



ISSN 2443-8030 (online)

# Automatic Fiscal Stabilisers in the EU: Size & Effectiveness

Philipp Mohl, Gilles Mourre  
and Klara Stovicek

ECONOMIC BRIEF 045 | MAY 2019

EUROPEAN ECONOMY

*Economic and  
Financial Affairs*



**European Economy Economic Briefs** are written by the staff of the European Commission's Directorate-General for Economic and Financial Affairs to inform discussion on economic policy and to stimulate debate.

The views expressed in this document are solely those of the author(s) and do not necessarily represent the official views of the European Commission.

Authorised for publication by Servaas Deroose, Deputy Director-General for Economic and Financial Affairs.

## LEGAL NOTICE

Neither the European Commission nor any person acting on behalf of the European Commission is responsible for the use that might be made of the information contained in this publication.

This paper exists in English only and can be downloaded from [https://ec.europa.eu/info/publications/economic-and-financial-affairs-publications\\_en](https://ec.europa.eu/info/publications/economic-and-financial-affairs-publications_en).

Luxembourg: Publications Office of the European Union, 2019

PDF ISBN 978-92-79-77374-7 ISSN 2443-8030 doi:10.2765/07002 KC-BE-18-013-EN-N

---

© European Union, 2019

Non-commercial reproduction is authorised provided the source is acknowledged. For any use or reproduction of material that is not under the EU copyright, permission must be sought directly from the copyright holders.

# Automatic Fiscal Stabilisers in the EU: Size and Effectiveness

By Philipp Mohl, Gilles Mourre and Klara Stovicek

## Abstract

This Economic Brief examines the size and effectiveness of automatic stabilisers in the European Union (EU). It shows that the tax and benefit system automatically, i.e. at unchanged policies, cushions a sizeable part of the cyclical fluctuations in the EU on average, namely around 35% of the households' loss of disposable income and around 70% of their consumption loss. However, the degree of automatic stabilisation varies across Member States. Automatic stabilisers are somewhat smaller if behavioural and macroeconomic feedback effects are taken into account.

Procyclical fiscal policy hampers the functioning of automatic stabilisers. Good economic times should, therefore, be used to build up fiscal buffers, in full compliance with the Stability and Growth Pact and in particular in highly indebted Member States, to let automatic stabilisers play fully in during downturns. There are several options to increase the efficiency of automatic stabilisers. Nevertheless, enhancing automatic stabilisers is not a panacea, since it can have a negative impact on the allocative efficiency.

While automatic stabilisers are the first line of defence against economic fluctuations, they may not be sufficient to fully absorb economic shocks in severe recessions. A well-functioning single market including product and labour markets and further private cross-country risk sharing should contribute to a better capacity of economies to absorb shocks. Moreover, a fiscal stabilisation function at the EU level could complement the automatic stabilisers in case of large shocks.

**Acknowledgements:** This note benefitted from comments and suggestions by Erik Canton, Servaas Deroose, Gabriele Giudice, Kerstin Jorna, José Eduardo Leandro, Andrea Mairate, Lucio Pench, Savina Princen, Werner Roeger, Matteo Salto and Anne Van Bruggen. The authors would like to thank Francesca D'Auria for QUEST simulations and the Commission's Joint Research Centre (JRC Seville), in particular Salvador Barrios and Alberto Tumino, for their valuable inputs on EUROMOD simulations.

**Contact:** European Commission, Directorate-General for Economic and Financial Affairs, Unit Fiscal policy and surveillance, tel.: +32229 63225, office: CHAR 12/040, e-mail: [gilles.mourre@ec.europa.eu](mailto:gilles.mourre@ec.europa.eu).

## Introduction

**Fiscal policy can play an important role in stabilising the domestic economy in a monetary union.** Monetary policy can only react to shocks affecting the currency union as a whole. However, it has been constrained by the zero lower bound since the Great Recession. Moreover, the size of the shock from the recent economic and financial crisis was exceptionally large. Therefore, fiscal policy has gained importance to smooth economic shocks at the national level.

**There are typically two ways to conduct counter-cyclical fiscal policy.**

**First, policy-makers can rely on automatic stabilisers, i.e. budgetary arrangements that help dampen cyclical fluctuations at unchanged policies.** Automatic stabilisers arise from the combination of cyclical revenues (such as income and indirect taxes) and rather acyclical expenditure. During economic downturns, tax revenues decrease while government spending slightly increases (notably due to unemployment benefits). This supports income and consumption (i.e. demand) and deteriorates the government budgetary position. During booms, tax revenues increase while government expenditure slightly decreases. This has a curtailing effect on income and demand and improves the government budgetary position.<sup>1</sup>

**Second, policy-makers can implement discretionary fiscal policy measures to accommodate output fluctuations.** In the case of large economic shocks, automatic stabilisers alone may not be sufficient to smooth income and demand. Discretionary fiscal policy can therefore complement automatic stabilisers to boost aggregate demand, for instance by improving skills to prevent further losses of human capital. However, discretionary fiscal policy interventions can have drawbacks (e.g. imprecise design, implementation lags, objectives unrelated to stabilisation) and should only be used in the case of a clear need and sufficient fiscal space to prevent risks for the sustainability of public finances.

**Against this background, this Economic Brief examines the size and effectiveness of automatic stabilisers in Europe.** It presents stylised facts on the size of automatic stabilisers in EU Member States, sketches out policies to let automatic stabilisers work properly and finally discusses

options to increase the stabilisation properties at the national and EU level.

