/97. On that basis, the Council decided on the implementation of the flexibility within the SGP, as reflected in the commonly agreed position confirmed by the ECOFIN Council of 12 February 2016.

Under the Regulation, Member States implementing major structural reforms with positive long-term budgetary impacts are allowed to deviate temporarily from the MTO or from the adjustment path towards it.

An intuitive way to formalize the eligibility criterion for Member States applying for use of the structural reform clause is to require that the reform produces significant sustainability gains in net present value terms, taking into account both the direct fiscal impact of the reform (including savings and/or costs, where applicable) and their indirect budgetary effects *via* higher output.

Noting that:

- *Bj* represents the direct primary budgetary savings in period *j*, while *Cj* denotes the possible budgetary costs, the direct net savings thus amounts to *Bj-Cj*;

- *Aj* denotes the possible output effect of a reform in period *j*, implying indirect budgetary effects essentially on the revenue side. Given a semi-elasticity of the budget balance equal to *τ*, the indirect budgetary gain is thus *τAj*;

A reform would yield a net gain $Dj = \tau Aj + Bj - Cj$ for the primary balance in period *j* (assuming a horizon of 25 years and that the reform kicks in in the first period). Noting *βj* the actualisation rate([24]), the inter-temporal sum of those effects is equivalent in actuarial terms to a permanent annuity *Z*:

$$Z = (\Sigma j \beta j Dj) / \Sigma j \beta j$$

A major reform could then be expected to result in a significant improvement in the long-term sustainability of a Member State's public finances as measured by Z.

Box 1 provides further detail on how to get some preliminary order of magnitude associated with the effect of structural reforms. It is presented with an illustrative purpose and does not limit the kind of reforms that can be considered nor the models or the parameter values used to assess their impact. It should be highlighted that the translation of a specific reform into a policy shock that can be incorporated by the model may remain the most significant challenge. Therefore any assessment by the Commission will have to be of qualitative nature and will necessarily build on elements of judgement over the plausibility of the estimates of the reforms. The plausibility exercise may help in some cases to frame that judgement. In particular, it could be the case when the measure being considered appears to be far below the standard shock used in the simulation but is claimed to provide a much larger impact.

([24]) The actualisation rate is: $\beta_j = 1/\Pi_{k=1,...j}(1+r_k)$, with r_k the growth corrected interest rate (i.e. the difference between the nominal interest rate and the nominal growth rate) at date *k*. Figures for the growth and interest rates can be taken from the Aging Working Group assumptions which are regularly used to compute long-term costs of aging.

BOX 1.: HOW TO CALCULATE THE INDIRECT IMPACT OF STRUCTURAL REFORMS? A METHOD FOR A PLAUSIBILITY ASSESSMENT

Beyond their direct effect, structural reforms can have an indirect impact on the budget balance, via their effect on potential output. The purpose of this box is to outline a transparent methodology to provide some first order of magnitude of this indirect effect.

First, we focus on the lasting effect of the reforms on GDP, which corresponds more technically to the impact of the reforms on potential output. Therefore, we do not consider the short-term effects on GDP, which are transitory by nature and difficult to measure, owing to implementation lags and complex dynamics in domestic demand. As a result, we estimate the effects of reforms on GDP as of five years and then every five years (10, 15 and 20 years). Between those years, we interpolate the effects linearly.

Table A14.1: **Effect of stylised structural reforms on GDP (% deviation from baseline)**

Stylised policy impulse	Size	GDP effect (% deviation from baseline)			
		5 years	10 years	15 years	20 years
Product market					
Reduction of the final goods market mark-up	-1 p.p.	0.5	0.7	0.8	0.9
Reduction of the intermediate goods market mark-up	-1 p.p.	0.3	0.3	0.3	0.2
Reduction in final good firms' administrative burdens	10%	0.4	0.4	0.4	0.4
Reduction of tangible capital costs	-50 b.p.	0.9	1.5	2.0	2.4
Reduction of intangible capital costs	-50 b.p.	0.0	0.0	0.1	0.1
Labour market					
Reduction in the benefit replacement rate	5 p.p.	0.4	0.4	0.5	0.5
Wage mark-up reduction	5 p.p.	0.9	1.0	1.0	1.0
Tax shift from labour to VAT	1% GDP	0.2	0.3	0.3	0.3
Knowledge and innovation					
Wage subsidy to the R&D sector	0.1% GDP	0.0	0.1	0.2	0.2
Increase of the share of medium skilled workers	1 p.p.	0.1	0.1	0.2	0.3
Increase of the share of high skilled workers	1 p.p.	0.1	0.2	0.3	0.4

