# DYNAMICS AND MACROECONOMIC INTERACTION OF GOVERNMENT EXPENDITURE IN BELL AND PIIGS: A COMPARATIVE ANALYSIS

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## Abstract

The paper looks at the dynamics of government expenditure in the BELL (Bulgaria, Estonia, Latvia and Lithuania) and PIIGS (Portugal, Ireland, Italy, Greece and Spain) countries for the period 2000-2019, emphasizing its relationship with changes in macroeconomic activity. The empirical results show clear peculiarities both in time and in relation to the two distinct groups of countries. These differences between the BELL and PIIGS countries are reflected both in the own government expenditure dynamics and in the share of GDP, as well as in the cyclical interaction of government spending.

Key words: government expenditure, macroeconomic activity, BELL countries, PI-IGS countries

JEL: E32, E62, H12, H50

## Introduction

The existing concepts about the macroeconomic interaction of government expenditure have been confirmed by a number of theoretical and empirical studies. They have their own logical framework and are used as a conceptual basis for the development and implementation of a specific fiscal expenditure policy. Usually, research that focuses on short-term problems of instability draws attention to the need for government spending policy to reflect the state economy, i.e. to have a counter-cyclical character. The results of this policy are directly determined by the views embedded in the relevant theoretical construction on the interaction between government spending and changes in macroeconomic activity.

It should be noted that many factors and conditions determine the macroeconomic interaction of government spending. There are a number of differences between the various models, which are sometimes quite significant (Величков, Стефанова, 2019; Владимиров, 2011; Stiglitz, 2014; Stiglitz, 2015; Solow, 2005; Halkos, Paizanos, 2015; Lane, 2003; Aarle, Garretsen, 2003; Agnello, Cimadomo, 2009; Baum, Koester, 2011). The very existence of alternative con-

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cepts can be perceived as a strength rather than a shortcoming of macroeconomic theory. The reason for this understanding is that each of the alternative views focuses on a different dimension of the interaction between government spending and macroeconomic dynamics and can contribute to a clearer picture of its characteristics in practice.

In this regard, the aim of the paper is to analyze the dynamics of government spending in the BELL and PIIGS countries, emphasizing its relationship with changes in macroeconomic activity. The time scope of the study includes the period 2000 - 2019, within which separate periods are differentiated. With regard to the countries studied, it should be emphasized that the BELL countries include Bulgaria, Estonia, Latvia and Lithuania, while the PIIGS countries include Portugal, Ireland, Italy, Greece and Spain. The distinction between these countries in these two groups is usually provoked primarily by the existing similarities in fiscal sustainability/instability in each of the groups. In this regard, these two sets of countries are often seen in the context of their juxtaposition.

#### **Empirical Analysis**

The dynamics of government expenditure during the studied time interval is characterized by certain specifics between the two distinct groups – BELL and PIIGS, as well as within the different periods. On average for the 2000 - 2019 period, the weight of budget expenditure in GDP for PIIGS was reported to be 44.6%, while for BELL it was lower (figure 1). The highest share of expenditure was in Greece and Italy – 50.0% and 46.5%, respectively. There are no significant differences among the BELL countries, as the share of government expenditure varies between 36.4% (in Lithuania) and 37.5% (in Bulgaria).





Figure 1: Government expenditure (% of GDP)

Dynamics and Macroeconomic Interaction of Government Expenditure in BELL and PIIGS: ...

When comparing the weight of government expenditure in GDP in the first and last year of the study period, it is clear that on average for PIIGS this weight shows no change and is at the level of 41.1%, while in BELL there is a slight decrease by about 1.4 percentage points. The strongest increase in the relative share of budget expenditure was observed in Spain – by about 2.9 percentage points. The decrease was most pronounced in Ireland – by 6.4 percentage points. In Portugal, on the other hand, the relative share of government expenditure in GDP remained unchanged during the first and last year of the period. Regarding the data on the growth rates of budget expenditure, it is found that on average for the 2000 - 2019 period the government expenditure for BELL increased by about two times higher than that for PIIGS (table 1). However, taking into account the differences in the growth rates of GDP in both country groups, the aforementioned reduction in the share of budget expenditure in GDP for BELL can be explained.