## Stylised facts on the size of automatic stabilisers in EU Member States<sup>2</sup>

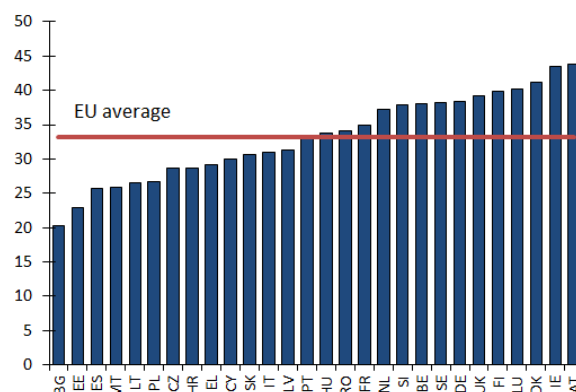
**There are three approaches to quantifying the size of automatic stabilisers: microeconomic, macro-economic and statistical approach.**

### Microeconomic approach

**The microeconomic approach assesses the stabilisation effect of the tax and benefit using household data.**<sup>3</sup> This strand of literature typically assumes a certain shock on market income (i.e. income before taxes and benefits). It then quantifies the *direct* stabilisation role of the tax and benefit system in smoothing households' disposable income (i.e. income after taxes and benefits) and consumption using a micro-simulation model.

**Evidence from micro-simulations shows that the degree of automatic income stabilisation is fairly high in the EU.** Findings from the micro-simulation model EUROMOD<sup>4</sup> reveal that around 35% of the loss of disposable income is absorbed in the EU on average by the tax and benefit system following a shock on market income (Graph 1).<sup>5</sup> Put differently, when the market income varies by 1%, the disposable income changes by only 0.65%. The size of income stabilisation, however, varies across Member States, ranging from 20% in Bulgaria to almost 45% in Austria. Note that these estimations do not include the stabilisation effect of old-age benefits (including pensions), VAT and corporate income tax and therefore somewhat underestimate the degree of income stabilisation.

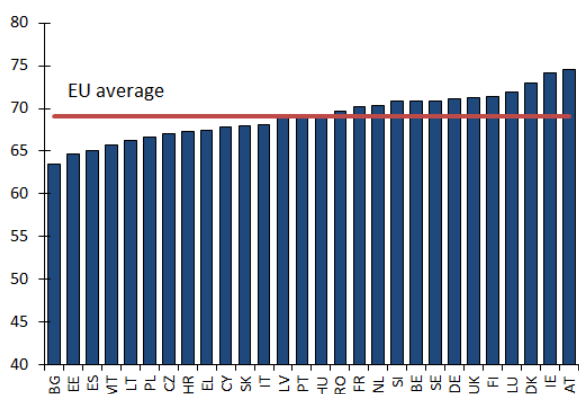
Graph 1: **Size of automatic income stabilisation**



Source: European Commission (2017a), p. 103.

**The stabilisation of consumption (i.e. demand) is even higher than income stabilisation.** EUROMOD simulations show that 70% of the loss of consumption is absorbed in the EU on average by the tax and benefit system and the dissaving behaviour of households (Graph 2).<sup>6</sup> As a result, consumption decreases by only 30% following a fall in market income. The degree of consumption stabilisation ranges from 64% in Bulgaria to 75% in Ireland. The higher demand than income stabilisation effect can be explained by the fact that households tend to reduce savings following a shock, which adds to the income smoothing effect of taxes and benefits.

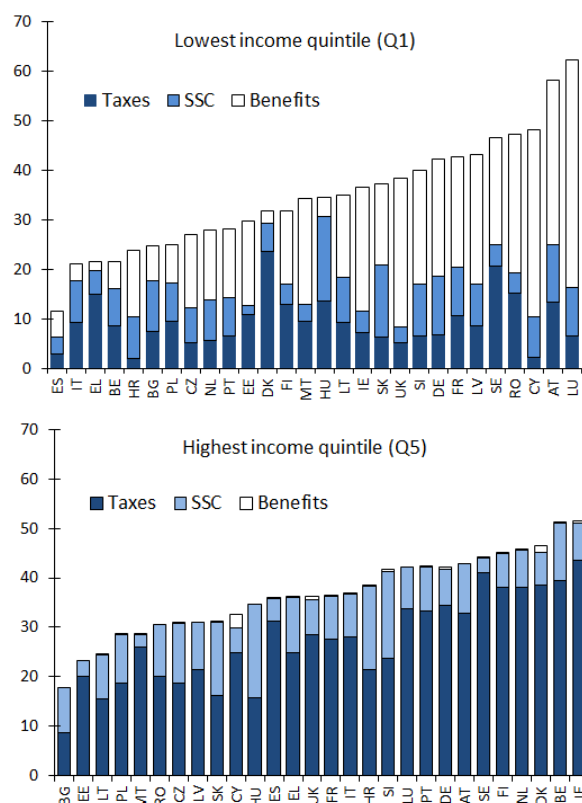
Graph 2: **Size of automatic demand stabilisation**



Note: The assumptions on the marginal propensity to consume of the households are taken from Japelli and Pistaferri (2014).  
Source: European Commission (2017a), p. 103.

**Automatic stabilisers have also a social impact, in particular by protecting low-income households.**<sup>7</sup> In general, the stabilisation effect is higher the more progressive is the tax and benefit system, since it mostly results from social transfers spent for low-income households and from direct taxes paid by high-income households. Simulations with EUROMOD show that social benefits play indeed a key role in stabilising the income of low-income households in most Member States, whereas they have no sizeable effect for high-income households (Graph 3). In contrast, the stabilisation effect from direct taxes mostly stems from high-income households due to the progressivity of the tax system.

Graph 3: **Size of automatic income stabilisation by fiscal instrument and income quintile**



Note: The graph shows the size of average automatic income stabilisation by type of fiscal instrument for the 28 Member States for the lowest (top panel) and highest income quintile (bottom panel). The comparison does not include pensions for conceptual reasons. Quintile 1/5 represent the bottom 20%/top 20% of the income distribution.  
Source: European Commission (2017a), p. 103.

