

An approach of social policy in terms of macro-stabilisation function

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Abstract. *In general, fundamental opinions regarding macroeconomic stabilisation of an economy consider that (i) economy autocorrects itself and on the long term tends toward equilibrium and (ii) because of rigidities, the economy cannot correct by itself and it is necessary for the government to intervene, through anticyclical policies, and bring it to equilibrium. The automatic stabilisers are described as categories of government revenues and expenditures that adjust themselves to the cyclical changes of an economy – for example, as output decreases, revenue collection is reduced, while unemployment benefits increase. These changes will have a direct impact on business and household income. The effect of the automatic stabilisers depends on government size and the speed with which tax and expenditure answer to cyclical fluctuations. This article addresses the issue of automatic stabilisers and how social policy acts as a macro-stabilisation policy for the economy.*

Keywords: social policy, macro-stabilisation, automatic stabilisers.

JEL Classification: E20, E32, E52, E60, E62, E65, H12, H61, H62.

Introduction

There are two distinct forms of macro-stabilisation measures that political decision makers can implement in order to respond counter-cyclically and mitigate the fluctuations of the economic cycle. The first form makes use of automatic stabilisers, while the second type regards implementation of discretionary measures. The two categories are analysed in the following paragraphs.

According to different articles from literature (Dolls et al., 2010; Dolls et al., 2012; Blanchard, 2000; Baunsgaard and Symansky, 2009), the functioning of automatic stabilisers is usually dependent upon five important components of government revenue and expenditure, whose change mitigates the fluctuations of the economic cycle: (a) individual income tax; (b) corporate income tax (on profit or turnover); (c) social security contributions; (d) indirect tax (especially those on consumption, such as VAT and excise duties); (e) social protection expenditure (unemployment benefits, social assistance expenditures).

These categories of budgetary revenues and expenditures, listed above, are considered automatic because they do not require any discretionary decision in order for them to produce effects when the economy is affected by a shock that deviates it from its potential trajectory. They automatically adjust themselves depending on the cyclical position of the economy and modify in such a way that they stabilise the economy's cyclical fluctuations and absorb (partially or totally) the output gap – inflationary or recessionary – which characterises the economy at a certain point.

For example, if an economy falls into recession and the GDP reduces, this leads to a diminishment of budgetary revenue collection, while expenditure with unemployment benefits increases due to a rising unemployment rate, a consequence of the drop in aggregate output. Additionally, a rise in social assistance expenditure may be noticed, if the need to support households with low income arises (support for heating, minimum income schemes, etc.).

Thus, through changes at fiscal-budgetary level, authorities react *anti-cyclically* and have a direct impact on company revenue and available household income, showing support for the aggregate demand. In general, it is considered that the effectiveness and efficiency of the automatic stabilisers can only be measured in relation with the objectives set by decision makers and especially in relation with the effects that arise as a consequence to change in the influenced variables.

Regarding **discretionary measures**, these represent those measures that, in order for them to be implemented, explicitly imply a discretionary decision on the decision makers' part. Still, as different authors note, the definition offered by literature can encompass a significant group of fiscal-budgetary measures, from increasing allocated funds for investment in road and rail transport infrastructure to investments in education, from measures leading to a rise in pensions and social assistance benefits, provided on the basis of livelihood inquiry, to implementing government programmes that give support to a particular industry.

An element worth noticing in the case of discretionary measures refers to the fact that these present some disadvantages such as, for example, the speed with which the diagnosis of the problem needing an answer is achieved or the speed with which the

decision-making process is followed and effective measure implementation is concluded. Implementation lag problems are always present in the case of discretionary measures (Jan in't Veld et al., 2012). The literature that deals with discretionary measures identifies three categories of measures, summarised in the following table.

Table 1. *Categories of discretionary measures*

<p>1 <i>The first category</i> consists of the so-called semiautomatic stabilisers. These decisions can be assimilated to a semiautomatic policy adjustment and it captures a <i>continuum</i> in order to improve fiscal-budgetary policy decisions by considering the latest additional information (Bhadwal et al., 2009).</p> <p>Discretionary measures are considered to be semiautomatic when decisions are taken on the basis of objective external parameters – like, for example, change in unemployment rate or GDP. The moment a certain limit, considered acceptable, is exceeded, decision makers should automatically establish specific measures to implement.</p>	<p>2 <i>The second category</i> consists of those discretionary measures that are correlated with automatic stabilisers. These represent discretionary decisions, but often are just additional temporary adjustments of already existing automatic stabilising mechanisms. Therefore this category is based on the same five components of automatic stabilisers mentioned in the article's introduction.</p> <p>These measures are more difficult to implement than semiautomatic stabilisers, but less difficult than in the case of employing new, completely discretionary measures, because the implementing systems of these measures are already active. The only thing that appears to be discretionary refers to (re)defining levels of tax rates or coverage areas.</p>	<p>3 <i>The third category</i>, of fully discretionary measures, is not based on the expansion or adjustment of already existing stabilising programmes.</p> <p>They are completely new and must be constructed entirely, which means that they must pass through every stage of the decision-making process.</p> <p>Therefore, it is considered that more time is needed for these measures to be designed, approved and implemented.</p>
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Source: Processing after Bhadwal et al. (2009) and Dolls et al. (2010).

