THE EFFECT OF STRUCTURAL FUNDS ON REGIONAL COMPETITIVENESS IN THE NEW EU COUNTRIES: THE CASE OF ROMANIA AND BULGARIA

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Abstract

In the context of internationalization and globalization of the world economy, regional competitiveness is thoroughly debated by politicians and policy makers, emphasizing measurable differences between development regions, without any clear political or conceptual framework. The process of European Union integration is a main driving force of change, aiming to increase the efficiency and competitiveness of the fragmented European economy in the face of increasing internationalization. This often exposes countries and regions with unequal resources and technology and different economic structures to international competition. Such is the case of Romania and Bulgaria, countries that after joining the European Union in 2007 were given an opportunity to recover in terms of regional competitiveness and economic growth, namely structural funds as a form of nonrefundable European financial help to disadvantaged regions of member states. This research is thus focused on underlining and analyzing the relation between structural funds' absorption and the degree of regional competitiveness for the development regions of Romania and Bulgaria, during their first programming period, through identifying and analyzing the factors that influence regional competitiveness and the amount of structural funds absorbed. First, two competitiveness country profiles are created based on data provided by relevant international organisms and second, an impact analysis is developed using six regional competitiveness indicators, grouped into three categories (economic, social and technological). Results show that EU funds critically influence the competitiveness of Romanian and Bulgarian regions, providing reliable data for policy decision makers.

Key words: *EU structural funds, competitiveness, regional competitiveness, development regions.*

JEL classification: *R11, R58*

1. Introduction

A recurring theme in international and national economies' assessments and a point of interest for the European Commission (EC), competitiveness is seeing an increasing interest by both academics and policy makers for nations, regions and cities strive to be competitive in order to survive in the new global marketplace and the new competition generated by the current knowledge driven economy.

The process of European Union (EU) integration is a main driving force of change, aiming to increase the efficiency and competitiveness of the fragmented European economy in the face of increasing internationalization. This often exposes countries and regions with unequal resources and technology and different economic structures to international competition. In this new European environment, the evolution of regional inequalities is often perceived as the spatial footprint of the forces and dynamics driving and shaping the integrated economy. In this perspective, regional inequalities have received increasing attention at the national and European level and are typically understood as a measure of success of the integration, development and cohesion policies.

The Europe 2020 Competitiveness Report (World Economic Forum, 2012) [52] underlines that Europe has faced a myriad of economic and social difficulties, with continued financial troubles, fear of outright sovereign defaults, and rising unemployment and social tensions in several European economies. Moreover, the inferior competitiveness of the EU as opposed to that of the United States, determined a shift towards encouraging smart, sustainable, inclusive growth brought about through greater coordination of national and European policy. This led to an increasing concern with competitiveness to regional, urban and local policy discourse.

With the expansion of the EU, the theoretical and the empirical investigations of convergence become of increasing importance, especially since new member states need to have similar economic cycles. For Romania and Bulgaria, since 2007 when they joined the EU, the topic of European economic and social cohesion has become increasingly debated, when considering the countries' necessity to reduce their development disparities, a lengthy process focused on the least developed EU regions. A key issue is represented by regional competitiveness, a mean of sustained growth in the living standard of a nation and maintaining a level of involuntary unemployment as low as possible.

Moreover, the accession provided an opportunity to recover in terms of regional performance and economic growth, namely structural funds as a form of nonrefundable European financial help to disadvantaged regions of member states. However, despite large allocations of EU structural funds for the 2007-2013 programming period, the rate of absorption into local economies is below 40% in both countries. Eight years after joining the EU, Romania and Bulgaria have the lowest absorption rate within the EU.

In this context, our research is focused on underlining and analyzing the relation between structural funds' absorption and the degree of regional competitiveness for the development regions of Romania and Bulgaria, during their first programming period, through identifying and analyzing the factors that influence regional competitiveness and the amount of structural funds absorbed.