### Macroeconomic approach

**The macroeconomic approach quantifies the stabilisation effect of total fiscal policy and allows for behavioural responses and macro-economic feedback effects.**<sup>8</sup> The findings from the microeconomic approach reported above represent the *direct* stabilisation impact of the tax and benefit system. The use of the macro-simulation model QUEST<sup>9</sup> allows for *indirect* effects arising from behavioural and macroeconomic responses, e.g. adverse effects on labour supply and/or capital accumulation. It therefore simulates the *total* (direct and indirect) stabilisation effect of fiscal policy.<sup>10</sup>

**In macroeconomic models, the size of automatic stabilisers depends on the type of shock.** The largest degree of automatic stabilisation is found for consumption shocks, while investment, export and productivity shocks generally lead to smaller

stabilisation effects.<sup>11</sup> The consumption (i.e. demand side) shock is particularly large since it affects consumption tax revenue directly. Shocks to investment and exports have smaller direct implications on tax revenue with automatic stabilisation being achieved through a negative impact on employment and wages lowering tax revenues. Shocks on labour productivity (i.e. supply side) also have limited automatic stabilisation effects because the accompanying wage reduction limits the impact on employment which in turn reduces the size of automatic stabilisers for income and consumption.

**Macroeconomic simulations point to a somewhat smaller stabilisation effect compared with the microeconomic approach.** To allow for a meaningful comparison between the stabilisation effects of macro- and microeconomic approaches, the QUEST simulations assume a sizeable, but temporary demand and supply shock on market income in Italy.<sup>12</sup> The simulations show that disposable income is stabilised by around 29% (microeconomic approach 31%) and consumption by around 55% (microeconomic approach 68%) given the particular size and type of shock. The lower stabilisation effect of the macroeconomic simulations can be mainly explained by two factors: First, they allow for behavioural responses of firms, workers and consumers, which mainly affect labour supply and capital accumulation and thus impact on income.<sup>13</sup> Second, they take into account macroeconomic feedback effect arising e.g. from a monetary policy response.

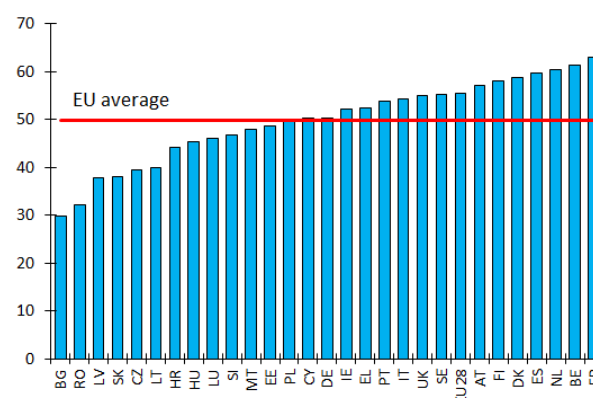
### Statistical approach

**The statistical approach assesses the automatic stabilisation effect of the government budget balance following a shock on GDP.** This approach is frequently used for fiscal surveillance purposes, given its simplicity and importance for calculating key fiscal surveillance indicators, such as the structural balance. It quantifies automatic stabilisers as the cyclical component of the government budget balance (unlike the two previous approach, dealing with the income/demand smoothing of households). A key indicator of the statistical approach is the so-called fiscal semi-elasticity, which measures by how many percentage points the budget deficit/surplus changes following a 1% increase in GDP. On the revenue side, the semi-elasticity is close to zero, since revenue is almost as cyclical as GDP and therefore the revenue-to-GDP ratio remains broadly

stable throughout the cycle. On the expenditure side, the semi-elasticity is around  $-0.5\%$ , since expenditure tends to be acyclical and therefore the expenditure-to-GDP ratio deteriorates by  $0.5\%$  following a positive  $1\%$  shock on GDP.

**According to estimates, around half of the GDP shock is automatically stabilised by the budget balance in the EU, with differences across Member States.** The average fiscal semi-elasticity for the EU on average is  $0.5$ , i.e. the budget balance improves by  $0.5\%$  following a  $1\%$  increase of GDP. The degree of stabilisation differs across Member States, ranging from  $0.6\%$  in France to  $0.3\%$  in Bulgaria (Graph 3). Overall, the semi-elasticities of both expenditure and budget balance are smaller in central and eastern European countries, since those Member States have on average lower expenditure-to-GDP ratios.

Graph 3: Size of automatic cyclical stabilisation of the budget balance



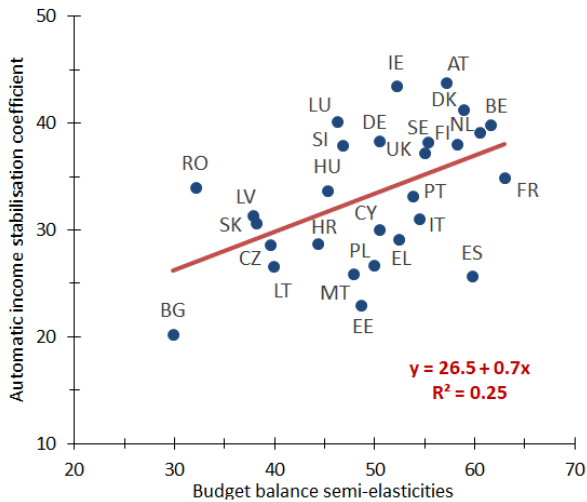
Note: The chart shows the budget semi-elasticities. EU28 estimates correspond to the case of the EU treated as a single entity, while EU average correspond to the simple average across Member States.

Sources: Mourre et al. (2019); European Commission (2018a), p. 43.