In this article we address the automatic stabilisers issue and the way in which social policy acts as a macro-stabilisation tool for the economy. We also pursue how this policy manages to absorb potential shocks that may affect a national or regional economy.

This paper consists of three main parts. *The first part* comprises of a presentation of macro-stabilisation policies, with the help of which a country can minimize the risk of manifestation of significant economic and social shocks. We recur mostly to countries that have had financing agreements with international financing institutions (International Monetary Fund, World Bank, European Commission, European Central Bank). *The second part* presents from a conceptual viewpoint what automatic stabilisers involve and what are their main advantages and limitations. This part also introduces the determining factors that favour the smooth functioning of automatic stabilisers.

The third part analyses, with the help of a fixed-effect panel-type data model, in which all 28 EU member states were included, whether social policy (quantified by the level of social protection benefits, except those in kind) acted anti-cyclically during 1996-2013, through the way it influenced the deviation of the real GDP from the potential GDP of the EU member states. It also examines how unemployment expenditure in member states answers to changes of relevant independent variables, like the number of unemployed and economic growth rate.

1. Macro-stabilisation policies

High volatility of indices during an economic crisis and, subsequently, during recession generates a high probability of significant shock manifestation at regional level and, later, at global level. The existence of potential contagious effects makes the macro-stabilisation issue gain great importance for the economic policy decision makers.

According to several authors, the objectives of the stabilisation policy focus firstly on a stable growth rate of GDP in real terms (usually meaning a real GDP growth rate as close as possible to that of the potential GDP), then on a relatively stable price level, as well as on a low unemployment level.

At the same time, macroeconomic stability – both from the nominal indicators' perspective (such as inflation rate, deficit level, public and private debt level, funding level), as well as from the real indicators' perspective, which directly focus on the standard of living of the population (per capita income, unemployment rate) – remains rather a goal in a macroeconomic context of great volatility and in which the resumption of a sustainable economic growth has proven to be more difficult than anticipated. Furthermore, identifying those economic and social risks that can cause significant shocks at national economy level and afterwards, through the contagion effect, at regional level, represents a need of utmost urgency.

Most times, it is suggested that macroeconomic stability is probably the most important factor in long term economic growth. No country or no economy has ever achieved high growth rates in an environment characterised by high unemployment or high inflation rates, rather high output volatility associated with financial crises and external shocks usually cause a lasting negative impact on economic growth (Park, 2012).

In the case of the EU, the potential GDP growth rate can be noticed to have halved as a result of the financial crisis and the effects of recession. The recession's effects are reflected in the unfavourable development of indicators such as: long term increase of the unemployment rate; loss of human capital; increase of youth unemployment rate and in the number of youths not found in employment, education or training programmes (the so-called *NEETs*), factors that contributed to the underutilisation of the workforce; likewise the reduction in gross fixed capital formation and the decline in attracted foreign direct investment levels when compared to the pre-crisis period, especially in Central and Eastern European countries, also played a role in this unfavourable evolution.

Many European countries enrolled in recent years in financing agreements with international financing institutions because of the persisting economic problems that these countries were facing, even if the problems were greatly alleviated. The elements that have driven member states to reach to economic programmes with international financing institutions are different, from balance of payment difficulties to banking crises and excessive sovereign debts. Thus, the first programmes of 2008-2009 were signed with emerging countries which were confronted with capital outflows in the context of an economic crisis and difficulties in financing their current account deficits (Latvia and Hungary in 2008, Romania in 2009). A number of similar issues related to this research

were discussed in the article "Fiscal Transparency in the European Union", by economist Adam Alexandra.

In this article, we consider that, in general, macro-stabilisation policies are built upon either a set of rules, which act automatically and with different degrees of flexibility, or discretionary economic measures implemented by decision makers. In the article, we focus on the role of automatic stabilisers and the role of social policy as a stabilisation tool. However, researchers demonstrate through a series of current studies that economic particularities are defining in order to decide the optimal macroeconomic policy types (*rule-based* or *discretionary*), while fiscal policy plays a vital role in identifying the *optimal* monetary policy regime when deciding to construct a policy mix.

Hence, in uncertain times, characterised by high volatility of economic variables, discretionary policies often have greater efficiency in comparison with macroeconomic policies based upon strict rules. As such, before deciding on the optimality of the macroeconomic policies, the existent fiscal or monetary dominance must be determined within the studied economy (Kirsanova, le Roux, 2013).

The existence of *anticyclical* macro-stabilisation policies, firmly defined and correctly implemented, is necessary so that they would ensure proper management of external and internal shocks and, afterwards, would absorb their effects and would restore the premises of sustainable economic growth.