Year	Government expenditure growth rate (%)		GDP growth rate (%)	
	BELL	PIIGS	BELL	PIIGS
2000	-0.2	3.4	6.1	5.2
2001	1.2	5.0	5.7	3.5
2002	5.2	2.8	6.6	2.7
2003	4.5	3.2	7.9	2.2
2004	7.1	4.7	7.1	3.6
2005	7.4	1.8	8.8	2.3
2006	8.2	3.3	9.0	3.6
2007	11.5	5.1	8.8	3.2
2008	8.3	5.8	0.1	-0.9
2009	0.7	4.9	-11.7	-4.3
2010	-5.9	7.5	0.1	0.0
2011	-1.0	-8.2	5.6	-2.3
2012	-0.9	-3.7	2.9	-3.4
2013	3.3	-0.4	1.9	-1.1
2014	5.4	-2.8	2.4	2.3
2015	2.5	-0.4	3.0	6.2
2016	-2.2	-3.5	3.0	1.6
2017	4.4	1.1	4.1	3.7
2018	6.1	1.8	3.9	3.3
2019	3.9	1.6	3.8	2.4

Table 1: Growth rates of government expenditure and real GDP

Source: Author's calculations based on Eurostat data

The BELL countries are characterized by more pronounced fluctuations in the budget expenditure growth rate for the period 2000 – 2019. This applies to the average values for the two separate groups of countries, but not for the individual countries. In the BELL countries the differences between the maximum and minimum growth rates vary between 20.9 and 29.5 percentage points, respectively in Estonia and Bulgaria. Among the PIIGS countries, Ireland and Greece were leading in terms of budget expenditure volatility. This high volatility of budget expenditure in Ireland and Greece applies both to the growth rates of budget expenditure and to their relative share in GDP. The greatest stability was shown by the budget expenditure in Italy, where the deviation between the maximum and minimum value of their change rate was about 5.1 percentage points.

The peculiarities in the dynamics of government expenditure over time are the basis for the separation of two periods within the interval 2000 - 2019, the first of which lasts until 2008, and the second covers the time of the economic crisis and the post-crisis years. The first period is characterized by a higher average share of budget expenditure in GDP in PIIGS, which exceeds by about 6.4 percentage points the corresponding share in BELL. The highest weights of government expenditure were reported in Italy and Greece – about 47% of GDP. In Portugal, the share of budget expenditure is also above the PIIGS average. Ireland had the lowest relative weight – 34.2%. This share in Ireland is the lowest not only compared to other PIIGS countries, but also compared to the BELL countries. For the BELL countries, the highest share of budget expenditure in the GDP was observed in Bulgaria – about 38% of GDP. In the other three BELL countries, this share is more than two percentage points lower.

During the first period, the average growth rate of budget expenditures was positive for both PIIGS and BELL. This growth is higher for BELL, exceeding PIIGS reports by about 2 percentage points. It is interesting to note that government expenditure for the PIIGS group increased in all years of the period 2000 - 2008. The positive growth rates of expenditures was also typical for BELL, with the only exception being in 2000, when the average for the four countries reported a negative growth of 0.2%. This negative growth rate was due to the relatively strong reduction of budget expenditure this year in Latvia – by about 3.9%. In the first year of the period, a decline in expenditures was also present in Estonia, but it was significantly lower than in Latvia. For both BELL and PIIGS, the highest growth in government expenditure was recorded in the last two years of the first time period. On average for the BELL countries the growth in 2007 amounted to 11.5%, and in 2008 – to 8.3%. The corresponding values for PIIGS in 2007 and 2008 were about 2.3 and 1.4 times lower.

When comparing the average growth rates of budget expenditures and real GDP in the first period, there are differences between the two distinct groups of

countries. The average growth of budget expenditures for BELL is lower than the growth of real GDP. At the same time, the opposite situation is observed for PIIGS, where budget expenditures increase higher than the increase in GDP. This is also reflected in the change in the relative share of government expenditure in GDP. For the BELL countries this share was lower in 2008 than in 2000. For the PIIGS countries, however, there was an increase in the share of budget expenditures, as in 2008 it was about 4.3 percentage points higher than in 2000. This may give some idea of the cyclical character of budget expenditures.