**There is only a very moderate relationship between the size of automatic stabilisation based on the statistical vs. microeconomic approach** (Graph 4). The very moderate relationship can be mainly explained by two differences: First, the statistical approach uses a broader concept than the microeconomic approach: it takes into account the stabilisation effect of VAT, corporate income tax and old-age benefits (including pensions). Second, the statistical approach allows for adverse behavioural responses and macroeconomic feedback effects, which occur *on impact*. Third, the semi-elasticities are assumed constant, while empirical elasticities may witness large fluctuations in practice

due to changing weights, complex dynamics and shortfalls/windfalls.<sup>14</sup>

**Graph 4: Size of automatic stabilisation from microeconomic vs. statistical approach**



Note: The microeconomic approach is measured by the automatic income stabilisation coefficient and the statistical approach by the budget balance semi-elasticity.

**How to ensure that automatic stabilisers work?**

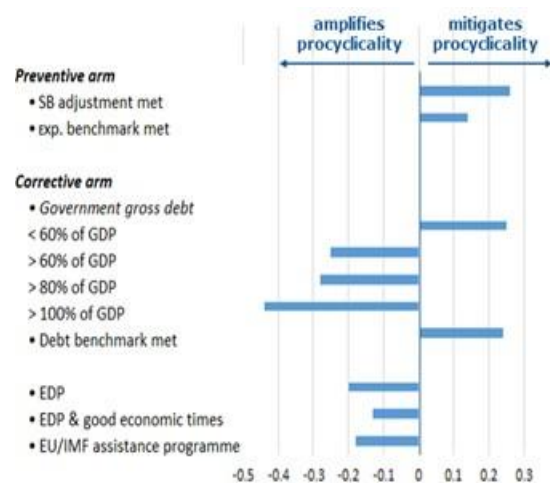
**Procyclical fiscal policy hampers the functioning of automatic stabilisers.** A non-exhaustive empirical literature review shows that while automatic stabiliser are counter-cyclical, discretionary fiscal policy is often found procyclical. The latter effect seems to dominate the former resulting in an *overall* fiscal policy stance, which tends to be procyclical in the EU. This means that fiscal policy tightens in bad times and loosens in good times (see Annex).<sup>15</sup> Evidence shows that procyclicality comes in particular from good times.<sup>16</sup> Without sufficient fiscal policy accumulated in good times, automatic stabilisers cannot operate freely in case of a shock as shown during the Great Recession.

**During the Great Recession, discretionary fiscal policy counteracted the functioning of automatic stabilisers in several Member States.** Several Member States had insufficient fiscal space and needed to return to their MTO when hit by the Great Recession. As an aggravating factor, public finances deteriorated so strongly that the safety margins embedded in the Pact were not always sufficient – even for countries with an initial sound fiscal position (at its MTO) – to avoid breaching the 3%

reference value for the headline deficit finding itself in the corrective arm. Those Member States therefore faced the dilemma between letting public debt increase rapidly with possible repercussions on the market perception or offsetting the working of automatic stabilisers with discretionary fiscal policy measures. Many Member States opted for the first approach at the beginning of the crisis, before implementing a substantive fiscal consolidation during 2012-13, limiting the functioning of automatic stabilisers (Graph 5). In addition, the quality of the fiscal tightening proved to be rather low, given the significant cuts in public investment with large demand multipliers and effects on potential growth.

**Evidence shows that compliance with fiscal rules seems to have mitigated the procyclicality of fiscal policy in the EU** (Graph 5).<sup>17</sup> First, Member States that met the requirements of the preventive arm of the SGP benefit from reduced procyclicality of the fiscal effort. Second, avoiding high headline deficits appears to reduce the procyclicality of discretionary fiscal policy. Third, keeping public debt at a reasonable level mitigates the procyclical pattern of the fiscal effort. Conversely, deviating from the EU rules (high level of debt in excess of 60% or being in Excessive Deficit Procedure) seems to amplify the procyclicality of discretionary fiscal policy.

**Graph 5: Cyclicalty of the fiscal effort and performance with EU rules**



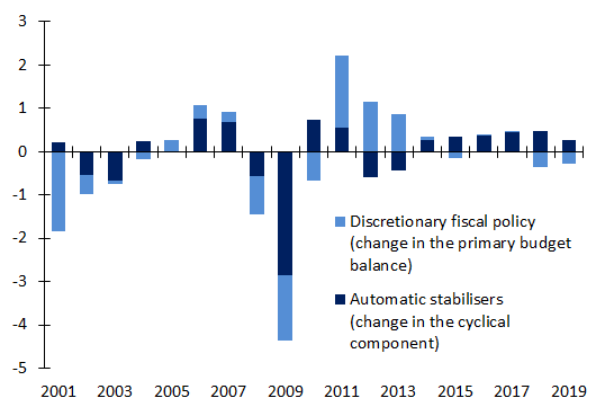
Source: European Commission (2018a), 121-130.

**Against this background, compliance with the Stability and Growth Pact (henceforth the Pact) is an effective way to let automatic stabilisers function properly.** The Pact aims at ensuring sustainable public finances in the medium to long term, while allowing for some economic

stabilisation in the short term by restoring the fiscal space needed for an efficient work of the automatic stabilisers. In a nutshell, the corrective arm of the Pact requires Member States to avoid excessive nominal deficits and debt ratios, while the preventive arm asks Member States to achieve or maintain a sound fiscal position as measured by the their medium-term budgetary objective (MTO). Member States at their MTO should keep annual expenditure in line with a reference medium-term rate of potential GDP growth, while Member States not at their MTO should implement a reasonable fiscal adjustment towards the MTO.<sup>18</sup>

**Good economic times should therefore be used to build up fiscal buffers, in particular in highly-indebted Member States, to let automatic stabilisers play fully in the next downturn.** In several Member States, the budgetary positions improved in 2018 exclusively due to the cyclical component and the structural positions are enhanced by windfall revenues. These mechanical improvements invite Member States to complacency, thereby reducing or postponing fiscal adjustment or, even worse, hiding expansionary fiscal policy. The discretionary fiscal loosening as forecast over 2018-2019 in several Member States is inappropriate (Graph 6). With the economic expansion in Europe in its fifth year in 2019 and very low interest rates, building up fiscal buffers now and resisting the temptation to spend the (temporary) revenue windfalls will allow automatic stabilisers to play fully in the next downturn. This is key as public debt levels are still very high in several Member States and there is need to prepare for a prospective tightening of monetary and financial conditions.