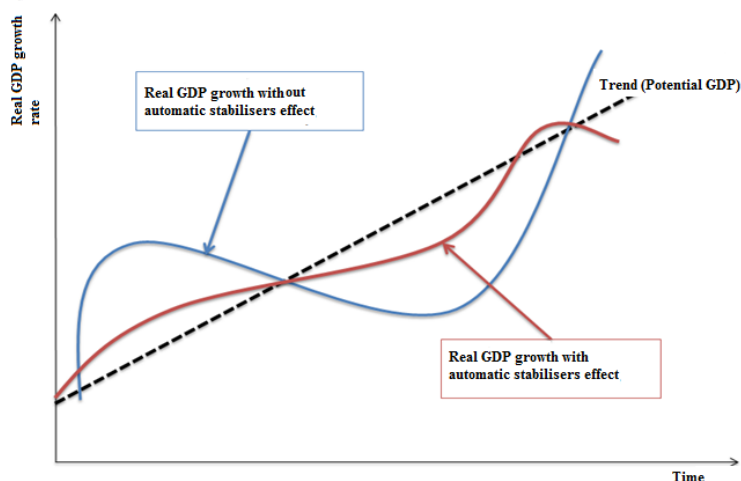
2. Automatic stabilisers. Conceptual elements.

It is generally considered that automatic stabilisers reflect certain elements of budgetary revenue and expenditure that automatically adjust to different cyclical changes in the economy.

For example, in an economy where aggregate output drops, collection of tax revenues will decrease, while unemployment benefits will increase as companies will lay off staff. These changes will also have a direct impact on business and household income. In this context, in literature it is stated that the (macro) economic effect of automatic stabilisers will depend both on government size (generally expressed as share of government spending in GDP), as well as the speed (*sensitivity*) with which different types of taxes and budgetary expenditures respond to cyclical fluctuations of the economy.

In this case it is considered that an important determinant of the effect of automatic stabilisers is the *progressive* characteristic of the existing fiscal system within a national economy. For example, during a period of inflationary gap, when disposable individual income tends to increase and to lead to a further growth in aggregate demand, a progressive tax system mitigates the intensification of the economic cycle phase, as people move to a higher tax threshold and available income will increase less than the increase in gross income.

Therefore, from the perspective of the overall effect on public finances, the free operation of automatic stabilisers results in budgetary surpluses when the economy is registering an inflationary output gap, while the reverse situation should result in an increase in the budget deficit when the economy enters into a recessionary output gap.

Figure 1. *Fluctuations in real GDP and the effects of automatic stabilisers*

It is considered that as a consequence of the action of automatic stabilisers, the fiscal-budgetary policy offers an adequate response (counter-cyclic) when the output gap is caused by the occurrence of a shock on the aggregate demand side (Baunsgaard, Symansky, 2009).

However, when the economy is confronted with shocks that act upon the aggregate supply, eliminating (or reducing the magnitude of) the gap resulted from the free operation of automatic stabilisers at aggregate demand level will only have inflationary consequences. This statement is also supported by Blanchard (2000), who mentions that in the case of a supply shock, the effect of the action of automatic stabilisers will only lead to a slowdown of the convergence toward the new potential GDP. He adds that in order to absorb the shock, an adjustment is necessary through the implementation of some discretionary fiscal policy measures.

Another interesting debate is the one regarding the dosage between discretionary measures and automatic stabilisers when the implementation of anticyclical fiscal-budgetary policies is desired. When an *optimal* fiscal-budgetary response is constructed by authorities, how automatic stabilisers are estimated is very important. Additionally, a distinction between the effects generated by discretionary measures and those generated by automatic stabilisers must be made. Thus, when decision makers want to act counter-cyclically, they need to estimate what percentage of the planned fiscal expansion comes from the free operation of stabilisers and what percentage is represented by the necessity to take discretionary policy measures (Baunsgaard and Symansky, 2009).

The most important advantage of automatic stabilisers, as opposed to adopting discretionary fiscal policies, is embodied by the fact that they are implemented in an opportune and gradual way, as different types of taxes and expenditures react in a counter-cyclical manner to change in (macro) economic conditions. As their functioning does not require any decision from fiscal authorities, the effects of lags in taking decisions and implementing them are minimised.

In addition, from the perspective of fiscal sustainability, the automatic character of these categories of fiscal revenue and budgetary expenditure offer a predominantly counter-cyclic fiscal-budgetary framework: periods of fiscal relaxation, which characterise economic recession phases, are followed by periods of fiscal policy tightening in the expansion phase of the economic cycle. In the first case it can be added that the action of automatic stabilisers can also support discretionary fiscal measures for aggregate demand stimulation and recession exit.