The empirics of the paper are twofold. First, two competitiveness country profiles are created based on data provided by relevant international organisms and second, an impact analysis is developed using six regional competitiveness indicators, grouped into three categories (economic, social and technological).

Accordingly, the paper is structured as follows: section 2 approaches the current literature trends on competitiveness, regional competitiveness and its key determinants, in order to fundament the contextual frame of the research; section 3 underlines the research hypothesis, based on similar studies and their results; section 4 reveals the employed methodology and findings while section 5 concludes with discussions and further research paths.

2. Literature review

Competitiveness is an issue often difficult to address, seeing as it has the character of a collective notion of economics, with diverse perspectives in defining, understanding and measuring techniques. Throughout its development and defining, three major groups of thought can be distinguished, with different indicators in explaining or measuring competitiveness:

(a) a comparative advantage and/or price competitiveness perspective - economists that emphasized country-specific economic characteristics of competitiveness (Porter, 1990; Rugman and D'Cruz, 1993) [38], [43];

(b) a strategy and management perspective - management and strategy researchers focused on the firm-specific characteristics (Mahmoud et al., 1992; Powell, 1992) [33], [40];

(c) a historical and socio-cultural perspective - sociologists and political theorists that underlined various social, political and cultural characteristics of competitiveness (Franke et al., 1991; Porter et al., 2001) [18], [39].

Later, Filó (2007) defined competitiveness as the inclination and skills to compete, to win and retain a position in the market, to increase market share and profitability, and eventually to consolidate commercially successful activities [17].

The World Economic Forum (WEF) defines competitiveness as the set of institutions, policies and factors that determine the level of productivity of a country (Schwab and Porter, 2007) [44], linking micro- (firm level) to macro - (country-level) competitiveness. This approach however has been broadly criticized since a country cannot go out of business and competition between countries can benefit both, while competition between companies in the same sector is more likely to be a zero sum game (Krugman, 1996) [29].

Recently, the concept's approach has shifted towards identifying various levels of competitiveness:

(a) firm level competitiveness - the ability to produce the right goods and services of the right quality at the right price, at the right time, thus meeting customers' needs more efficiently and more effectively than other firms do (Snieska and Draksaite, 2007; Balzaravičienė and Pilinkienė, 2012) [47], [3];

(b) sectors competitiveness (Peters, 2010; Balkytė and Tvaronavičienė, 2010) [37], [2];

(c) regional competitiveness - the ability to use factors of competitiveness in order to make a competitive position and maintain it among other regions (Sepic, 2005; Snieška and Bruneckiene, 2009) [45], [46];

(d) national competitiveness - a country's ability to create, produce, distribute and service products in the international trade while earning rising returns on its resources (Arslan and Tathdil, 2012) [1];

(e) international competitiveness - the ability to sustain, in a global economy, an acceptable growth in the real standard of living of the population with an acceptably fair distribution, while efficiently providing employment for substantially all who can and wish to work and doing so without reducing the growth potential in the standards of living of future generations (Faucheux and Nicolaï, 2011) [16].

Also, a great number of international institutions offered several definitions of the concept, with a common agreement that competitiveness is understood to mean a sustained rise in the standards of living of a nation and as low a level of involuntary unemployment possible (European Commission, 2004) [15].

Between the micro and the macro levels stands the concept of regional competitiveness, since a region is neither a simple aggregation of firms nor a scaled version of nations (Gardiner et al., 2004) [20]. Therefore, although widely associated to economic entities (Jurcut, 2014) [26], competitiveness analysis has been extended to regions and sub-regions level (Reiljan et al., 2000) [42] underlining the development of the regional competitiveness concept.

Steinle (1992) defines regional competitiveness by the actions of economic agents in a particular area in order to ensure increased standard of living [48] while other studies either approach it as a cumulative outcome of factors or are focused on a particular driver (Lengyel, 2004; Garden and Martin, 2005) [32], [19].

