AUTOMATIC BUDGET STABILIZATION IN THE EU DURING 2007-2017

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Introduction

The fiscal variables react to the discretionary government actions and automatic effects, induced by the macroeconomic conditions. Hence, the tracing of the budget balance changes alone could be misleading, since they may point out to an expansionary or restrictive fiscal policy, though they may be entirely cyclical.

Literature review

The automatic reaction of the public expenditures and revenues to cyclical fluctuations of the economy is defined as automatic stabilizers. Such cyclically-sensitive budget items are the income taxes and the unemployment benefits. They automatically worsen the budget balance during an economic slump and improve it during an expansion which exerts a stabilizing impact on the economic activity. The built-in stabilizers ensure an adequate response against a demand shock. There is evidence that the countries with stronger stabilizers tend to rely on smaller discretionary stimuli (IMF, 2009b, p. 27). The influence against a supply shock through changes in the aggregate demand will generate inflationary pressure. Blanchard (2000, p. 5) concludes that during a supply shock the budget stabilizers will weigh on the convergence to the new potential GDP, which will in turn impose the need of fiscal restructuring. Brunila et. al. (2002, p. 8) have come to a similar inference. The built-in stabilizers constitute the change in the cyclical primary balance. It is important to note that the interest payments are not taken into account, because while they do not reflect discretionary fiscal actions, they are not necessarily correlated with the changes in the cyclical production.

The automatic stabilizers are of great interest in the debate about fiscal consolidation as they attenuate its direct negative effect on the aggregate production to a certain degree. Moreover, the workings of the automatic stabilizers are not associated with any implementation lag.

Van den Noord (2000, p. 7) argues that the tax structure exerts a significant impact on the size of the automatic stabilizers. Specifically, he asserts that a

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more progressive tax system has a stronger stabilizing property. Baunsgaard and Symansky (2009, pp. 9-11) are supportive of his view as they claim that the progressive income taxes and the loss carry-forward provisions generate additional stability in comparison with the proportional income taxes. There exists also an alternative view, which opposes the belief that the transition to a flat tax weakens the built-in stabilizers (Keen, Kim and Varsano, 2006, p. 32). This inference is valid when a personal income allowance is absent. However, when such allowance is implemented the level of built-in stabilization may rise or decline depending on the progression of the previous income tax, the form of the income distribution as well as the specific level of the personal allowance. The larger the concentration of incomes above the threshold, the stronger the stabilizers would be. Fatás (2009) adds that the fiscal variables, which are acyclical such as the public wages can generate larger stabilizing effect on the GDP than the countercyclical variables such as taxes as they ensure some income regardless of the economic conditions.

The fiscal rules for a balanced budget can turn out be procyclical, which decreases the size of the automatic stabilizers. Suitable solutions to this problem may be following a balanced budget within the cycle or structural balance rule.

The balanced budget within the economic cycle lends medium-term orientation to the fiscal policy as the deficits in a crisis are offset through surpluses in an expansion. A main challenge to the implementation of this fiscal rule is the identification of the beginning and the end of the cycle. The rule allows for a countercyclical fiscal reaction and unrestricted budget stabilizers.

The targeting of the structural balance also props up the built-in stabilization. The rule is based on setting annual objectives for the budget balance after eliminating the cyclical components of the revenues and expenditures. Then the overall budget balance will fall in crises and rise in upswings. The cyclical adjustment of the data poses the main challenge to set the budget objective.

Strengthening of the budget stabilizers could be achieved through changes in the tax system and adequate fiscal rules. It is found that the government size, measured as a ratio between public expenditures and GDP, is negatively correlated with the GDP volatility (Fatás and Mihov, 2001, p. 21). This finding could be explained by the fact that a major part of the discretionary government outlays such as public wages and transfers are not cut back in economic crises or raised in expansions. This inertia of the government expenditures induces a stabilizing effect on the aggregate production. Brunila et. al. (2002, p. 25) clarify that not only the government size is important, but also the relative share of the cyclically sensitive budget items. Nonetheless, Baunsgaard and Symansky (2009, pp. 16-17) examine possible ways of enhancing the built-in stabilizers without increasing the government size. As a feasible approach they consider the automatizing of the discretionary fiscal response to swings in the economic

activity. To that end, they propose the implementation of thresholds which trigger temporary changes in the revenue and expenditure items.