In the last decades there seems to be a more and more obvious agreement in literature on increasing the size and role of automatic stabilisers. This is valid not only for developed countries, but also for low-income and developing countries, where authorities prefer to use pro-cyclic fiscal-budgetary policies (Kaminsky et al., 2004; Ilzetzki and Vegh, 2008). In this context, if the pro-cyclicality shown in different studies is generated by adopting discretionary fiscal policies, then an increase in automatic stabilisers will provide support by strengthening the counter-cyclic character of the policy.

In Figure 2, found below, we present the relationship between government size (measured as share of government spending in GDP) and GDP growth rate volatility (measured as the standard deviation of the GDP growth rate) amongst EU countries. The analysis counts for the 1995-2013 period and includes all 28 EU member states.

For all 28 EU member countries, the descriptive statistics of the two indicators are presented in Table 2. A great heterogeneity is observed for the level of government spending within the analysed time period. The share of government expenditure varied from a minimal value of 31.1% of GDP (reached by Ireland in 2000) to 65.5% of GDP (also found in Ireland, in 2010, resulted from additional expenditures caused by the need to support the financial and banking sector).

Table 2. Descriptive statistics regarding economic growth and share of government spending in GDP (aggregate level for EU28 member countries)

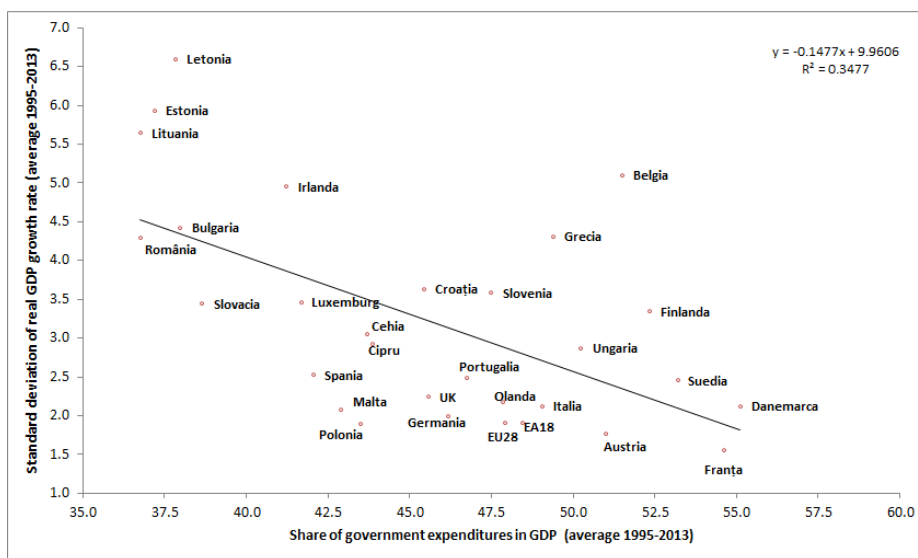
	Real GDP growth rate	Government expenditures (% GDP)
Mean	2.59	45.36
Median	2.90	45.20
Maximum	22.9	65.50
Minimum	-17.7	31.10
Std. Dev.	3.69	6.63
Skewness	-0.65	0.16
Kurtosis	7.97	2.45
Jarque-Bera	568.05	8.905394
Probability	0.000000	0.011647
Sum	1337.60	23815.30
Sum Sq. Dev.	7002.449	23002.63
Observations	516	525
Cross sections	28	28

Source: Own work on Eurostat data in Eviews 5 program, October 2014.

With regard to economic growth, its values also registered a strong heterogeneity, from a 22.9% surge (Belgium, 1995) to a 17.7% drop (Latvia, 2009). Among the member countries, the largest standard deviations of the real GDP growth rate are generally found in the Baltic States (Lithuania, Latvia and Estonia), Ireland, Romania and Bulgaria.

Still, the hypothesis which states that countries with a higher share of government spending in GDP register a lower volatility of the growth rate appears to be valid in the case of the EU member countries, as shown in Figure 2. The intensity of the link between the two variables, measured by the value of the R^2 index, is of 34.7%.

Figure 2. The relationship between government size in GDP and output volatility level (standard deviation of the real GDP growth rate), between 1995-2013



Data source: own work on Eurostat data, October 2014.

On the other hand, even if in literature some evident advantages of using automatic stabilisers are promoted, there still are some significant limitations. The limitations refer first of all to government constraints regarding the fiscal space. This fact is especially important in the case of EU member countries, as the need to achieve the *Medium Term Objective*, and the structural budget deficit targets respectively, set forth through the *Fiscal Compact*, considerably reduces manoeuvre space for most governments. Moreover, financing capacity and public debt solvency may compel a country to let automatic stabilisers operate freely.

The constraints listed above highlight again the fact that it is extremely important for authorities to adopt prudent fiscal-budgetary policies in periods of expansion, especially in the case of *emerging* or developing economies, where there usually are more significant obstacles in financing – it is considered that internal debt markets are underdeveloped and these countries have limited access to external financing. In the case of emerging countries, empirical evidence regarding the pro-cyclical position of the fiscal policy can be accounted to the existence of serious constraints in public debt financing and sustainability, which can expose them to severe fiscal adjustment programmes during recession periods (Baunsgaard, Symansky, 2009).

