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## EU Funds Absorption Rate and the Economic Growth

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## EU FUNDS ABSORPTION RATE AND THE ECONOMIC GROWTH

Claudiu Tiberiu ALBULESCU <sup>1</sup>

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*After the financial crisis burst out, a large number of European countries, especially the new members, focused on the EU funds absorption in order to restore their economic growth. The EU funds are considered an attractive tool for financing investment opportunities, in particular in times of crisis, when the private investments decrease. Nevertheless, little was done to empirically document their role in supporting economic growth on short-term, at macroeconomic level. Therefore, we perform a data panel analysis for the EU countries and we apply a system GMM estimator, in order to see to what extent the EU funds absorption rate impacts upon the short-term economic growth rate in the EU member states. We find that the absorption rate, either for the cohesion funds for growth and employment, or for the rural development funds, has no effect on the short-term economic growth rate. In addition, for both categories of funds, the impact of the absorption rate in the case of the net beneficiaries group is negative. However, these results lack in robustness as they are not confirmed for the new member states group.*

**Keywords:** EU Funds, Absorption Rate, Economic Growth, System GMM Estimator

**JEL Classification:** C23, C26, F36, O40.

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## 1. Introduction

At the beginning of 2013, ample discussions were held on the structure of the EU budget for the period 2014–2020 as the European funds represent an important source for investment financing, in particular in the new member states (NMS). At present, a considerable part of the budget is dedicated to the cohesion policy for growth and employment. Although the effects of joining the EU have been studied extensively, the analyses which estimate the impact of the cohesion policy on economic growth are scarce. To fill in this gap, we have studied the impact of the cohesion and rural development funds absorption rate on the short-term economic growth, in a panel data analysis. Our results do not validate the theoretical background related to the EU funds role in promoting short-term economic growth. More precisely, we found little information about the role of the EU funds absorption rate in supporting the short-term economic activity, especially in the case of the new member states.

In the NMS' case, the most consistent part of the literature regarding the EU financial support focuses on the determinants of the low absorption rate (Šumpíková et al. 2003; Horvat, 2005; Zaman & Georgescu, 2009; Zaman & Cristea, 2011). The main factors advanced in the literature and which influence the absorption rate capacity are the applicants' ability to prepare the projects, the whole system of implementing, monitoring and auditing the projects, the lack of medium- and long-term strategies, but also the institutional and corruption problems.

Another theoretical avenue, where our research is placed, offers information about the impact of the EU funds on economic growth. During the last decades, few studies attempted to assess the EU funds impact on the convergence process. However, it is striking that almost all empirical studies investigate the long-run economic growth phenomenon, at regional level. One of the first papers in this area is that of Sala-i-Martin (1996), which extended the empirical evidence on regional growth and convergence across the United States, Japan, and five European countries. In the same period, Henrekson et al. (1997) obtained some results regarding the effects of European integration on the economic growth, but the robustness of the outcomes was quite poor.

The recent flurry literature regarding the assessment of the European funds effects on the economic growth, deals also with the regional aspects (see Mohl & Hagen (2010) for a large description). These studies are oriented towards all EU regions (or NMS regions – i.e. Vega Flores, 2008), or they are focusing on a specific country regions.

Amongst the studies in the first category, we mention those of Checherita et al. (2009), Mohl and Hagen (2010), Becker et al. (2010) and Becker et al. (2012). While Checherita et al. (2009) find that net fiscal transfers between regions seem to impede output growth, Mohl and Hagen (2010) show that for the period 2000–2006, the payments for the Objective 1 promote regional

economic growth<sup>1</sup>. However, they have discovered that the total amount of Objectives 1, 2, and 3<sup>2</sup> do not have a positive and significant impact on the EU regions' growth rates. Overall, they conclude that the structural funds payments have a positive, but not statistically significant, impact on the regions' average three-year growth rates. In their turn, Becker et al. (2012) found that EU transfers enabled a faster growth than intended in the recipient regions for the last two budgetary periods (1994–1999 and 2000–2006)<sup>3</sup>.

In the second category of studies, the analyses are oriented towards the particular case of selected countries. A series of studies, beginning with Farrell (2004), consider the role of the EU Structural funds in Spain and Ireland, and discover positive redistributive effects, as well as growth effects. Another study is that of Sosvilla-Rivero and Herce (2008) who show that EU packages have significantly contributed to the economic growth of Spanish regions. In the same line, Lolos (2009) assessed the impact of structural funds on Greek regions while Aiello and Pupo (2012) investigated in their turn the role of structural funds in reducing regional disparities in Italy. More recently, Lungu (2013) determined that the impact of the EU funds on Romanian GDP appears to be modest and below initial expectations.

There are also studies which highlight the important role of EU funds (especially structural and cohesion funds) for the economic recovery after the recent crisis episode. In this line, Marzinotto (2011) observed that an important part of the pre-allocated budget has not been spent by the less developed EU members (i.e. Portugal and Greece) and put forward the idea of setting up a temporary European Fund for Economic Revival (EFER) for 2011–2013 period, based on the unspent amounts, in order to promote economic growth<sup>4</sup>.