In order to get a clearer picture of the cyclical character of budget expenditures, the GDP gap must also be taken into account in the analysis. In addition, a distinction needs to be made between the structural (cyclically-adjusted) and cyclical component of budget expenditure. Changes in the cyclically-adjusted component are indicative of changes in budget expenditure, which are discretionary, while changes in the cyclical component are the result of macroeconomic dynamics and are related to the operation of automatic budget stabilizers.

The 2000 – 2008 interval is characterized by favorable macroeconomic conditions, with positive GDP gaps prevailing. At the same time, mostly positive changes in cyclically-adjusted budget expenditure were observed (figure 2). This applies to both BELL and PIIGS countries. This can be seen as evidence of procyclicality of fiscal discretionary expenditures. On average for the period, the value of the change in structural budget expenditures in PIIGS is higher than in BELL. The latter is indicative of a stronger pro-cyclicality of fiscal policy in PIIGS. Only in Latvia was a negative average of this change reported. This can be explained by the relatively high absolute values of the change in the cyclically-adjusted budget expenditure at the beginning of the period when the gross product gap was negative. Countercyclical discretions in the context of a positive GDP gap in Latvia were observed only in 2003 and 2007.



Source: Author's calculations based on AMECO data

Figure 2: GDP gap and change in cyclically-adjusted government expenditure

For the period after 2008, a higher average weight of budget expenditure in GDP for both the PIIGS and the BELL is typical. This increase was more pronounced for PIIGS, where the average share of budget expenditure increased by about 4 percentage points. The observed increase for BELL was 2.2 percentage points. This leads to an increase in the differences between the two country groups in the average values of the relative weight of government expenditure in GDP during the second time period. The increase in government spending was most significant in Greece, where its share in GDP increased by about 5.9 percentage points. A relatively strong increase in budget expenditure as a share of GDP was also reported in Spain – by about 5.5 percentage points. In other PIIGS countries, this share also increased. Among the BELL countries, an increase in the relative share of budget expenditures in the second period compared to the first was registered in the Baltic States, while in Bulgaria a decrease was reported.

Stronger fluctuations in the weights of government expenditure in GDP were reported for the period after 2008. The largest deviation between the maximum and minimum weights was reported in Ireland. Among the BELL countries, the difference between the maximum and minimum values of the relative shares of government expenditure in GDP was highest in Lithuania, but this difference is significantly lower than the one reported in Ireland. The greatest stability in these weights was seen in Italy, where the deviation between the maximum and minimum was about 2.9 percentage points.

In the second period the average growth rate of budget expenditure for BELL was positive, while for PIIGS it was negative. The highest average growth of government spending since 2008 was reported in Bulgaria and Estonia – 1.9%. The average growth rate of budget expenditure after 2008 was negative in two countries of PIIGS – Greece and Italy. Given the problems in public finances in these two countries, this is not surprising and is related to the implementation of a policy of fiscal consolidation. The reason is similar for the observed average growth rate in Portugal, which approached zero, as well as for the relatively weak average increase in budget expenditure in Spain – about 0.8%.

For PIIGS, the highest growth in budget expenditure was observed in 2009 and 2010. This can be explained by the fiscal incentives undertaken to limit the manifestation of the negative effects of the global economic crisis. At the same time, for BELL in 2009 the average growth was positive (0.7%), which is considerably lower than the one for PIIGS. In 2010, the rate of change in budget expenditure for BELL was negative. These differences between the BELL and PIIGS countries can be explained by the discretions by the fiscal authorities. In this regard, it can be concluded that fiscal spending policy in the PIIGS during the first two years of the global economic crisis was predominantly expansionary, while fiscal discretions in BELL were restrictive. Consistent with this are the observed changes in cyclically-adjusted budget expenditure. For the PIIGS countries, the average change in cyclically-adjusted government expenditure was positive in both 2009 and 2010. On average for the two years, the strongest increase in the cyclically-adjusted component of government expenditure were observed in Ireland. Among the PIIGS, only in Greece does the average change in cyclically-adjusted budget expenditure for 2009 and 2010 take on negative value. The explanation for Greece is that due to the disrupted sustainability of public finances in 2010 the government took fiscal action to limit government spending.