As mentioned before, another limitation arises when a country is confronted with large supply shocks. In this case, it is considered that adopting an expansionary fiscal policy

exclusively by leaving automatic stabilisers operate freely will not be adequate, as this political decision only generates inflation.

Furthermore, connections can be made with the effects of other fiscal policy objectives. This fact becomes relevant especially in situations where increasing automatic stabilisers is done through a rise in tax level (and expenditure, respectively). Even if it is generally admitted that *i*) a larger government size (as in a greater share of government spending in GDP) and *ii*) a more pronounced degree of *progressiveness* of the tax system (van den Noord, 2000) are factors that can help achieve objectives of equity through redistribution and allocation of social benefits, it can be mentioned that beyond a certain level, a larger government size and an increase in taxation can generate *efficiency costs* in the economy.

Thus, even if a higher level of government spending in GDP can lead to less volatility (as observed in Figure 2), above a certain level of government size negative effects may also appear. There are numerous studies that analyse this situation, such as Gali (1994), Fatas and Mihov (1999), Buti et al.(2003) or Debrun et al.(2008), who consider that once public expenditure size approaches 40% of GDP, a 1% increase in government spending leads to a reduction in output growth volatility of less than 0.1%. Finally, an important conclusion is that the effect of automatic stabilisers should grow larger without resorting to an increase in government size, particularly through the implementation of adequate fiscal rules (Dolls et al., 2012).

3. Social policy as a macro-stabilisation policy

(Macro) economic stabilisation is primarily associated with the ability of taxes and government transfers to automatically stabilise individual income, and consequently consumption, especially when an economy enters recession. According to the European Commission (2013), social policies contribute to avoiding or mitigating the effects of risks which individuals are usually faced with both during the active period, as well as afterwards. Social policies come to the aid of individuals especially through education and training, also through health care and pension systems that ensure an adequate income. It can be said that social policies have *three main functions*: social *investment* function, *protection* function, and (macro) *stabilisation* function⁽¹⁾.

This paper examines social policy from the perspective of the third named function. The stabilising character of the fiscal and social security systems is based upon the following mechanism: if in the economy a negative shock manifests itself, which affects the population's disposable income, the tax system and social benefits allocation system should react more than proportionally, so that *available individual income* may be affected less than proportionally to the shock.

Several revenue and expenditure components of the government budget are influenced by the macroeconomic position in ways that lead to a *smoothing* of the business cycle. In this respect, progressive income tax systems and unemployment benefits are the most relevant examples.

Additionally, automatic stabilisation can have effects not only on disposable household/individual income, but also on GDP (Eichhorst et al., 2010). Thus, if during a period of recession, fewer taxes/duties are collected and more transfers are allotted to individuals (unemployment benefits, social assistance expenditures, etc.), this should support available household income and therefore counteract the reduction in aggregate demand.

An important element from the perspective of social effects is the magnitude with which automatic stabilisers achieve in absorbing the impact a shock has on gross income and, afterwards, on household demand. For this to happen, according to literature, *two factors* are relevant.

- A. How the tax and transfer systems are built determines the degree in which a positive or negative shock on gross income is translated into a change in disposable income.
- B. The connection between current disposable income and current demand for goods and services.

In the situation presented at point *B*, if there is a negative shock on income that is perceived as transitory and the actual demand mainly depends on the permanent income level, and if households can borrow or can call upon their previous savings, the aggregate demand will not change. In this case, the impact of automatic stabilisers on actual demand will be equal to zero. Still, the situation is different if households are facing liquidity problems. In this latter case, their current expenditure still depends on current disposable income and the role of automatic stabilisers is important in supporting aggregate demand.

In order to estimate automatic stabilisation, different methods are used in literature. One of them is *normalised tax change* and it was introduced by *Auerbach and Feenberg* (2000). Starting from this method, *Dolls et al.* (2010) defines the *income stabilisation coefficient*, which shows how change in *market income* leads to changes in disposable income through changes in the level of duty and individual income tax payments. The concept of *normalised tax change* was extended to include social security contributions and household allocated transfers, such as unemployment benefits, but also other fiscal instruments used by authorities, for instance tax credits. In the *Dolls et al.* (2010) study, the disposable income stabilisation estimate is done for the pre-crisis period (before 2008), and the simulation model includes the USA and 19 European states (EU members). The model charted two types of significant shocks: (1) a shock on income and (2) a shock on unemployment.

The results of the study show that in the case of an income shock, approximately 38% of such a shock would be absorbed by automatic stabilisers in EU countries, while in the USA the shock would be absorbed at a rate of 32%. Nevertheless, the difference of only 6 p.p. is surprising considering that usually EU member countries have substantially higher automatic stabilisers than the USA.