All in all, irrespective of the methodology, the empirical evidence has provided mixed and contradictory results. There is a lot of evidence showing a positive long-run impact of cohesion and structural funds on economic growth (Midelfart-Knarvik & Overman, 2002; Puigcerver-Peñalver, 2007; Ramajo et al., 2008). Nevertheless, several studies find the opposite (Dall'erna

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<sup>1</sup> Similar results regarding Objective 1 transfers are obtained by Becker et al. (2010) who found positive per capita GDP growth effects.

<sup>2</sup> Objective 1 is aimed at regions whose development is lagging behind (a GDP per capita of less than 75% of the EU average). Objective 2 is dedicated to the economic and social restructuring process for regions dependent on industries in decline. Objective 3 is aimed at modernizing education and increasing employment.

<sup>3</sup> Theoretical works on the topic are those of Holod and Reed III (2004), Kutan and Yigit (2007) and Arcalean et al. (2012). While the first two papers assess the impact of spillovers of knowledge and integration on economic growth and productivity growth respectively, the third paper (Arcalean et al., 2012) shows that in case of Portugal, in order to diminish the initial gap in income per capita, the backward region needs to receive over 8% of its own GDP in structural funds, while the disbursements in that moment were around 4%. All these models predict convergence to a common long-run growth pattern (Boldrin & Canova, 2001)

<sup>4</sup> In the author's opinion, this can be ensured by a compensation for the recessionary impact of fiscal consolidation, if the respective countries have received financial assistance, and are thus under strict conditionality (i.e. Greece, Hungary, Latvia and Romania), and by preserving essential public investments in infrastructure, human capital and research.

& Le Gallo, 2008; Checherita et al., 2009), or a weak positive effect (Boldrin & Canova, 2001<sup>5</sup>; Esposti & Bussoletti, 2008; Lolos, 2009). These divergent results are due in part to the poor quality of data on cohesion and structural funds at regional level.

Overall, despite a recently growing literature on the cohesion policy, several issues require further investigation. This picture can be enriched by assessing the impact of EU funds absorption rate on the short-run economic growth in the EU member countries. To fill in this gap, the purpose of the present paper is to see to what extent the absorption rate supported the economic growth in the EU member states after the economic crisis outburst, with a focus on the case of the NMS.

Consequently, we extend the current literature in several ways. First, we test for the role of both cohesion funds for growth and employment, and rural development funds, in explaining the short-term economic growth. Moreover, even if we are interested about the NMS particular case, we want to see if this effect can also be encountered in case of old EU member states.

Second, in our analysis we focus on the short-term effects of the absorption capacity on the economic growth. Usually the convergence papers approach the long-term effects, discussing about the impact of European funds allocations (in particular structural funds) on the GDP per capita. Indeed, the impact of investments on economic convergence cannot be very easily identified (the effects are generated in time). However, in the case of NMS, these amounts are considered as an alternative and attractive source for financing investments, which allows for the economic recovery. Thus, it is useful to assess the European funds' impact on the short-term growth and therefore, the absorption capacity represents an important indicator for appraising this effect<sup>6</sup>. From our perspective, the cohesion funds for growth and employment must have a more important impact on growth in the NMS, as compared to the old EU members, and we expect that the absorption capacity to play an important role in this direction.

Third, we are interested in the macroeconomic effect of EU funds on growth. As the EU policies regard the regional convergence, most of the papers assess the impact of the EU funds on the regional growth level. However, in the particular case of NMS, the regional policies are not very clearly established. In some countries (i.e. Romania), there are continuous debates about the final setup of the administrative regions, which state for an unfinished process. Moreover, there is no clear strategy to help different regions to attract EU funds. Afterwards, the negotiations regarding the EU budget are conducted at national level and the individual category of the

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<sup>5</sup> The authors argue that structural funds implied more political reasons rather than economic motivations.

<sup>6</sup> Lungu (2013) states that higher effective absorption rate alone, even if achieved eventually, is not sufficient to ensure higher economic growth. This is true if we refer to the long-run. However, on short-term, it is not the results of the investments, but the investments by themselves that support the economic growth. As Marzinotto (2011) highlights, available EU funds are a potential booster for economic revival in most NMS as well as in Greece and Portugal. Moreover, the EU funds stimulus potential was recognized in the European Economic Recovery Plan (EERP). Consequently, the absorption rate is essential for testing the role of EU funds in promoting short-term economic growth.

cohesion funds are tailored to fit national economies and not the needs of different regions (Boldrin & Canova, 2001). These arguments lead to some remarks regarding the importance of a macroeconomic analysis. As Arcalean et al. (2012) show, the regional policies are designed and applied by a multi-layered governance structure with both national and European institutions being concerned. In addition, the disparities between countries present the same importance as the disparities between regions.

Forth, in order to calculate the absorption rate, we estimate the actual payment to pre-allocated fund ratio. This problem is of special concern as the current literature often utilises structural funds commitments instead of actual payments (Mohl & Hagen, 2010)<sup>7</sup>.

Finally, we address the problem of endogeneity in a panel context by identifying the instruments via a system GMM estimator (following Blundell & Bond, 1998). Consequently, the number of control variables employed in the analysis is not large<sup>8</sup>. By using a GMM estimator, we avoid the reverse causality problem<sup>9</sup>, but also the problems of the limited sample size and the potential endogenous nature of the regressors (see Aiello & Pupo, 2012). The robustness check is achieved by performing the same tests on different samples: the EU-27 member states, old (EU-15) and new EU members (NMS), net contributors (NC) and net beneficiaries (NB) of EU funds.