The size of the budget stabilizers is defined as the change in the budget balance as a result of changes in the macroeconomic activity (In't Veld et al., 2012, p.4). In order to derive an estimate of the built-in stabilizers measures of the cyclical position of the economy and cyclical adjustment parameter are needed. The position within the business cycle is defined by the output gap and the cyclical reaction of the budget balance to the cyclical change of the GDP is captured by the budget semielasticity. This indicator was introduced within the first step of the process for improving the methodology for the computation of the cyclically-adjusted balance (CAB), started by the European Commission (EC) in collaboration with OECD. According to Mourre et. al. (2013, p.15) the application of semielasticity leads to the correct estimate and interpretation of the decomposition of fiscal restructuring. Simultaneously the weighting parameters for the calculation of CAB were updated and during the second step of the process the individual elasticities to the output gap were revised. Using the improved EC methodology Mourre, Astarita and Princen (2014, p. 25) infer that in the EU an output gap of 1% leads to a revision of the CAB by 0,6 p.p. which is just tantamount to the maximum value of the budget elasticity.

While the OECD approach is beneficial in that it captures the elasticity to the business cycle in a single indicator, it fails to differentiate among various shocks to the budget position. The effectiveness of the budget stabilizers depends on the specific type of the shock. If the GDP fluctuations are mainly attributed to a shock in consumption rather than to exports or investments, then the budget cyclical sensitivity is higher (European Commission, 2000, p. 67). Brunilla et al. (2002, pp. 28-29) conclude that in the euro zone countries the taxes and the unemployment benefits flatten approximately 20-30% of the consumption shock, while only 3-10% of the private investment shock. Using the EC QUEST model In't Veld et al. (2012, p. 14) simulate varies shocks, analogous to the crisis of 2008 and come to the conclusion that the degree of smoothing through automatic stabilization increases to 27% of the drop of GDP. According to them private consumption is most smoothed by the automatic stabilizers which can be attributed mainly to the share of liquidity-constrained households. In contrast, the built-in stabilizers have no impact on corporate investment.

Methodology

The paper applies the methodology by Fedelino, Ivanova and Horton (2009) which gives guidance about the decomposition of the overall budget balance into cyclical and cyclically-adjusted components. A key methodological issue for them is the choice of a scaling variable – nominal or potential GDP. The two

approaches may differ sizably when the primary balance significantly deviates from zero or the output gap is large. Nevertheless, they consider the usage of potential GDP as preferable in the computation of the built-in stabilizers. However, Fedelino, Ivanova and Horton (2009) recognize the difficulties and uncertainty in the derivation of a specific value of the potential aggregate production, which in turn points out to a trade-off between analytical rigor when the potential GDP is used or the convenience of frequently used variables such as nominal GDP. The cyclical primary balance (cpb) is calculated as follows:

$$(1) \quad cpb = r\varepsilon_R gap - g\varepsilon_G gap$$

where r and g are the ratios of the revenues and expenditures to GDP, ε_R and ε_G are elasticities of the revenues and expenditures to the output gap, gap. In the specific case of perfect correlation between revenues and business cycle, e.g. unitary revenue elasticity, and zero linear association between expenditures and economic cycle, e.g. zero expenditure elasticity, the built-in stabilizers (as) can be calculated in the following way:

$$(2) \quad as = \Delta(r \times gap)$$

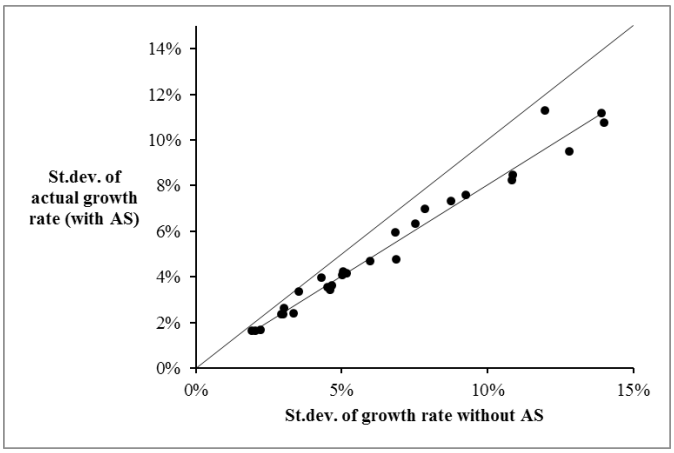
Under these assumptions for the elasticities the size of the government, measured as the ratio of total expenditures to GDP, is implicit in the computation of automatic stabilizers inasmuch as the total government revenues determine the dynamics of the total outlays. Hence, by construction the government size is positively correlated with the strength of the stabilizers which is in line with the academic literature.

The comparison of the automatic stabilizers among the EU member states is accomplished by using the output gap of EU-28 in the calculations.

Empirical analysis

The capacity of the stabilizers to dampen the cyclical fluctuations is different among the EU countries. Furthermore, their impact on the economy depends on the intensity of the crisis, that is, the steeper drop in GDP triggers the stabilizers to a higher degree and vice versa. These arguments are presented in fig. 1. Since the countries are located below the bisector, the effect of the automatic stabilizers is evident – the economic growth excluding the contribution of the built-in stabilizers [1] is characterized by higher variability than that of the actual economic growth. On the one hand, the larger the fluctuations of the economic

growth without stabilizers are, the stronger the depressing influence on the oscillations of the actual economic growth would be. Hence, the larger swings of the business cycle stimulate the functioning of the stabilizers to a larger extent. On the other hand, the failure of the countries to position themselves along a straight line implies that the automatic stabilization is of different magnitude among the EU countries. Therefore, the potency of the stabilizers depends not only on the structural characteristics of the country in question but also on the size of the output gap. In order to study the impact of the stabilizers net of the specific output gap the computations will make use of a common output gap. This will also allow for a comparison between the stabilizers of the countries. This methodological decision is justified because against the backdrop of high trade and financial integration of the EU member states the local character of the crises fades away and the cyclical fluctuations are largely diffused by the integration processes (Bobeva, D., D. Zlatinov, 2018, p. 123).

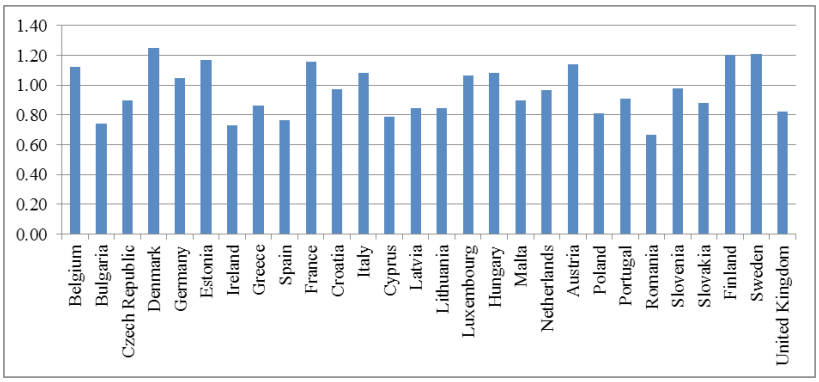


Source: AMECO, own calculations

Fig. 1. Variability of economic growth with or without the contribution of automatic stabilizers (AS) in EU-28 in 2007-2017

In 2009 the built-in stabilizers in the European countries compared to the average EU level are presented in fig. 2. At the beginning of the crisis Romania is the country with lowest budget stabilizers compared to the average level – around 67%. The countries with a little bit stronger but still well below the average level stabilizers are Ireland and Bulgaria – approximately 73% and 74%. In contrast with them the built-in stabilization in Denmark, Sweden and Finland is the strongest as it reaches 125%, 120,6% and 120,5% of the average level. The results reveal that the automatic stabilizers differ significantly within Europe (Dolls, Fuest and Peichl, 2012, p. 7). It is of great importance to check whether