In the second case, when a shock manifests on unemployment, the difference between the USA and the EU is even bigger. Results show that the automatic stabilisers of analysed

EU member countries absorb on average 47% of the shock, while in the USA the stabilising effect is of only 34%. This difference can be explained by the important role of unemployment benefits in Europe, which significantly contribute to stabilising the income of the unemployed in this scenario.

However, if we focus the analysis on the results attained in the case of EU countries, the values of the stabilisation coefficient vary considerably. When the shock on income is analysed, the highest stabilisation coefficient is found in Denmark, where automatic stabilisers absorb 56% of the shock. Denmark is followed by countries like Belgium (53%) and Germany (48%), but also Hungary (48%). The lowest values are found in Estonia (25%) – most probably due to the existing flat rate for individual income tax, of 21%⁽²⁾ respectively, followed by Spain (28%) and Greece (29%). With the exception of France, according to the study's results, income tax seems to have a more powerful role in stabilisation than social security contributions.

On the other hand, in the case of a shock on unemployment, the stabilisation coefficients are higher for most countries. Again, the highest values are found in Denmark (82%), followed by Sweden (68%), Germany (62%), Belgium (61%) and Luxemburg (59%). At the other end of the scale, there are countries with values lower than those obtained by the USA (34%). Here again we can mention Estonia (23%), and also Italy (31%) and Poland (33%).

Another study that estimates the effect of automatic stabilisers is that of Cohen and Follette (2000). Following their analysis, the authors conclude that in the USA the stabilisers smooth fluctuations in output by approximately 10%, while Follette and Lutz (2010) show that there is a stabilisation of approximately 10% after four quarters and of 20% after eight quarters.

Likewise, also regarding the USA economy, Auerbach and Feenberg (2000) estimate that automatic stabilisers compensate around 8% of the cyclical fluctuations in output. Similarly, Meyermans (2002) shows that, after a shock on aggregate demand, GDP stabilisation is of only 11% in the Eurozone and 20% in the USA.

For the Eurozone, *Barrel et al.* (2002) estimates the stabilisation effect at 9% when only the tax system and the allocated unemployment benefits are taken into consideration. In *Barrell and Pina* (2004)'s study this effect is re-estimated, resulting in an increase to 11%.

Alternatively, *Dolls et al.* (2012) show that automatic stabilisers generate an increase in demand stabilisation for income shocks of 4% to 22% in the EU, depending on how much liquidity difficulties are individuals and households confronted with. For the USA, this stabilisation varies between 6% and 17%.

Another interesting study is that of *Brunilla et al.* (2003), who affirm that the effectiveness and efficiency of automatic stabilisers depend on the type of shock affecting the economy, distinguishing between two types of shocks: private consumption shocks and investment shocks. The authors estimate that in the Eurozone a private consumption shock is offset between 20% and 30% through the tax system and allocated unemployment benefits, while in the case of a private investment shock, this compensation seems to be of only 3% to 10%.

The importance of stabilisation depending on the type of perceived shock is also confirmed by Todter and Scharnagl (2004), who make an analysis on developed economies at global level. Their analysis highlights that in some European countries (Germany, Holland, France, Great Britain, Italy), but also in Japan and the USA, a shock on consumption is better absorbed than shocks on other components of demand, and the strength to mitigate fluctuations is more or less the same in these countries, with the exception of Japan, where automatic stabilisers prove themselves to be significantly more efficient.

Still, the studies aforementioned differ substantially (e.g. different simulation methods considered, different definitions of automatic stabilisers) and it is obvious that results obtained starting from different assumptions cannot be compared in an adequate manner.

Focusing on a certain region of the EU, Dolls et al. (2010) state that countries in Eastern and Southern Europe are characterised by rather reduced automatic stabilisers, and they find several explanations to this fact. A first reason could be that countries with lower per capita income tend to have smaller public sectors. Furthermore, it could be added that the tax systems are characterised by a lower degree of progressiveness, sometimes caused by the countries' desire to become more attractive for investors. From the perspective of the tax system's less progressive character, the authors specify that weaker automatic stabilisers found in Eastern and Southern Europe present a potential unintended adverse effect of low demand for government intervention, including redistribution. Another plausible explanation forwarded by the authors is that small and more open economies have weaker automatic stabilisers because domestic demand is satisfied through imports of goods and services from other countries.

On the other hand, they argue that countries with stronger automatic stabilisers have been relatively more resilient during the crisis, in terms of output volatility, while countries with weaker automatic stabilisers registered major economic downfalls and unemployment surges.

4. The econometric model, results and interpretation

In order to analyse the social policy's contribution to the stabilisation of the output gap, a fixed-effect panel-type analysis was done, where the dependent variable is represented by the deviation of real GDP to potential GDP for the 28 member states of the EU.

The data is of annual frequency and focuses on the period between 1996 and 2013. The sources of the data are the Annual Macro-Economic database (AMECO) and Eurostat databases, while econometric processing was done with the help of the Eviews 5 program. The explicative variables are the GDP deviation in the previous period, gross disposable per capita income and social security benefits, except those in kind.