In order to anticipate our results, we mention that the impact of the absorption rate on short-term economic growth does not confirm the theoretical expectations. The findings lack in robustness and point no impact, or even a negative impact for the net beneficiaries group.

The work is organized as follows. *Section 2* presents a short description of both the cohesion funds for growth and employment and rural development funds and some stylized facts regarding the EU budget. *Section 3* describes the methodology and the data. *Section 4* is dedicated to the results. *Section 5* concludes and addresses some policy implications.

## 2. The Cohesion Policies and the EU Budget

### 2.1. Cohesion Funds for Growth and Employment and Rural Development Funds

Our interest falls on looking at two important EU funds categories, namely the “Cohesion funds for growth and employment” (CFGE) and the “Rural development” (RD) funds<sup>10</sup>. For the

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<sup>7</sup> For example, following Marzinotto (2011), the country’s absorption capacity is captured by the evolution of the difference between commitments and executed payments (i.e. the so-called RAL).

<sup>8</sup> The use of a large number of control variables pushes the researchers to employ several proxies for the integration process. Such proxies can lead to false inferences, because of endogeneity and causality issues (see Kutan & Yigit, 2007).

<sup>9</sup> The structural funds allocation criteria are likely to be correlated with the dependent variable economic growth (Mohl & Hagen, 2010). The GMM estimator addresses this problem.

<sup>10</sup> The European Commission provides data regarding the pre-allocated funds and the realized payments for these two categories of funds. These data allow us to compute the absorption rate and to test its impact on the economic growth.



budgetary period 2007–2013, the “Cohesion funds for growth and employment” category includes the structural funds and the cohesion funds<sup>11</sup>.

The origins of the EU structural funds are to be found in the Treaty of Rome, but the main group of funds in the structural funds category, the European Regional Development Fund (ERDF), was established in the mid-1970s as an “embryonic regional policy with a limited budget” (Farrell, 2004), largely at the request of Britain because of its concern at having to contribute so much to the Common Agricultural Policy<sup>12</sup>. The second fund as importance in the structural funds category was the European Social Fund (ESF) which had existed ever since 1969. In 1987, the structural funds were reformed and the amount granted within them was increased considerably in order to adapt the programme to the objectives that have, outside of some simplifying modifications, been retained up to the present day (Sosvilla-Rivero & Herce, 2008). For the budgetary period 2007–2013, the structural funds concern different objectives: convergence, regional competitiveness and employment, European territorial cooperation and technical assistance.

The cohesion fund was established in the treaty of Maastricht in order to support the structural funds in strengthening the economic and social cohesion in the Union (Becker et al., 2012). It has provided financial support to particular projects of member states (as opposed to regions) with a GDP per capita below 90% of the Community average (Boldrin & Canova, 2001). The classical purpose of the cohesion fund was to facilitate the investments in public infrastructure. The financial support was oriented towards two kinds of large, public investment projects and contributed up to 80%–85% out of the total public expenditure: environmental projects and transport infrastructure projects.

The other category of funds included in our analysis, the “Rural development” funds, are part, for the budgetary period 2007–2013, of the “Preservation and management of natural resources” category, together with the aids for agriculture. Because over 56% of the population of the 27 member states of the European Union lives in rural areas which cover 91% of the territory, rural development is a vitally important policy area. The rural development policy for 2007–2013 is focused on three thematic axes: improving the competitiveness of the agricultural and forestry sector; improving the environment and the countryside and improving the quality of life in rural areas and encouraging diversification of the rural economy.

## 2.2. Stylized Facts

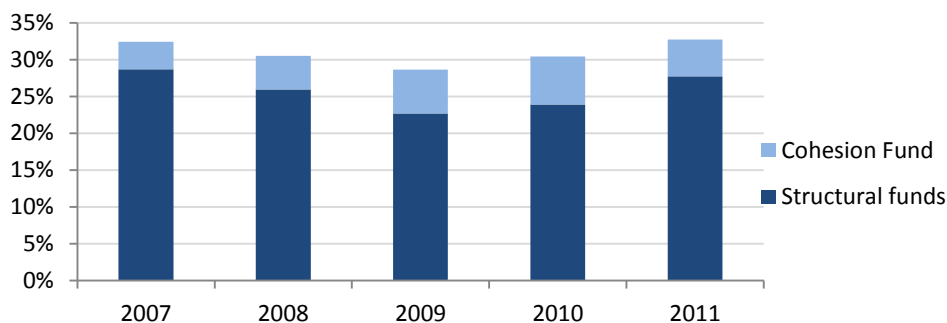
In order to respond to the Lisbon strategy requirements, for the 2007–2013 budgetary period, the EU budget was constructed based on three main axes: sustainable growth, preservation and management of natural resources and citizenship, freedom, security and justice. The first axe

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<sup>11</sup> Two distinctive categories of funds in the budgetary period 2000–2006.

<sup>12</sup> During the years 1975–1988, the ERDF budget represented on average 6.8% of the total Community budget, while during the current 2007–2013 programming period, expenses aimed at cohesion make up 35.7% of the total Community budget (Becker et al., 2012).