**Graph 6: Discretionary policy versus automatic stabilisers for the euro area**



Source: Commission services.

## How to enhance the automatic stabilisers at the national level?

**One option to enhance automatic stabilisers is to adjust the features of selected revenue/expenditure categories in order to increase their response to economic activity.**<sup>19</sup> Some Member States may have room for increasing personal income tax progressivity in a budget-neutral way, while minimising the possible adverse effects on incentives for work. Moreover, countries without withholding taxes but with a lagged tax base (e.g. income tax based on income recorded in the previous year) could move to an estimated income for the current year, which would strengthen the link between tax payments and the economic cycle. In addition, there may be scope for further improving the stabilisation properties of the corporate income tax.<sup>20</sup>

**Another option is to introduce automatic changes to revenue (tax) and expenditure parameters in response to macroeconomic developments.** Specifically, this could be achieved by introducing automatic adjustments in policy levers (such as extending the stabilisation effect through changes of the replacement rate/duration of unemployment benefits instead of limiting its impact on the number of people entitled to those benefits). The triggers to switch these automatic adjustments on and off would need to be carefully designed and focus only on very large economic fluctuations to avoid fiscal fine-tuning and to ensure predictability and enforceability. It should be noted that such an automatic discretionary impulse mechanism has been a rare practice until now. Potential options include:

- **Expenditure side:** The coverage and generosity of unemployment benefits could be automatically adjusted during severe economic downturns. This could ensure an effective income support to the pool of the unemployed during a limited period.<sup>21</sup> Such a policy measure would require to take the incentive effects for work into account, e.g. by a stronger tapering of unemployment benefits over the unemployment spell and carefully-designed activation policies.
- **Revenue (tax) side:** Automatic investment tax deductions during severe economic downturns could reduce the cost of capital, ease credit constraints and stimulate investment.



**Nevertheless, enhancing automatic stabilisers is not a panacea, since it can have a negative impact on the allocative efficiency.** While unemployment benefits can be important to smooth the transition between jobs, they can have a distortive impact if inadequately designed (e.g. by distorting the incentives to work). Empirical evidence suggests that more generous unemployment benefit schemes are associated with higher incidence of unemployment and longer periods in unemployment,<sup>22</sup> while a reduction in the maximum benefit duration appears to be related to shorter unemployment spells.<sup>23</sup> Therefore, any attempt to enhance automatic stabilisers needs to carefully balance income smoothing with economic and distributive efficiency.<sup>24</sup>

**Furthermore, reforms of automatic stabilisers may be difficult to implement on a durable basis, especially in good times.** During the economic upswing, there may be strong political pressure to prevent the automatic unwinding of supportive policies, put in place in low-cyclical conditions. This may obviously call into question the symmetric application of changes to revenue (tax) and expenditure parameters in response to macroeconomic developments, but also lead to reversals of the adjustment of the features of selected revenue/expenditure categories in order to increase their response to economic activity. This would result in pro-cyclicality in good times and economic distortions, which could jeopardise the build-up of fiscal buffers and lead to, or aggravate, macroeconomic imbalances.

### What other policies could help absorb economic shocks?

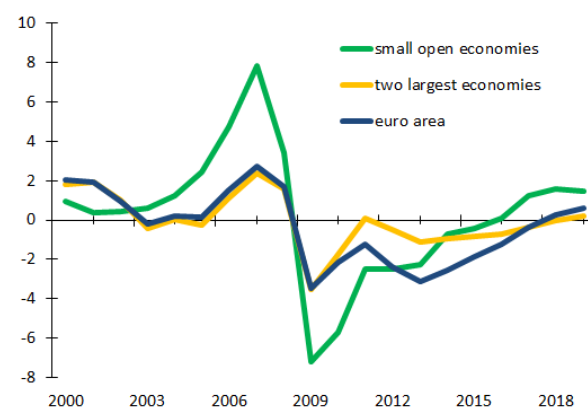
**While automatic stabilisers require enough fiscal space to function properly, they may not be sufficient to fully absorb economic shocks in severe recessions.** Conducting fiscal policy in full compliance with the Pact is important to ensure an effective functioning of automatic stabilisers. However, other policies may be needed for a better absorption of large shocks. This is particular true for small and open economies with large cyclical swings in output (Graph 7).

**A fiscal stabilisation function at the EU level could complement the automatic stabilisers in case of large shocks.** In mid-2018, the Commission issued a legislative proposal to set up a European Investment Stabilisation Function (EISF) in case of

large shocks to protect key public investment projects and thereby ensure future growth of the economy. The EISF could be complemented by additional means outside the EU budget in the future.

**Beyond fiscal stabilisation, a well-functioning single market including product and labour markets can contribute to a better capacity of economies to absorb shocks.** For instance, product markets, which ensure price adjustment and create conditions for reallocation of production factors, can speed up the recovery process. Labour markets need to be well-functioning as well as fair to allow for an efficient adjustment to shocks.

Graph 7: **Disparities of cyclical variation across countries (output gap)**



Source/Note: The aggregate "small open economies" covers EE, IE, LT, LU, LV, SI, FI; "two largest economies" covers DE and FR. based on European Commission 2017 autumn forecast.