The designed model is of the following form:

$$outputgap_t = c + \alpha * outputgap_{t-1} + \beta * venit_t + \mu * protsoc_t + \varepsilon_t$$

Where:

outputgap = deviation of real GDP to potential GDP

venit = percentage change in gross disposable per capita income

$protsoc$ = percentage change in allocated social security benefits, except those in kind, in EU member countries

c = constant

ε = residual error

α, β, μ = coefficients corresponding to the explicative variables

Table 3 shows the results obtained through panel data processing in Eviews. Synthetically, the regression with the resulted coefficients is as follows:

$$outputgap_t = -0.93 + 0.75 * outputgap_{t-1} + 0.34 * venit_t - 0.13 * protsoc_t$$

It can be noticed that, during the analysed period, an increase in social protection benefits generates a counter-cyclical effect and a reaction opposite to the deviation of real GDP to potential GDP. Thus, for a 1% increase in social protection expenditure, real GDP deviation is reduced by 0.13%. Moreover, any increase in income leads to a positive real GDP deviation of 0.34%.

The coefficient found for the output gap in this regression is remarkable, as it shows that there is a significant persistence, of 75%, of the GDP deviation in the previous period against the GDP deviation of the current period.

All coefficients are statistically representative with significance thresholds below 1%, and the explanatory power of the designed model is of 79.8%, which indicates that the selected variables explain in a significant proportion the change in the endogenous variable.

Table 3. Results for model 1

Dependent Variable: OUTPUTGAP				
Method: Panel Least Squares				
Date: 10/22/14 Time: 16:26				
Sample (adjusted): 1996 2013				
Cross-sections included: 28				
Total panel (unbalanced) observations: 420				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.927715	0.103812	-8.936450	0.0000
OUTPUTGAP(-1)	0.751678	0.027976	26.86856	0.0000
VENIT	0.341266	0.014023	24.33568	0.0000
PROTSOC	-0.129939	0.014958	-8.687070	0.0000
Effects Specification				
Cross-section fixed (dummy variables)				
AUS	0.309319			
BEL	0.593428			
BULG	-0.770559			
CRO	0.253646			
CYP	1.193623			
CZE	-0.253909			
DNK	0.119420			
EST	0.459133			
FIN	0.136990			
FRA	0.693820			
GER	0.296634			
GRE	-1.189027			
IRL	0.343988			
ITA	0.262873			
LET	-1.741472			
LIT	-1.184343			
LUX	0.680015			
MAL	0.118810			

OLD	0.001920		
POL	-0.302821		
PORT	0.438685		
ROM	-0.986199		
SLK	-1.094422		
SLOV	0.165133		
SPA	0.148395		
SWE	-0.242378		
UK	-0.050115		
UNG	-0.342689		
R-squared	0.798307	Mean dependent var	0.064952
Adjusted R-squared	0.782753	S.D. dependent var	3.070951
S.E. of regression	1.431364	Akaike info criterion	3.626077
Sum squared resid	796.9848	Schwarz criterion	3.924286
Log likelihood	-730.4762	F-statistic	51.32256
Durbin-Watson stat	1.718266	Prob(F-statistic)	0.000000

Source: Own work by using Eviews 5 on Eurostat and AMECO data, October 2014.

Additionally, we constructed a second regression for this article in order to estimate how unemployment expenditure changes depending on the change in unemployed number and real GDP growth rate, presented below:

$$Chelt\text{șomaj}_t = c + \alpha * nr\text{șomeri}_t + \beta * cre\text{șterepib}_t + \varepsilon$$

Where:

Cheltșomaj = growth rate of unemployment benefits expenditure

Nrșomeri = growth rate of average annual number of unemployed

Creșterepib = growth rate of real GDP

c = constant

ε = residual error

α, β = coefficients corresponding to the explicative variables

In line with the conclusions found in literature, we consider unemployment expenditure to have an important stabilising effect, being the most sensitive category of social protection spending to the economy's cyclical fluctuations. The results obtained are as follows:

$$Cheltsomaj_t = 7.68 + 0.55 * nrsomeri_t - 1 * cresterpib_t$$

Thus, the results of the model built are consistent with economic theory, both in the case of the relationship between unemployed number and unemployment expenditure, as well as in the case of the connection between GDP growth and unemployment expenditure. It shows that a 1% increase in unemployed number leads to a rise in unemployment expenditure in EU member countries of a little more than half percentage point (0.55%). On the other hand, it can be noticed that one of the most important factors that can lead to a decrease in unemployment, and consequently to countries reducing expenditure with unemployment benefits, is real GDP growth. According to the model, a 1% increase in GDP generates a proportional reduction in unemployment expenditure.

The ordinary coefficients are statistically significant, with significance thresholds between 1% and 5%, while the explanatory power of the model is 42%, which indicates that other variables are necessary in order to explain the change in the dependent variable.