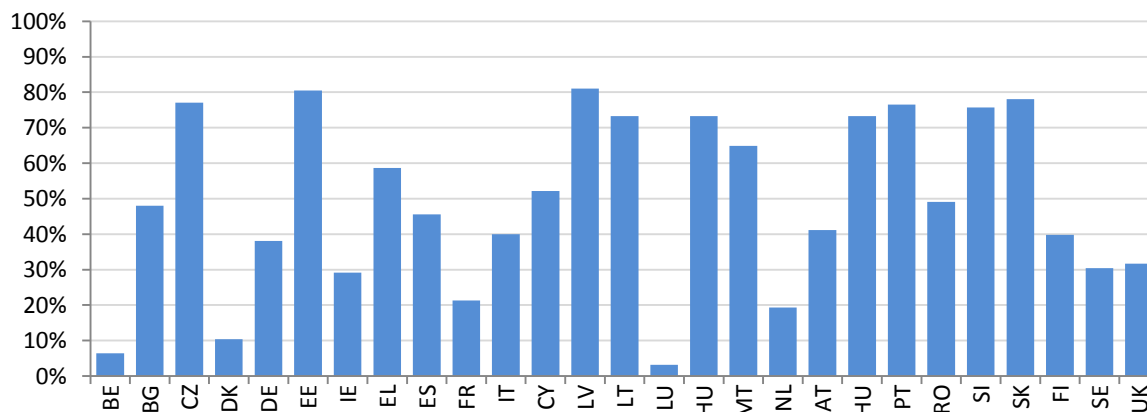
contains some specific measures whose purpose is to strengthen the competitiveness for growth and employment. The dominant part of this axe is however represented by the cohesion funds for growth and employment (which includes the structural funds and the cohesion fund – see *Figure 1*) and represents around 30% of the total payments made from the EU budget. The second axe covers the single agriculture policy and the rural development issues. The last axe is dedicated to human freedoms, justice and European solidarity.



**Figure 1.** The Structure of the CFGE for the Period 2007–2011 (% of the total effective payments)

Source: EU Commission – DG Budget.

The CFGE, together with the RD funds, represent an important part of the EU budget execution for the 2007–2011 period (around 50% in average – see *Figure 2*)<sup>13</sup>. For the new member states (CEECs) these EU funds categories represent around 70% out of their budget. The Baltic countries lead this group with around 80%.



**Figure 2.** CFGE as Percentage of the Total Expenditure of the EU Budget (2007–2011)

Source: EU Commission – DG Budget.

<sup>13</sup> The small weight of these funds in the total budget for Belgium and Luxembourg is due to the high amounts allocated to these countries, for administrative activities.

Of great interest for our study is the identification of the absorption rate (the payments as compared to the pre-allocated amounts)<sup>14</sup>. This way of considering the absorption rate is very popular. It was also proposed by KPMG (2010), which describes the absorption rate as the amount of actual paid resources divided by available budget for the same period.

In case of CFGE, we can see that the old EU members present an absorption rate of 90% (Figure 3)<sup>15</sup>. The new EU members like the Czech Republic, Poland, Hungary or the Slovak Republic have a much more reduced absorption rate, around 60% in average. Romania and Bulgaria lag far behind with a modest rate of absorption (around 30% of their allocated budget).