Second, we simulate the impact of a set of stylised structural reforms using the DSGE model QUEST for the whole EU. This is technically captured by the parameter A referred to above. Those reforms are standard policy "shocks" affecting key economic parameters in the product market, the labour market or knowledge and innovation (see Röger et al., 2008 for more details). Some of those parameters correspond to performance indicators (e.g. tangible capital costs), while others refer to policy instrument indicators, such as a tax shift of 1% or R&D wage subsidies of 0.1% GDP. Every concrete reform planned by Member States would then need to be "translated" into one (or several) of these policy shocks, which would require a judgement - or analysis - on how the reform is expected to modify those parameters. That translation of concrete reforms into standard shocks could be very tricky in practice, especially for some concrete measures and would anyway require some informed judgement on the impact of the measure on the performance of labour, product or innovation markets. Moreover, the standard policy shocks are not fully comparable across types of reforms and the estimates are surrounded by large uncertainties and should be interpreted with a great deal of caution. For instance, the estimates could vary from country to country and depend on baseline values of structural reform indicators or on the macroeconomic conditions (e. g. monetary policy stance and size of public debt). However, they provide a ballpark proxy of significant reforms in each of the areas considered, which can be used in the context of that plausibility exercise. As set out in Table A14.1, some reforms, in particular those reducing the cost of tangible capital, improving the functioning of the labour market (leading to a wage mark-up reduction) or increasing competition (reflected by a cut in the final good mark-up), seem to lead to a long- term increase in potential GDP by around 1% or more, compared with a no policy change baseline. Those reforms already display some non-negligible effects after five years. Some other reforms have more moderate effects, such as a reduction in the benefit replacement rate or in firms' administrative burden, a tax shift from labour to indirect taxes or an increase in the share of low- and medium-skilled workers. The effects of the other stylised reforms appear more marginal, although slightly positive.

Third, we compute the reaction of the output effect to the budget balance. It corresponds to the parameter τ above, with $A\tau$ being the indirect effect of a structural reform. That parameter differs slightly from country to country.

The approach presented below largely builds on the methodology to compute the cyclically-adjusted budget balance (see Mourre et al., 2014). We compute the semi-elasticity of the budget balance, which measures the change in the budget balance brought about by a 1% increase in GDP. Four relevant factors influence the results. First, all tax elasticities (which are different across countries in the short term) are assumed to converge to unity after ten years, which is in line with the theoretical expectation of revenue moving along with economic activity after some time. Second, we assume that non-tax revenue follows GDP as well after five years. Those two assumptions mean that, in the long term, structural reforms are neutral regarding the revenue-to-GDP ratio. Third, public spending (except the unemployment-related expenditures) is frozen in real terms, only following inflation. Therefore, an increase in output due to a reform would automatically decrease the spending-to-GDP ratio, by raising the denominator, which leads to a reduction in the budget balance. As shown in Mourre et al. (2014), that effect increases with the size of public spending as percentage of GDP in a given country. Fourth, the reduction of unemployment-related expenditure in case of output increase will add slightly to this effect. This additional impact depends upon the share of unemployment-related expenditures in GDP and upon the reactivity of unemployment to output. We assume for simplicity that the elasticity of unemployment to potential output is the same as the reaction of unemployment to short-term output fluctuation. An alternative method, more complicated, would have been to estimate the impact of each structural reform on unemployment. It may be done as a robustness check.

Table A14.2: **Reaction of the output effect to the budget balance (varying across countries)**

	Semi-elasticity of the budget balance	
	5 years	from 10 years onwards
BE	0.61	0.59
BG	0.39	0.39
CZ	0.47	0.45
DK	0.65	0.62
DE	0.58	0.56
EE	0.46	0.41
IE	0.54	0.51
EL	0.52	0.51
ES	0.55	0.53
FR	0.63	0.60
HR	0.50	0.48
IT	0.53	0.50
CY	0.52	0.45
LV	0.43	0.41
LT	0.43	0.39
LU	0.46	0.44
HU	0.54	0.51
MT	0.48	0.45
NL	0.65	0.58
AT	0.60	0.57
PL	0.54	0.49
PT	0.55	0.53
RO	0.38	0.38
SI	0.51	0.48
SK	0.42	0.40
FI	0.64	0.60
SE	0.63	0.61
UK	0.55	0.47