Table 3. Results for model 2

Dependent Variable: CHELTSOMAJ				
Method: Panel Least Squares				
Date: 10/21/14 Time: 00:16				
Sample (adjusted): 1996 2012				
Periods included: 17				
Cross-sections included: 28				
Total panel (unbalanced) observations: 413				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.680637	1.540961	4.984317	0.0000
NRSOMERI	0.552430	0.077603	7.118628	0.0000
CRESTEREPIB	-1.017269	0.431918	-2.355238	0.0190
Effects Specification				
Cross-section fixed (dummy variables)				
AUS	-3.720703			
BEL	-1.868708			
BULG	13.91132			
CRO	-3.301452			
CYP	-3.441023			
CZE	5.023357			
DNK	-7.990092			
EST	29.75077			
FIN	-3.477847			
FRA	-3.663274			
GER	-7.030416			
GRE	-1.875029			
IRL	3.426932			
ITA	-1.300901			
LET	6.805355			
LIT	9.741038			
LUX	3.366665			
MAL	3.158886			
OLD	-4.438415			
POL	-4.625925			
PORT	-1.523378			
ROM	-1.433205			
SLK	9.403940			
SLOV	-1.837609			
SPA	-2.137957			
SWE	-6.388872			
UK	-5.057204			
UNG	-5.297895			
R-squared	0.423616	Mean dependent var		6.755989
Adjusted R-squared	0.379973	S.D. dependent var		23.54761
S.E. of regression	18.54181	Akaike info criterion		8.747800
Sum squared resid	131674.9	Schwarz criterion		9.040060
Log likelihood	-1776.421	Hannan-Quinn criter.		8.863392
F-statistic	9.706457	Durbin-Watson stat		1.718655
Prob(F-statistic)	0.000000			

Source: Own work by using Eviews 5 on Eurostat and AMECO data, October 2014.

5. Conclusions

In this article we addressed the issue of automatic stabilisers and how social policy acts as a macro-stabilisation tool for the economy. Moreover, we pursued throughout the analysis how this policy achieves to absorb potential shocks that may affect a national or a regional economy.

In general, fundamental opinions regarding macroeconomic stabilisation of an economy are of two types. One considers that the economy autocorrects itself and on the long term tends toward equilibrium and the other considers that because of rigidities, the economy cannot correct by itself and it is necessary for the government to intervene, through anticyclical policies, and bring it to equilibrium. In this sense, policies may consist of both discretionary measures, as well as free operation of the so-called automatic stabilisers. The latter reflect categories of government revenue and expenditure that automatically adjust to cyclical change in the economy – for example, as output decreases, revenue collection is reduced, while unemployment benefits increase. These changes will have a direct impact on business and household income. Usually, the efficiency of automatic stabilisers may depend on government size, as well as on the speed with which tax and expenditure respond to cyclical fluctuations.

From the social policy perspective, (macro) economic stabilisation is primarily associated with the ability of taxes and government transfers to automatically stabilise available individual income and, consequently, private consumption and aggregate demand, especially when an economy enters into recession.

In order to analyse the social policy's contribution to the stabilisation of the output gap, a fixed-effect panel-type analysis was done, where the dependent variable is represented by the deviation of real GDP to potential GDP for the 28 member states of the EU. The data is of annual frequency and focuses on the period between 1996 and 2013. The sources of the data are the AMECO and Eurostat databases, while econometric processing was done with the help of the Eviews 5 program.

It can be noticed that, during the analysed period, an increase in social protection benefits generates a counter-cyclical effect and a reaction opposite to the deviation of real GDP to potential GDP. Thus, for a 1% increase in social protection expenditure, real GDP deviation is reduced by 0.13%. Moreover, any increase in income leads to a positive real GDP deviation of 0.34%.

A second model was targeted toward unemployment expenditure, which usually responds more strongly to cyclical changes in the economy. According to the model, a 1% increase in unemployed number leads to a rise in unemployment expenditure in EU member countries of a little more than half percentage point (0.55%). On the other hand, it can be noticed that one of the most important factors that can lead to a decrease in unemployment, and consequently to countries reducing expenditure with unemployment benefits, is real GDP growth: a 1% increase in GDP generates a proportional reduction in unemployment expenditure.

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Notes

- (1) This function becomes active especially in times of economic downturn, when the need for government intervention and social intervention rises strongly, at the same time as income from salaries or from other sources is reduced. The stabilisation function of the social policy has a substantial *counter-cyclical macroeconomic effect*, dampening variations of real output and those of individual income. Typically, unemployment allocations (and to a lower extent, social assistance allocations) automatically rise in response to the effects of recession; another type of expense with the same purpose is professional reconversion schemes, which can be used in the policies on the active labour market. Likewise, age-limit pensions also have a stabilising role, sustaining individual income in the last years of a person's life.
- (2) Source: KPMG Tax rates online, accessed on October 2014.
<http://www.kpmg.com/global/en/services/tax/tax-tools-and-resources/pages/tax-rates-online.aspx>

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