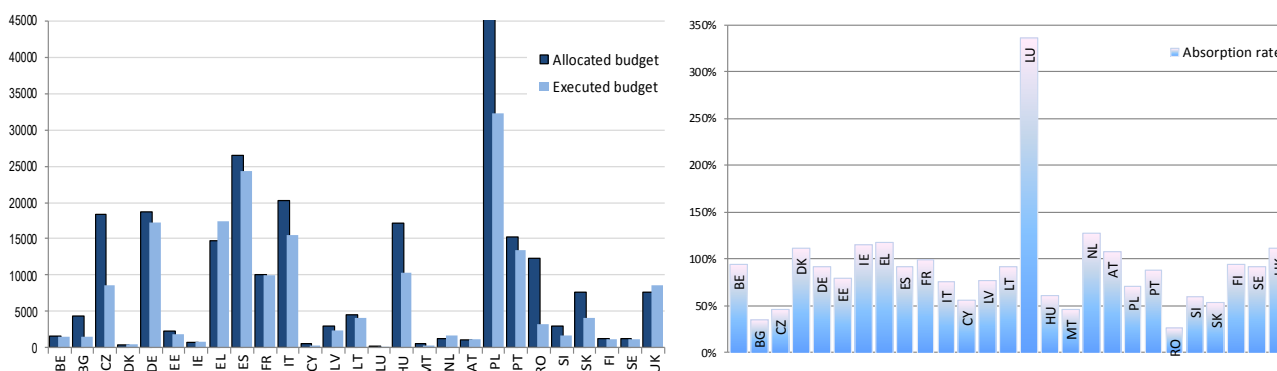


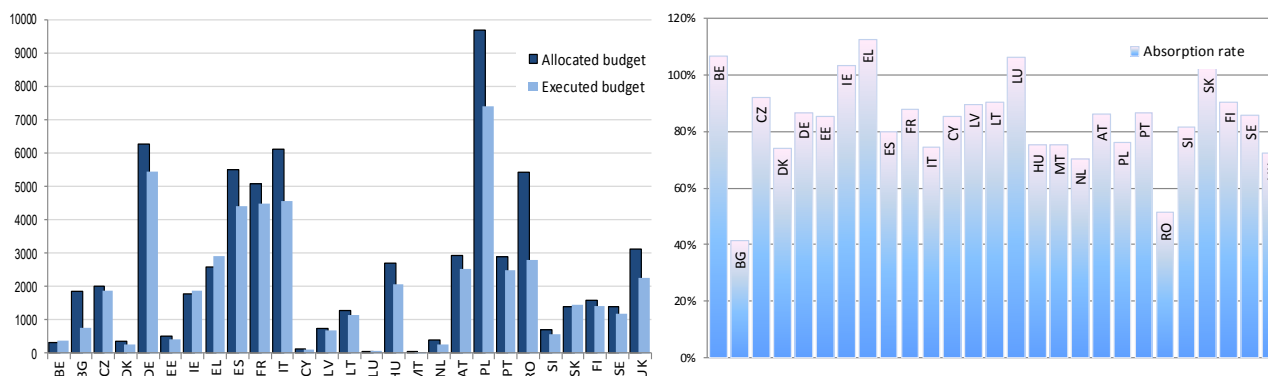
Figure 3. CFGE – Absorption Rate (2007–2011)

Source: EU Commission – DG Budget.

In respect to the RD funds, we observe that the absorption rate is higher than in the previous case, especially for the NMS (Figure 4). One important beneficiary of these funds is Poland. However, the absorption rate in the Czech and Slovak Republic is higher, ranging between 95% and 100%. Bulgaria and Romania hardly absorbed 40%-50% of their allocations.

<sup>14</sup> Absorption capacity can be defined as the extent to which a state is able to fully spend the allocated financial resources from the EU funds in an effective and efficient way (Šumpíková et al., 2003). Horvat (2005) speaks about the macroeconomic absorption capacity (measured in relation to the GDP), the financial absorption capacity (capacity of central and local authorities to co-finance programs and projects assisted by the EU) and about the administrative absorption capacity (to the capacity of central and local authorities to prepare plans, projects and programs in due time, to select the best, to organize an efficient partnership framework).

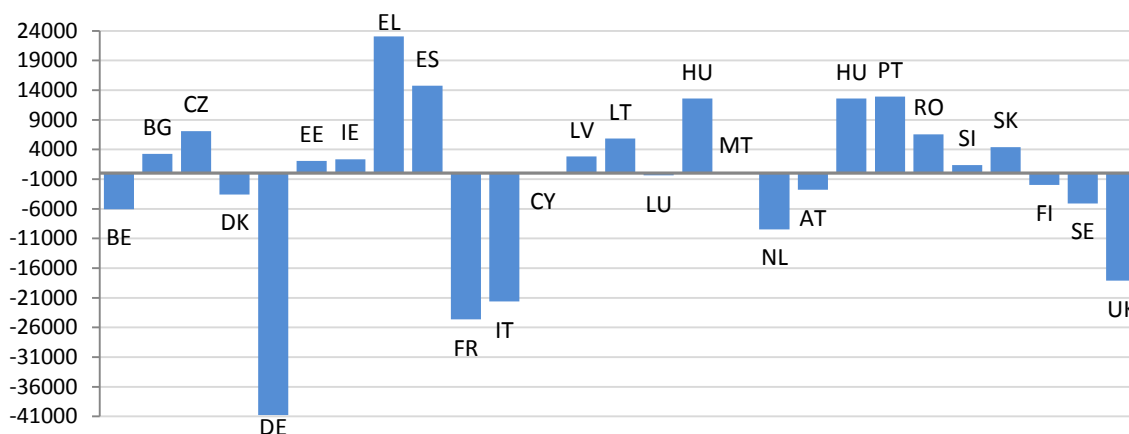
<sup>15</sup> In case of Luxembourg, we observe an absorption rate over 300%. This situation is due to reallocated amounts. Moreover, as the European Commission states, some expenditure allocated to Belgium and Luxembourg might be inflated due to the large number of multinational consultancies or ad-hoc companies based in these countries.



**Figure 4. RD Funds – Absorption Rate (2007–2011)**

Source: EU Commission – DG Budget.

Another aspect of great interest to our study is to present the net beneficiaries and the net contributors to the EU budget. For this purpose we take into account the entire EU budget (revenues and expenditures). As expected, the NMS are the beneficiaries of the EU funds. Besides these countries, the PIGS (Portugal, Ireland, Greece and Spain) are other countries which join the beneficiaries group. The main contributors to the EU budget are Germany, France, Italy and the United Kingdom (Figure 5).



**Figure 5. Net Contributors (“-”) and Net Beneficiaries (“+”) of the EU Budget (2007-2011)**

Source: EU Commission – DG Budget.

From an empirical point of view, it is interesting to observe if there are important differences between these categories of countries regarding the influence of the CFGE and RD funds absorption rate upon the economic growth<sup>16</sup>.

<sup>16</sup> This can be considered as a robustness check for old and new members’ categories (see Section 3).

### 3. Methodology and Data

#### 3.1. Methodology

Usually the fixed effects methodology is used for panel analysis with few explanatory variables. This allows avoiding the omitted variables problem. Moreover, as Baldwin and Taglioni (2006) show, in case of temporary fixed effects, all the unobserved characteristics which fluctuate in time but are common for all countries, are taken into account.