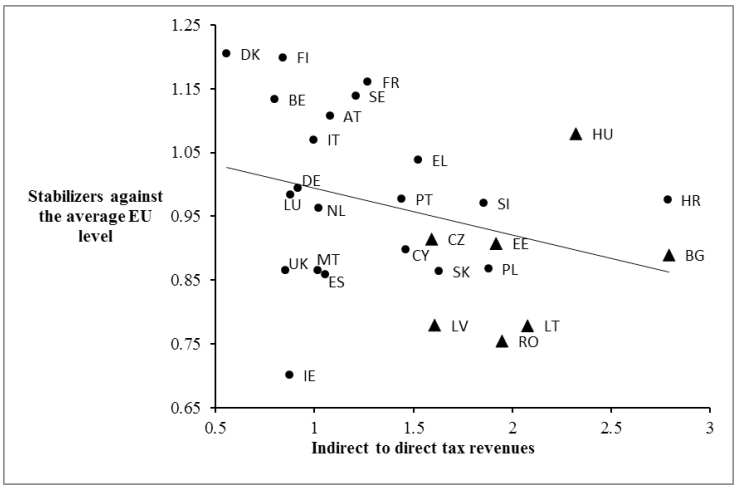
the different sizes of the stabilizers among the EU countries could be due to certain features of their tax systems.



Source: AMECO, own calculations

Fig. 2. Automatic budget stabilizers in comparison with the average EU-28 level in 2009

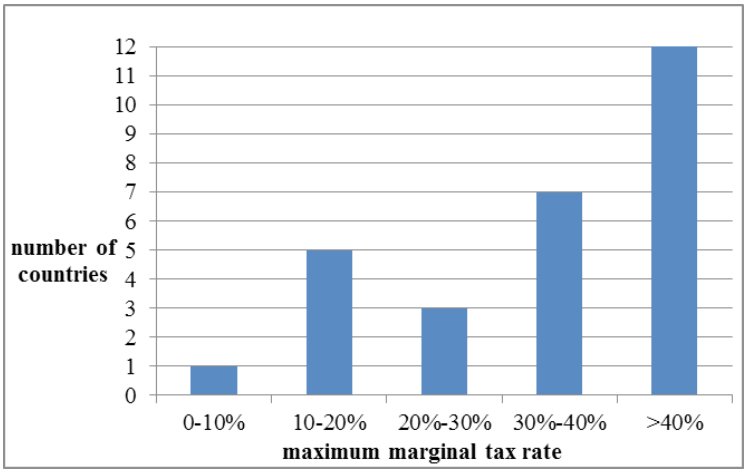
A feasible explanation for the differentiation of the automatic stabilization among the EU countries could be found in the revenue structure. In fig. 3 the built-in stabilizers of a given country in a ratio to the average EU-28 level are presented against the ratios of the indirect tax revenues to direct tax revenues. The relative strength of the stabilizers is found to be inversely related to the ratio between indirect and direct tax revenues. Hence, the countries which rely more on indirect taxes as a main revenue source have weaker nondiscretionary fiscal policy compared to the EU level. Such inferences are also made by Velichkov (2016, p. 266) who concludes that the structural characteristics of the tax systems in Bulgaria, Estonia, Latvia and Lithuania (BELL) account for their weak automatic stabilization. Notably, the budget stabilizers in Estonia seem to exceed the ones of Bulgaria, Latvia and Lithuania which could be explained by the higher revenue ratio of the country from 2009 onwards. However, Baunsgaard and Symansky (2009, p. 8) argue that the increase in the share of direct taxes will induce an insignificant rise in the strength of automatic stabilizers for G20 due to efficiency and revenue considerations.