For BELL, the change in cyclically-adjusted budget expenditure has a negative sign in both 2009 and 2010, which indicates a reduction of government expenditure by the fiscal authorities. On average for 2009 - 2010, the change in the cyclically-adjusted component of budget expenditure was negative in all BELL countries, with the highest absolute value reported in Estonia. This shows that the country in which government debt to GDP is at the lowest level among EU countries is characterized by the strongest restrictive fiscal discretion. Bulgaria ranks after Estonia in this period in the lowest levels of debt, but in it the restrictive fiscal measures are significant. This happened against the background of relatively weak automatic budget stabilizers in these countries (Mourre, Astarita, Princen, 2014; Величков, 2016). This is evidence of weak cyclical coherence of fiscal spending policies in these countries.

The dynamics of budget expenditure in PIIGS for the period 2011 - 2016 was characterized mainly by negative growth rates. The reason for this is the dominant restrictive expenditure fiscal discretions. Changes in cyclically-adjusted budget expenditure on average for PIIGS were negative in all years of this time period, with the only exception being in 2013. This reduction in fiscal spending is far from surprising, considering the significant negative impact of the global financial and economic crisis on public finances of the PIIGS countries. It is precisely in order to limit the level of budget deficits and government debt that these fiscal restrictions are observed. It should be noted here that a certain deterioration in fiscal positions as a result of the crisis economic processes is also present in the BELL countries, but this deterioration is significantly weaker than in the PIIGS countries.

In 2011 and 2012, the changes in structural budget expenditure for BELL were negative. In 2013 and 2014, the structural budget expenditure began to increase, while in the next two years it decreased again. In 2011, the strongest reduction in the cyclically-adjusted component of government expenditure was reported in Latvia, and in 2012 – in Lithuania. Bulgaria had a leading contribution to the reported average increase in expenditure in BELL in 2013 and 2014. In 2015, for BELL, the change in structural budget expenditures tended to zero, as they decreased only in Bulgaria, while in the Baltic countries they increased. In 2016, a negative change in the cyclically-adjusted component of government expenditure for BELL was again reported, due to the reduction of structural expenditures in all countries except Estonia.

For the last three years of the study period, the cyclically-adjusted component of government expenditure increased in both BELL and PIIGS. This increase in 2017 and 2018 was higher for BELL, while in 2019 the positive change in structural budget expenditures was higher for PIIGS. Given that for these years were typical positive GDP gaps, these changes in cyclically-adjusted budget expenditure can be categorized as pro-cyclical increases. This pro-cyclicality is more pronounced in BELL. These findings are also confirmed by tracking the rate of change of real government expenditure, which for PIIGS was lower than the growth rate of real GDP, while for BELL the growth of budget expenditure exceeded the growth of the GDP. Dynamics and Macroeconomic Interaction of Government Expenditure in BELL and PIIGS: ...

## Conclusions

From the performed empirical analysis it can be concluded that there are certain peculiarities in the dynamics and macroeconomic interactions of government expenditure in the PIIGS and BELL countries. Until 2008, government spending in both country groups was on an upward trend, with the average growth for the BELL being higher than for the EPIIGS. For most of this period, the increase in government spending in BELL was accompanied by higher real GDP growth, while in the PIIGS there was outpacing expenditure growth relative to GDP growth. At the same time, for both BELL and PIIGS, the first period was dominated by positive changes in the cyclically-adjusted component of budget expenditure, which testifies to the predominantly pro-cyclical focus of fiscal expenditure policy.

During the second period, the differences between BELL and PIIGS in terms of the share of government expenditure in GDP increased. In addition, it is worth noting that in the first years of the global financial and economic crisis, fiscal policy spending for the PIIGS countries was mainly expansionary in nature, while restrictive fiscal discretion dominated in the BELL countries. For the 2011 - 2016 period, in PIIGS the reductions in government expenditure prevailed, which is explained by the disturbed fiscal sustainability, and in the BEEL the dynamics of government expenditure was characterized by both positive and negative changes. The last three years of the second period saw a pro-cyclical increase in government spending in both PIIGS and BELL, with the latter being more pro-cyclical.

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