Nevertheless, several limits of the fixed effects methodology recommend the use of the GMM system analysis in our situation. First, the explanatory variables can be correlated with the individual fixed effects (the more developed EU countries have a better potential to attract EU funds). Second, a reverse causality problem can arise, as an economic growth period is favourable to investment projects and thus for EU funds absorption. Otherwise said, higher absorption rates promote economic growth through investments, but the reciprocal is also valid. Third, the static models, as the fixed effects ones, do not allow observing the potential dynamics between the economic growth rate and the EU funds absorption rate for each country.

Therefore we employ a GMM system estimator to study the EU funds absorption rate impact upon the economic growth rate, a method proposed by Blundell and Bond (1998). This estimator is designed for data-sets with many panels and few periods, and allows us to deal with the endogeneity problems. The method assumes that there is no autocorrelation in the idiosyncratic errors and requires the initial condition that the panel-level effects be uncorrelated with the first difference of the first observation of the dependent variable (Mutascu et al., 2012).

We test an equation for each category of funds – CFGE (Eq. 1) and RD funds (Eq. 2).

$$gdpgr_{it} = \beta_0 + \beta_1 gdpgr_{it}(-1) + \beta_2 cfgear_{it} + \beta_3 esi_{it} + \beta_4 cfgegdp_{it} + \beta_5 avgdpgr_t + u_{it} \quad (1)$$

$$gdpgr_{it} = \beta_0 + \beta_1 gdpgr_{it}(-1) + \beta_2 rdfar_{it} + \beta_3 esi_{it} + \beta_4 rdfgdp_{it} + \beta_5 avgdpgr_t + u_{it} \quad (2)$$

where:  $gdpgr_{it}$  – the growth rate;  $cfgear_{it}$  – the CFGE absorption rate;  $rdfar_{it}$  – the RD funds absorption rate;  $esi_{it}$  – the economic sentiment indicator;  $cfgegdp_{it}$  – the CGFE to GDP ratio;  $rdfgdp_{it}$  – the RD funds to GDP ratio;  $avgdpgr_t$  – the sample average growth rate of the real GDP;  $\beta_0$  – the intercept;  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$  – the regression coefficient;  $u_{it} = \mu_i + \varepsilon_{it}$  (the country effect and the error term which varies over both country and time).

We include in the equations a series of control variables in order to account for different effects related to the general economic context or to the particular situation of a country (see Table 1). Our variable of interest is the absorption rate. No strictly exogenous variables were included in the model.

**Table 1**  
 Explanatory Variables Description

Explanatory variables	Explanations	Expected sign
cfgear/rdfar	The CFGE/RD funds absorption rate is calculated based on the European Commission data, as the ratio between effective payments and pre-allocated amounts. A positive sign is expected as countries with a better administrative capacity can attract EU funds and support the economic recovery.	+
esi	Represents the economic sentiment indicator calculated by the European Commission for each country. When the esi ameliorates, the investors' general perception about the economic context improves. Conversely, low levels of confidence have an adverse effect on investments and consumption (acting as a brake on economic recovery).	+
cfgegdpr/rdfgdp	Represents the total expenditures from the EU budget to GDP ratio and shows the importance of the EU funds for each country. It can be associated (according to Horvat, 2005) with the macroeconomic absorption capacity. For the NMS, this indicator should have a stronger impact on the economic growth.	+
avgdpgr	Stands for the average GDP growth rate of the sample. It takes into account the general economic situation of the European partners and it is associated with the general economic context.	+

Source: Own preparation.

### 3.2. Data

The data for the indicators calculations are extracted from the European Commission (DG budget) reports. We have yearly data for the period 2007–2011. Even if the DG budget reports contain data also for the budgetary exercise 2000–2006, we have decided not to include these data in our analysis for two reasons. First, the structure of the EU budget changed in the exercise 2007–2013. Second, for the first period we have only partial data, as the EU enlargement took place in 2004 and 2007. The data range stops in 2011 as the execution of the EU budget for 2012 is not yet available.

The main descriptive statistics of the variables are presented in *Table 2*. We observe that the cohesion funds for growth and employment absorption rate (*cfgear*) range between 16% and 600%. In case of rural development funds absorption rate (*rdfar*), the values range between 0% and 240%<sup>17</sup>.

<sup>17</sup> A 0% absorption rate for rural developments funds is met in case of Romania and Bulgaria for 2007. Absorption rates over 100% (i.e. 600%) are specific to Luxembourg, which benefited from a redistribution of the funds between different budgetary positions. Even if Belgium and Luxembourg seem to be outliers, we have decided not to exclude them from our sample due to data constraints.

**Table 2**  
Descriptive statistics

Statistics	gdpgr	cfgear	rdfar	esi	cfgegdp	rdfgdp	avgdpgr
Mean	0.828	0.922	0.851	96.890	0.836	0.243	0.560
Maximum	10.500	6.012	2.409	116.483	4.415	1.072	3.200
Minimum	-17.700	0.165	0.000	38.055	0.025	0.000	-4.300
Std. Dev.	4.539	0.678	0.332	12.465	0.959	0.243	2.614
Observations	135	135	135	135	135	135	135

Source: Own preparation.

The analysis of our panel data continues with the stationarity tests. We have performed several tests in order to obtain more detailed information about our data series. The results of the unit root tests are reported in Table 3. As we can see in Table 3, the Levin-Lin-Chu test is the only one which describes the series as being non-stationary. The Harris-Tzavalis test and the Breitung test prove that the series are stationary. The stationarity is showed also by the Hadri LM test.