**Finally, further private sector cross-country risk sharing has a potential to smooth income and consumption shocks, especially in the EU where it is less developed.**<sup>25</sup> The fragmentation of financial systems along national borders hampered the shock absorption capacity of Member States. Compared to the US, there is significant potential in terms of private cross-border risk sharing through the financial channel, more so than through fiscal (i.e. public) means. While the EU has taken important steps towards a deeper integration of banking and capital markets, the on-going initiatives have not been completed.<sup>26</sup>

## Conclusions

### **This Economic Brief examines the functioning of automatic stabilisers in the European Union.**

Automatic stabilisers are budgetary arrangements, which automatically, i.e. at unchanged policies, smooth income and consumption over the economic cycle. They play a crucial role at cushioning economic shocks by sustaining aggregate demand and private sector incomes during economic downturns and by moderating economic activity during periods of strong growth. The main findings can be summarised as follows:

**Automatic stabilisers cushion a sizeable part of the economic shocks in the EU.** Considering the EU on average, the tax and benefit system absorbs around 35% of the loss of disposable income following a shock on market income. The automatic stabilisation impact on consumption is even larger (70% for the EU), since (cash-constrained) households use part of their savings to compensate for the loss of income. However, the degree of income and consumption stabilisation varies significantly across Member States. Taking into account behavioural and macroeconomic feedback effects, somewhat lowers the degree of automatic stabilisers.

**Building up fiscal buffers in good times is an effective mechanism to let automatic stabilisers play freely.** Recent empirical evidence shows that fiscal policy tends to be procyclical in the EU, i.e. tightens in bad times and loosens in good times. This procyclicality, which occurs in particular in good economic times, can hamper the functioning of automatic stabilisers. Therefore, good economic times should be used to build up fiscal buffers, in full compliance with the Stability and Growth Pact and in particular in highly-indebted Member States, to let automatic stabilisers play fully in the next downturn.

**There is scope to increase the efficiency of automatic stabilisers.** Possible options are to adjust the features of selected revenue/expenditure categories in order to increase their response to economic activity. Alternatively, automatic changes to revenue (tax) and expenditure parameters could be introduced as a response to macroeconomic developments, but concrete cases have been rare so far. Nevertheless, enhancing automatic stabilisers is not a panacea, since they can have a negative impact on the allocative efficiency.

**While automatic stabilisers are the first line of defence against economic fluctuations, they may not be sufficient to absorb economic shocks fully in severe recessions.**

A fiscal stabilisation function at the EU level could complement the automatic stabilisers in case of large shocks. Beyond fiscal stabilisation, a well-functioning single market including product and labour markets and further private cross-country risk sharing can contribute to a better capacity of economies to absorb shocks.

## References

- Auerbach (2009), Implementing the new fiscal policy activism, *American Economic Review*, 99(2), 543-549.
- Berger, Dell'Ariccia and Obstfeld (2018), "Revisiting the economic case for Fiscal Union in the Euro Area", International Monetary Fund, Departmental Paper, 18/03.
- Buti and Gaspar (2015), "Designing fiscal policy for steady, enduring growth", VOXEU, 10 December.
- Buti, Leandro and Nikolov (2016), "Smoothing economic shocks in the Eurozone: The untapped potential of the financial union", VOXEU, 25 August.
- Dolls, Fuest and Peichl (2012), "Automatic stabilizers and economic crisis: US vs. Europe", *Journal of Public Economics*, 96, 279-294.
- European Commission (2017a), "Impact of fiscal policy on income distribution", Report on Public Finances in EMU 2017, 71-131.
- European Commission (2017b), "Automatic stabilisers in the euro area: A model-based assessment", *European Economic Forecast Autumn 2017*, 65-68.
- European Commission (2018a), "Have EU fiscal rules mitigated procyclicality?", Report on Public Finances in EMU 2018, 121-130.
- European Commission (2018b), "Communication on making the best use of the flexibility within the existing rules of the Stability and Growth Pact", 23 May.
- In 't Veld, Larch and Vandeweyer (2011), "Automatic fiscal stabilisers: What they are and what they do?", *Open Economic Review*, 24, 147-163.
- Japelli and Pistaferri (2004), "Fiscal policy and marginal propensity to consumption heterogeneity", *American Economic Journal: Macroeconomics*, 6(4), 107-136.
- Kekre (2016), "Unemployment insurance in macroeconomic stabilization", Society for Economic Dynamics, 2016 Meeting Papers 1184.
- Knieser and Ziliak (2002), "Tax reform and automatic stabilisation", *American Economic Review*, 45(1), 1-28.
- Lalive (2008), "How do extended benefits affect unemployment duration? A regression discontinuity approach", *Journal of Econometrics*, 142, 785-806.
- Landais, Michailat and Saez (2018), "A macroeconomic approach to optimal unemployment insurance: theory", *American Economic Journal: Economic Policy*, American Economic Association, 10(2), 152-181.
- McKay and Reis (2016a), "The role of automatic stabilisers in the U.S. business cycle", *Econometrica*, 84(1), 141-194.
- McKay and Reis (2016b), "Optimal automatic stabilizers", NBER Working Paper, 22359, June.
- Mourre, Poissonnier and Lausegger (2019) "The semi-elasticities underlying the cyclically-adjusted budget balance: an update and further analysis", *forthcoming* in European Commission, DG Economic and Financial Affairs, Economic Discussion Papers.
- Mourre and Princen (2019) "The dynamics of tax elasticities in the whole European Union", CESifo Economic Studies, 25 January, 1-32.
- Musgrave (1959), "The theory of public finance: a study in public economy", New York: McGraw-Hill.
- Nickell (1998), "Unemployment: Questions and some answers", *Economic Journal*, 108, 802-816.
- Pechman (1973), "Responsiveness of the federal income tax to changes in income", *Brookings Papers on Economic Activity*, 2, 385-421.
- Van Ours and Vodopivec (2006), "How shortening the potential duration of unemployment benefits entitlement affects the duration of unemployment: evidence from a natural experiment", *Journal of Labor Economics*, 24, 351-378.