Source: AMECO, own calculations

Fig. 3. Automatic budget stabilizers in comparison with the average EU-28 level and revenue structure in 2007-2017

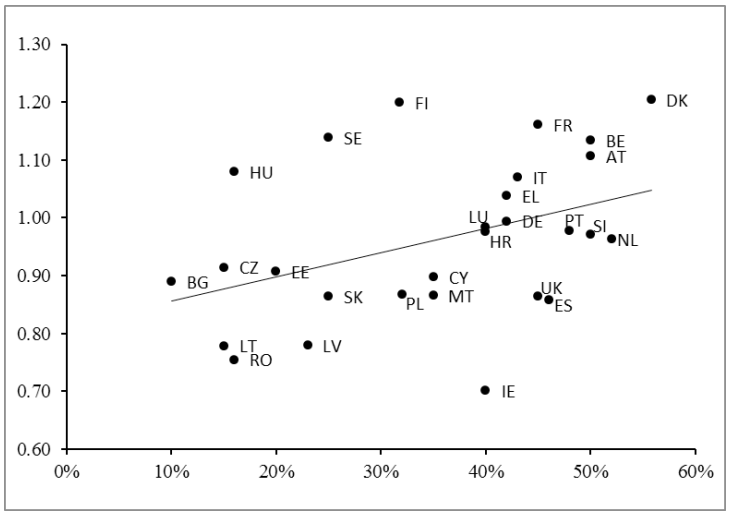
Another possible reason for the differentiation in the built-in stabilizers might be the applied income taxation. Only Bulgaria, Czech Republic, Latvia, Lithuania, Hungary and Romania have adopted a proportional tax on individual incomes. These countries are depicted with a triangular marker in fig. 3. With the exclusion of Hungary, the rest of the countries have weaker stabilizers than the EU level. Hungary is rather an exception in the group of countries with a flat tax, because prior to 2011 Hungary levied a tax of 18% and 36% on the incomes below and above 5270 € and it implemented a flat tax subsequently. The countries with progressive taxation such as Denmark, Finland and France are characterized by stronger stabilizers than the average EU level. To this group one can also add Sweden, Belgium, Austria and Italy. As a whole only 9 countries have stronger relative stabilizers than the EU level. Those of them which have not implemented a personal allowance are Greece, Italy and Hungary. Therefore the personal allowance alone is not a mandatory condition for stronger than the average stabilizers.



Source: EC (2015)

Fig. 4. Frequency distribution of the EU countries in relation to the maximum marginal tax rate in 2015

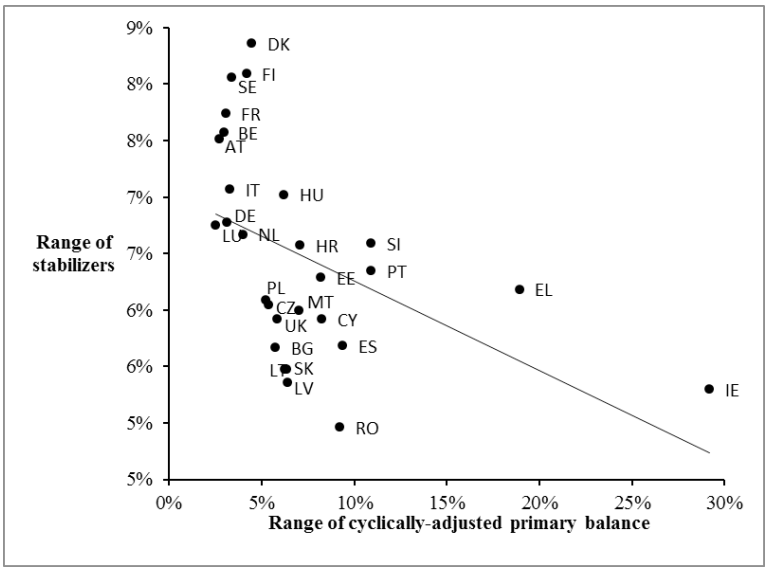
The maximum marginal tax rate is also of great importance for the strength of the stabilizers. In fig. 4 the majority of the EU countries levy a maximum marginal tax rate above 40%. The highest rates of 56% and 52% are applied by Denmark and the Netherlands, while the tax rate is 50% in Belgium, Austria and Slovenia. The countries with a proportional tax have substantially lower tax rates – from 10% in Bulgaria to 23% in Latvia. Only 7 countries in the EU have implemented a flat tax. In the remaining countries with progressive taxation the higher marginal tax rates affect the automatic capability of the budget to dampen economic fluctuations. Fig. 5 provides evidence in favour of a positive relation between the maximum marginal tax rate and the strength of the stabilizers. The adequate determination of the tax brackets is likely to intensify the observed positive relation. For instance, progressive taxation could be less steep in the countries with larger income inequality and vice versa. A stronger influence of the tax progression could be achieved by adding a personal tax allowance. The tax structure could be adjusted in such a way that would enhance the budget stabilization of a country.