**Table 3**  
Stationarity tests

Tests	gdpgr	cfgear	rdfar	esi	cfgegdp	rdfgdp	avgdpgr
Levin-Lin-Chu (2002) - Adjusted t*	3.9e+15	5.0e+15	6.1e+15	1.7e+15	4.8e+15	6.0e+15	-
Harris-Tzavalis (1999) - rho	-0.069***	-0.388***	-0.340***	-0.009***	-0.257**	-0.567***	-0.185***
Breitung (2000) - lambda	-2.908***	-2.093**	-1.782**	-2.756***	-1.316*	-2.404***	-
Hadri (2000) - z	-1.313*	-1.292*	-1.311*	0.388	-0.843	-1.760**	-8.290***

Notes: (i) \*, \*\*, \*\*\* - stationarity significant at 10 %, 5 % et 1 %. (ii) The Levin-Lin-Chu (2002), Harris-Tzavalis (1999) and Breitung (2000) tests null hypothesis is that all the panels contain a unit root. The Hadri (2000) - Lagrange multiplier (LM) test has as the null hypothesis that all the panels are (trend) stationary. (iii) For the Levin-Lin-Chu test we have used the time trend, for Harris-Tzavalis test we have used the time trend (except from gdpgr, esi, avgdpgr), for Breitung test we have subtracted the cross-sectional means (in addition, the time trend was included for cfgegdp), while for Hadri LM test we have marked the time trend, subtracted cross-sectional means and cross-sectional dependence (except from gdpgr).

Source: Own preparation.

## 4. Econometric Results

### 4.1. CFGE absorption rate

In order to test the cohesion funds absorption rate role in explaining the economic growth, we employ five different models (our panels are strongly balanced). The first one includes the entire dataset, namely 27 countries. In the Model 2 and Model 3, we have divided the sample into two

groups: old and new EU member states. We expect for the absorption rate to play a more important role in promoting growth in the new member states, as for these countries the EU budget represents an important source of financing the investments. In order to assess the robustness of our findings, we construct also the *Models 4* and *5*. They are related to the net contributors to the EU budget for the 2007–2011 period (11 countries) and to the net beneficiaries (beside the new member states, the Portugal, Ireland, Greece and Spain are part of this group).

As we can observe in *Table 4*, the cohesion funds absorption rate has in general no short-term effect in explaining the growth rate.

**Table 4**  
Results of the Dynamic Panel Data Analysis for CFGE Absorption Rate

gdpgr	Model 1 All countries	Model 2 Old EU members	Model 3 New EU members	Model 4 Net contributors	Model 5 Net beneficiaries
gdpgr(-1)	0.183*** (0.003)	0.005 (0.297)	0.017 (0.816)	0.027 (0.647)	0.077 (0.279)
cfgear	-1.746** (0.038)	-0.104 (0.861)	-0.831 (0.814)	0.041 (0.959)	-3.799* (0.084)
esi	0.197*** (0.000)	0.097*** (0.008)	0.336*** (0.003)	0.049 (0.491)	0.242*** (0.000)
cfgegdg	-0.860 (0.129)	-3.074** (0.020)	-0.990 (0.364)	-6.968 (0.717)	-0.144 (0.866)
avgdpg	0.963*** (0.000)	0.833*** (0.000)	0.499** (0.038)	0.880*** (0.000)	0.757*** (0.000)
constant	-16.36*** (0.000)	-8.171** (0.026)	-29.72*** (0.009)	-4.2412 (0.555)	-19.49*** (0.004)
Sargan test	chi2=8.336 (0.138)	chi2=4.589 (0.468)	chi2=9.52 (0.089)	chi2=2.020 (0.846)	chi2=9.85 (0.079)
Number of panels	27	15	12	11	16

Notes: (i) \*, \*\*, \*\*\* means significance at 10 %, 5 % et 1 %. (ii) For the explanatory variables we present the coefficients. In brackets (...) we report the p-value for the z test. (iii) Sargan test for over-identifying restrictions related to the instruments. (iv) GMM errors were used. (v) The maximum lags of the dependent variables used as instruments was established to 1, in order to avoid the instrument proliferation problem associated to the system GMM.

Source: Own preparation.

Moreover, in the case of the entire dataset (*Model 1*) and of the net beneficiaries group, the effect is negative and significant. These findings can be partially explained in case of NB countries, by the important slowdown in their economic activity in the last years. Besides, the investments financed through the cohesion funds are not susceptible of generating growth in the near future (the infrastructure and environmental measures, the main destination of these funds in the new member states, require co-financing and sustain the economic growth in the long-run, but not on short-term).



These results seem not to be robust as they cannot be found also for the NMS group. When assessing the control variables, we can observe that the economic sentiment indicator and the average growth rate have the expected sign and a significant effect. Nevertheless, the EU funds effective payments to GDP ratio has the opposite sign but proves to be significant only in the *Model 2*. In all cases the Sargan test proves that the instruments (the variables lags) are well chosen. However, for the *Models 3 and 5*, the Sargan test for over-identifying restrictions related to the instruments, validates the choice of the instrument only at 5% level of significance.

## 4.2. RD Funds Absorption Rate

In case of rural development funds absorption, the situation seems not to be very different (*Table 5*). The absorption rate has no influence on the short-term economic growth in the old EU countries and has apparently a negative influence in case of NB countries. The last result is not robust, as in the case of the cohesion funds. Remember that the PIGS countries were included in the NB group and these countries suffered a severe recession after 2007.