### Annex: Overview: Key findings of the literature on cyclicity of fiscal policy

Key finding	Time period																										
	Before Maastricht				In the run up to the EMU								SGP period and before the great economic crisis							SGP period and after the great economic crisis							
	1970	1980	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Procyclical fiscal policy	Gali and Perotti, 2003 (CAPB, OG)				Candelon et al., 2007 (CAPB, OG)																						
	Candelon et al., 2007 (CAPB, OG)																										
	Fatas, Mihov, 2009 (CAPB, OG)																										
					Bénétrix, Lane 2013 (CAHB / CAPB, other)															Eyraud, Gaspar, 2018 ( $\Delta$ SB, $\Delta$ OG - real time / ex post)							
	Aristovnik, Meze, 2017 (CAPB, OG)																										
Acyclical fiscal policy					Gali and Perotti, 2003 (CAPB, OG)																						
					Candelon et al., 2007 (CAPB, OG)																						
													Fatas, Mihov, 2009 (CAPB, OG)														
													Bénétrix, Lane 2013 (HB / PB / growth in the fiscal balance index, other)														
													(CAHB / CAPB, other)														
					Debrun et al., 2009 (CAPB, OG)								(HB, OG)														
					Aristovnik, Meze, 2017 (CAPB, OG)															Eyraud, Gaspar, 2018 ( $\Delta$ SB, $\Delta$ OG - plans)							
	von Hagen, Wyplosz, 2008 (CAPB, OG)																										
Countercyclical fiscal policy	Gali and Perotti, 2003 (AS, OG)				Gali and Perotti, 2003 (AS, OG)																						
	Candelon et al., 2007 (AS, OG)																										
					Candelon et al., 2007 (AS, OG)																						
													Huart, 2013 (CAPB, $\Delta$ OG / OG / GDP growth)														
					Fatas, Mihov, 2009 (AS, OG)								(PB, GDP growth)														
					Bénétrix, Lane 2013 (HB / PB / growth in the fiscal balance index, other)																						
					Bénétrix, Lane 2013 (CAHB / CAPB, other)																						
					Aristovnik, Meze, 2017 (CAPB, OG)																						
													von Hagen, Wyplosz, 2008 (CAPB, OG)														
					Poplawski Ribeiro, 2009 (CAPB, OG)																						
												Baldi, Staehr, 2016 (PB, GDP growth)							Baldi, Staehr, 2016 (PB, GDP growth)								

Note: Cells highlighted in blue/red/green show the focus of the study, namely concentrating on total fiscal policy/fiscal effort/automatic stabilisers. The precise fiscal and business-cycle indicators are shown in brackets. Abbreviations of fiscal variables: CA(P)B: cyclically-adjusted (primary) balance, PB: primary balance, HB: headline balance, SB: structural balance; AS: automatic stabilisers. abbreviations of business-cycle indicators: OG: output gap,  $\Delta$ OG: change in output gap, GDP growth: real GDP growth.

Source: European Commission (2018a), 153.

---

<sup>1</sup> The standard operation of the automatic stabiliser, which corresponds to a deterioration (improvement) of the headline budget in bad (good) times, stems from the difference between highly cyclical revenue in monetary terms and a-cyclical spending in monetary terms. Since fiscal surveillance uses fiscal aggregates denominated in percentage of GDP, not in monetary terms, the working of automatic stabilisers could also be expressed in the following way. Revenues as a percent of GDP remain broadly stable in downturns (since revenue in monetary unit follows on average the cyclical fluctuations of output). By contrast, expenditure as a percent of GDP increases significantly in downturns (since expenditure remains rather rigid while output drops). In more technical terms, the revenue-to-GDP ratio has an elasticity close to 0, while public expenditure-to-GDP has a negative elasticity somewhere in the middle between 0 and -1. The fiscal balance as a percentage of GDP has a positive elasticity standing somewhere in the middle between 0 and 1 (i.e. the difference between the two elasticities). In other words, the budget balance is reduced automatically when the output gap decreases (downturns) and is boosted when the output gap rises.

<sup>2</sup> This section is based on European Commission (2017a). This publication benefited from valuable input from the Commission's Joint Research Centre (JRC Seville) on EUROMOD micro-simulations.

<sup>3</sup> It goes back to Pechman (1973) and has been developed in recent years in particular by Knieser and Ziliak (2002), Auerbach (2009) and Dolls et al. (2012).

<sup>4</sup> EUROMOD is the micro-simulation model for the EU, which allows assessing the budgetary, distributional and equity impact of a country's tax and benefit system as well as actual or hypothetical reforms thereof. The simulations are based on the tax and benefit system in 2014 using household data from the EU statistics on Labour and Income Conditions (EU-SILC) for 28 Member States and Eurostat and the Family Resource Survey for the UK. In line with the literature, the shock is modelled in a stylised way as a 5% proportional shock reducing market income across all households. A key underlying assumption is that the employment status of the individuals will not change. As a consequence, the size of automatic stabilisers is likely to be underestimated, since unemployment will probably increase following a deep shock, resulting in higher expenditure on unemployment benefits.

<sup>5</sup> European Commission (2017a), see also Dolls et al. (2012).

<sup>6</sup> The dissaving behaviour is derived from the assumptions about the marginal propensity to consume, i.e. how much of the change in disposable income is spent for consumption. For data availability reasons, the marginal propensities used for all 28 EU countries are based on estimates for Italy (see Japelli and Pistaferri, 2004), taking into account that poorer households tend to consume a higher share of their additional income than richer ones.

<sup>7</sup> European Commission (2018b).

<sup>8</sup> Macroeconomic feedback effects emerge, for instance, from i) the government's reaction to keep public finances sustainable over the medium-term, ii) the impact of monetary policy and iii) the effect of changes in the employment status following a large economic shock.