Source: EC (2015), AMECO, own calculations

Fig. 5. Relative automatic stabilization and maximum marginal tax rates in the EU countries in 2007-2017

And last but not least, of paramount importance for the unrestricted functioning of the budget stabilizers is the fiscal discipline in the EU context. According to the Stability and Growth Pact (SGP) the countries should strive to keep a balanced or positive budget in structural terms within the business cycle as they set a medium-term budget objective. The aim of this rule is to allow the budget stabilizers to exert a maximum countercyclical effect on the economic activity. In order to illustrate this idea a variability indicator of the fiscal position and the automatic stabilizers in 2007-2017 is constructed. The chosen statistical measure is the range. Fig. 6 depicts that the automatic stabilizers operate more freely in the countries which sustain the cyclically-adjusted primary balance within a moderate range.



Source: AMECO, own calculations

Fig. 6. Variability of the automatic stabilizers against the range of the fiscal position in the EU countries in 2007-2017

Although the fiscal stability promotes automatic stabilization, the accumulation of buffers and sound fiscal policy through the boom phase of the cycle may turn out be insufficient for the economic sustainability. Without structural reforms and stimulus to the economic competitiveness and flexibility the fiscal policy regardless of the degree of its prudency will fail to bolster the long-run economic performance (Bobeva, D., D. Zlatinov, 2018, p. 153)

Conclusion

The capability of the EU countries to suppress the economic cycle is not restricted only to the discretionary government intervention. The role of the budget stabilizers could be enhanced so that they generate more beneficial influence on the economy. The analysis unambiguously indicates that the measures to reinforce the stabilizers are well within the government's reach. The pursuit of stronger stabilizers could turn out to be easier if the EU countries rely more heavily on direct taxes as a main revenue source, that is, the tax burden could be shifted towards income taxation. All else being equal, the implementation of tax progressivity and the increase in the maximum marginal tax rate enhance the efficiency of the built-in stabilizers, while the presence of tax income allowance is not crucial for the strength of the stabilizers. The smooth operation of the stabilizers is largely helped by maintaining fiscal discipline implied by the Stability and Growth Pact.

Notes:

[1] The contribution of the automatic stabilizers to the economic growth is derived as the value of the stabilizers is multiplied by the revenue multiplier. This is allowed for by the used assumptions of unitary revenue elasticity and zero expenditure elasticity. By doing this, the calculations include the non-linear fiscal effects in the analysis.

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References:

Baunsgaard, T. and Symansky, S. A., (2009), Automatic Fiscal Stabilizers, SPN/09/23, IMF.
Blanchard, O. (2000), "Commentary", Economic Policy Review, Federal Reserve Bank of New York.
Bobeva, D., Zlatinov, D., (2018), Economic Development and Policy in Bulgaria: Evaluations and Expectations, Focus Topic: Ten Years since the Start of the Global Financial Economic Crisis – Lessons and Necessary Reforms, Annual Report 2018, Economic Research Institute at BAS, Gorex Press, Sofia.
Brunila, A., Buti, M., and In't Veld, J., (2002), Fiscal Policy in Europe: How Effective are Automatic Stabilisers? European Economy, Economic Papers 177.
Dolls, M., Fuest, C. and Peichl, A., (2012), Automatic Stabilization and Discretionary Fiscal Policy in the Financial Crisis, IZA Journal of Labor Policy, 1:4.
EC (2000), Public Finances in EMU – 2000, European Economy, 3.
EC (2015), Taxation trends in the European Union: Data for the EU Member States, Iceland and Norway, Eurostat Statistical Books.
Fatás, A., (2009), The Effectiveness of Automatic Stabilizers, Presentation, Workshop on Fiscal Policy, IMF, June 2, 2009.
Fatás, A. and Mihov, I., (2001), Government Size and Automatic Stabilisers: International and Intranational Evidence.
Fedelino, A., Ivanova, A. and Horton, M., (2009), Computing Cyclically Adjusted Balances and Automatic Stabilizers, IMF.
IMF (2009b), Global Economic Policies and Prospects, Note prepared for the Group of Twenty Meeting in London, March 13-14 2009.
In't Veld, J., Larch, M. and Vandeweyer, M., (2012), Automatic Fiscal Stabilisers: What they are and what they do, European Economy, Economic Papers 452.
Keen, M., Kim, Y. and Varsano, R. (2006), "The "Flat Tax(es)": Principles and Evidence", WP/06/218, IMF.

Mourre, G., Astarita, C. and Princen S. (2014), Adjusting the budget balance for the business cycle: the EU methodology, European Economy, Economic Papers 536
Mourre, G., Isbasoiu, G.-M., Paternoster, D. and Salto, M. (2013), The cyclically-adjusted budget balance used in the EU fiscal framework: an update, European Economy, Economic Papers 478.
Van den Noord, P. (2000), The Size and Role of Automatic Fiscal Stabilisers in the 1990s and beyond, OECD Economics Department Working Papers, No. 230. OECD, Paris.
Velichkov, N. (2016), Automatic budget stabilization in the BELL countries – Bulgaria, Estonia, Latvia and Lithuania, National conference proceedings "Economic challenges: growth, imbalances and sustainable development", pp. 262-269, UNWE, Sofia.

Appendix 1

Table 1. Income taxation and maximum marginal tax rates in the EU member states

	Abbreviation	type of income tax	personal allowance	maximum marginal tax rate
Austria	AT	progressive	+	50 %
Belgium	BE	progressive	+	50 %
Bulgaria	BG	flat	–	10%
Croatia	HR	progressive	+	40%
Cyprus	CY	progressive	+	35 %
Czech Republic	CZ	flat	+	15%
Denmark	DK	progressive	+	55,8%
Estonia	EE	flat	+	20%
Finland	FI	progressive	+	31.75 %
France	FR	progressive	+	45 %
Germany	DE	progressive	+	42 %
Greece	EL	progressive	–	42 %
Hungary	HU	flat	–	16%
Ireland	IE	progressive	+	40%
Italy	IT	progressive	–	43 %
Latvia	LV	flat	+	23%
Lithuania	LT	flat	+	15%
Luxemburg	LU	progressive	+	40 %

Malta	MT	progressive	+	35 %
The Netherlands	NL	progressive	–	52 %
Poland	PL	progressive	+	32%
Portugal	PT	progressive	+	48 %
Romania	RO	flat	+	16%
Slovakia	SK	progressive	+	25%
Slovenia	SI	progressive	+	50%
Spania	ES	progressive	+	46 %
Sweden	SE	progressive	+	25 %
United Kingdom	UK	progressive	+	45 %
Source: EC (2015)				

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Abstract

The capacity to flatten the economic cycle through the automatic stabilizers differs among the EU member states. The aim of this paper is to provide quantitative estimates of the different capabilities for automatic budget stabilization among the EU countries in 2007-2017. The paper provides evidence that the difference in the strength of the stabilizers among the EU countries could be attributed to certain features of their tax systems. Specifically, there have been outlined the dominant influence of the indirect taxes compared to that of the direct taxes in the budget structure, the type of the income taxation and the maximum marginal tax rate.

Key words: automatic stabilizers, business cycle, budget revenues, fiscal discipline

JEL: E62, E66, H61