**Table 5**  
Results of the Dynamic Panel Data Analysis for RD Funds Absorption Rate

gdpgr	Model 1 All countries	Model 2 Old EU members	Model 3 New EU members	Model 4 Net contributors	Model 5 Net beneficiaries
gdpgr(-1)	0.204** (0.003)	0.008 (0.850)	0.065 (0.461)	0.035 (0.461)	0.116 (0.157)
rdfar	-2.767 (0.101)	2.340 (0.153)	-2.228 (0.522)	0.226 (0.895)	-4.753* (0.057)
esi	0.203*** (0.000)	0.111*** (0.001)	0.399*** (0.000)	0.059 (0.454)	0.263*** (0.000)
rdfgdp	1.313 (0.626)	-20.72** (0.036)	2.106 (0.680)	28.40 (0.128)	4.989 (0.199)
avgdpg	1.036*** (0.000)	0.768*** (0.000)	0.454** (0.038)	0.785*** (0.001)	0.809*** (0.000)
constant	-17.40*** (0.001)	-10.50*** (0.003)	-36.95*** (0.000)	-7.68* (0.350)	-22.43*** (0.000)
Sargan test	chi2=7.945 (0.159)	chi2=4.888 (0.429)	chi2=10.25 (0.068)	chi2=4.695 (0.454)	chi2=9.392 (0.094)
Number of panels	27	15	12	11	16

Notes: (i) \*, \*\*, \*\*\* means significance at 10 %, 5 % et 1 %. (ii) For the explanatory variables we present the coefficients. In brackets (...) we report the p-value for the z test. (iii) Sargan test for over-identifying restrictions related to the instruments. (iv) GMM errors were used. (v) The maximum lags of the dependent variables used as instruments was established to 1, in order to avoid the instrument proliferation problem associated to the system GMM.

Source: Own preparation.

The autoregressive of the GDP growth rate is significant only for the first model. The control variables have the same sign and significance as for the CFGE tests. The EU funds effective payments to GDP ratio has a negative influence on the short-term economic growth only for the

*Model 2*, while in the other cases has no significant influence. This evidence shows that for the old EU countries group, the members that have benefited to a greater extent from the RD funds experienced a stronger economic contraction. The economic sentiment indicator and the average economic growth rate have the expected sign and are significant.

In relation with these results, three remarks can be made. First, the influence of the EU funds absorption rates on the short-term economic growth rate is not as important as expected. Moreover, the results are mixed, showing no influence, or a negative one, in the case of NB group, both for the CFGE and RD funds. Second, we cannot state if the absorption rate's role in explaining economic growth is more important in the new EU member states, as compared to the old ones. Third, these results are not robust with respect to changes in the samples' composition (i.e. NMS and net beneficiaries groups). All in all, we can conclude that we find no clear evidence regarding the EU funds absorption rate role in promoting short-term economic growth.

Our findings are however in agreement with those of Dall'erba and Le Gallo (2008) and Checherita et al. (2009) in case of CFGE (a negative effect of the structural funds on the economic growth was discovered). Nevertheless, the present results are influenced by the small data sample (national and not regional analysis) and by the crisis period affecting the European countries.

Our estimations offer several insights about further policy decisions. First, NMC must be aware of the fact that EU funds cannot turn into a booster fund for economic revival on short-term. A better management of EU funding is important but cannot per se guarantee the cohesion. The destination of the EU funds is of great importance. Therefore, prior to the new financial exercise, each member state must prepare a Partnership Contract in order to establish a list of priorities for the budgetary allocations (see Lungu, 2013 for a discussion).

## 5. Conclusions and Policy Implications

In the recent period, an ample debate was observed at the EU level regarding the budget for the period 2014–2020 and about the importance of the EU funds in supporting the economic recovery in the NMS. Only few works attempted to estimate the EU funds impact on the economic growth on the previous budgetary period, at regional level, leaving aside the role of the absorption rate in promoting short-term economic growth at macroeconomic level. This is an important issue for the new member states, as the EU funds represent an important source of financing their investments.

In this context, our paper contributes to the literature in two ways. First, we have analysed the cohesion funds and rural development funds absorption rate role in explaining short-term economic growth. Second, we have performed this analysis on the entire data sample, but also on the old and new EU members group. In order to test for the robustness of our results, the analyses were made also for the net contributors and for the net beneficiaries of the European funds.

The results obtained with a dynamic GMM estimator for the 2007–2011 period show that the cohesion funds for growth and employment, either the rural developments funds, have no effect (or negative effect in case of the net beneficiaries group) on the short-term growth rate. However, these results are not robust, as they are not obtained also in the case of the NMS.

Anyway, on the whole, it may be concluded that, for the period 2007–2011, there is no clear evidence on the absorption rate impact on the short-term economic growth at macroeconomic level. Thus, our findings have several policy implications. First, the European countries, in particular NMS, should not focus only on improving the absorption capacity, but also on rethinking the budgetary allocations in order to promote economic growth. Second, it seems risky to base the economic growth strategy only on the EU funds' investments, without performing the necessary structural reforms to ensure the economic recovery. Nevertheless, these results present some important limits. They are associated with the small data sample and especially with the crisis period, when the growth rates became negative, in particular in case of new member states, even if their absorption capacity improved in the last years.

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