<sup>9</sup> QUEST is the European Commission's dynamic stochastic general equilibrium (DSGE) model used for the analysis of fiscal and structural reforms. The findings are presented for Italy for two reasons: First, the used estimates for the marginal propensity to consume are derived based on data for Italy (see footnote 6). Second, Italy represents a large Member State with an average size of automatic consumption stabilisation.

<sup>10</sup> McKay and Reis (2016a).

<sup>11</sup> For a recent comparison between automatic stabilisation of consumption and investment shocks see European Commission (2017b).

<sup>12</sup> Both simulation models assume a 5% shock on market income. In addition, QUEST, in contrast to EUROMOD, requires assumptions on the type of shock. The simulations shown here reflect a mix of demand and supply shock (shocks to exports and total factor productivity). Given the focus on the stabilisation properties of the economic cycle, the analysis looks at the short-term impact and stabilisation properties of the model as represented by the effects in the first year after the shock. The focus is on Italy mainly for two reasons: First, the used estimates for the marginal propensity to consumer are derived based on data for Italy. Second, Italy represents a large Member States with average automatic stabilisation coefficients.

<sup>13</sup> For instance, higher social transfers or taxes can weaken incentives to work and to invest in skills, increase unemployment and ultimately lead to higher market income inequality.

<sup>14</sup> See Mourre and Princen (2019) and Mourre et al. (2019).

<sup>15</sup> European Commission (2018a).

<sup>16</sup> European Commission (2018a).

<sup>17</sup> European Commission (2018a).

<sup>18</sup> Compared to the structural balance, the expenditure benchmark is not affected by tax windfall/shortfall, arising from the short-term volatility in tax revenue elasticities and therefore provides a target around which the automatic stabilisers can

---

play fully, by letting non-discretionary revenue and unemployment insurance benefits to fluctuate freely with the economic activity. Member States not at their MTO should implement a reasonable fiscal adjustment towards the MTO by respecting the expenditure benchmark augmented by a convergence margin, which corresponds to the need to control expenditure growth in a way compatible with the required fiscal adjustment to the MTO. For Member States still not at MTO, automatic stabilisers can only play around a (discretionary) consolidation path.

<sup>19</sup> See also Buti and Gaspar (2015).

<sup>20</sup> For instance, Buti and Gaspar (2015) suggest that pre-payments based on the estimated profits for the current year would more closely link tax receipts to the current position in the business cycle. In addition, using cyclical loss-carry backward more frequently would provide companies immediate tax refunds during recessions, since current corporate tax losses could be deducted from past profits.

<sup>21</sup> E.g. McKay and Reis (2016b); Kekre (2016); Landais et al. (2018).

<sup>22</sup> E.g. Nickell (1998); Lalive (2008).

<sup>23</sup> E.g. Van Ours and Vodopivec (2006).

<sup>24</sup> Fiscal policy has to meet several objectives, which may involve a trade-off. According to Musgrave (1959), the goal of fiscal policy is not only to protect incomes against economic downturns and reduce macroeconomic volatility (stabilisation function), but also to enable equal opportunities and redistribute income and wealth (redistribution function) and provide public goods and services in the most efficient way (allocative function).

<sup>25</sup> E.g. Berger et al. (2018).

<sup>26</sup> Buti et al. (2016).

## **EUROPEAN ECONOMY ECONOMIC BRIEFS**

European Economy Economic Briefs can be accessed and downloaded free of charge from the following address:

[https://ec.europa.eu/info/publications-0/economy-finance-and-euro-publications\\_en?field\\_eurovoc\\_taxonomy\\_target\\_id\\_selective=All&field\\_core\\_nal\\_countries\\_tid\\_selective=All&field\\_core\\_flex\\_publication\\_date\[value\]\[year\]=All&field\\_core\\_tags\\_tid\\_i18n=22614](https://ec.europa.eu/info/publications-0/economy-finance-and-euro-publications_en?field_eurovoc_taxonomy_target_id_selective=All&field_core_nal_countries_tid_selective=All&field_core_flex_publication_date[value][year]=All&field_core_tags_tid_i18n=22614)

Titles published before July 2015 can be accessed and downloaded free of charge from:

- [http://ec.europa.eu/economy\\_finance/publications/economic\\_briefs/index\\_en.htm](http://ec.europa.eu/economy_finance/publications/economic_briefs/index_en.htm)  
(ECFIN Economic Briefs)
- [http://ec.europa.eu/economy\\_finance/publications/country\\_focus/index\\_en.htm](http://ec.europa.eu/economy_finance/publications/country_focus/index_en.htm)  
(ECFIN Country Focus)









## **GETTING IN TOUCH WITH THE EU**

### **In person**

All over the European Union there are hundreds of Europe Direct Information Centres. You can find the address of the centre nearest you at: <http://europa.eu/contact>.

### **On the phone or by e-mail**

Europe Direct is a service that answers your questions about the European Union. You can contact this service:

- by freephone: 00 800 6 7 8 9 10 11 (certain operators may charge for these calls),
- at the following standard number: +32 22999696 or
- by electronic mail via: <http://europa.eu/contact>.

## **FINDING INFORMATION ABOUT THE EU**

### **Online**

Information about the European Union in all the official languages of the EU is available on the Europa website at: <http://europa.eu>.

### **EU Publications**

You can download or order free and priced EU publications from EU Bookshop at: <http://publications.europa.eu/bookshop>. Multiple copies of free publications may be obtained by contacting Europe Direct or your local information centre (see <http://europa.eu/contact>).

### **EU law and related documents**

For access to legal information from the EU, including all EU law since 1951 in all the official language versions, go to EUR-Lex at: <http://eur-lex.europa.eu>.

### **Open data from the EU**

The EU Open Data Portal (<http://data.europa.eu/euodp/en/data>) provides access to datasets from the EU. Data can be downloaded and reused for free, both for commercial and non-commercial purposes.