No matter its defining, competitiveness is always linked to successful economic development and tangible results. The traditional measure of competitiveness is generally through the GDP per capita, although other indicators

should be defined in order to integrate the social, environmental, health and well-being dimensions. Consequently, the emphasis is on factors which determine long-term growth, such as research and innovation, information technology and human capital.

Despite the increasing number of research on regional competitiveness, there is no common methodology or techniques of measurement established.

The existing methods pursue the measurement of a region's economic prosperity by building a set of indicators (as shown in table 1 below) and then by comparing the results in order to quantify the degree of success achieved.

Table 1: **Overview of regional competitiveness indicators**

Author(s)	Regional competitiveness indicators
Garden and Martin (2005) [19]	Infrastructure and accessibility; Human resources; Productive environment.
Cooke (2004) [9]	Business density (firms per capita); Number of knowledge-based businesses (proportions of all businesses); Overall economic participation (economic activity rates).
Lengyel (2004) [32]	Per capita GDP of the region; Labor productivity; Employment rate; Economic openness (exports and imports).
Kitson et al. (2004) [27]	Innovation; Entrepreneurship; Economic governance; Internationalization; Quality of place.

As shown above, no unique indicator of regional competitiveness can be established, being rather seen as a combination of interconnected and measurable economic categories: per capita regional GDP; regional labour productivity; regional employment rate; regional economic openness.

In other words, regional competitiveness means economic growth through high productivity and high employment.

In the case of the European Commission, different indicators are used in order to measure the EU regions' competitiveness, namely those mentioned in the Reports on Economic and Social Cohesion and indicators for monitoring and evaluation in the framework of Structural Funds, studies delivered on a regular basis that compare the regions in order to determine their level of development and competitiveness, proposing four classes of main regional indicators (table 2).

Table 2: **Regional competitiveness indicators according to The EC Reports on Economic and Social Cohesion**

Category	Regional competitiveness indicators
Economy	GDP/capita (PPS); employment by sector (agriculture, industry, services); European patent applications (per million people).
Labour market	unemployment rate (total, long-term unemployed, women, youth); employment rate (% population age 15-64, total, women, men).
Demography	population; population density (inhabitant/km2); % of the population aged under 15, between 15-64, more than 65.
Education	educational attainment of those aged 25-59 (low, medium, high).

Moreover, other studies outside the European Commission are also centered on defining regional indicators of competitiveness, such as:

(a) *Competing with the World* (Barclays Bank) compared 15 competitive regions around the world (where 10 are EU regions) and attempted to identify generic factors of competitiveness. The report stressed the difficulty in finding consistent or comparable data across the 15 regions and concluded that only a very small number of generic success factors were found to occur in each region;

(b) *Regional Competitiveness Indicators* (The Department of Trade and Industry of the United Kingdom) selected 14 indicators supposing to give a balanced picture of regional competitiveness. Nevertheless, many of the factors do not determine regional competitiveness but measure outcomes reflecting the competitiveness of a region;

(c) *Benchmark to the competitiveness of the East and West Midlands* (Ernst and Young) compared the competitiveness of the East and West Midlands against other regions in Europe and tried to identify measures to promote regional competitiveness. The study used a 'multidimensional regional competitiveness benchmarking model' made of 55 competitive indicators scored to reflect their relative importance;

(d) *Regional investment climate study* (Ecorys Netherlands Economic Institute) developed a benchmarking methodology that measured the quality of the regional investment climate over 40 regions in North West Europe further to the results of surveys of entrepreneurs located in the regions. The variables of the survey were broken according to market relations variables and productive environment factors.

When considering the main objective of the European Union to become the most dynamic and competitive knowledge-based economy in the world, capable of sustainable economic growth, generator of employment, characterized by a greater social cohesion (European Commission, 1999) [14] regional competitiveness has gradually gained in strength and scope.

In this regard, the regional development policy is one of the most complex policies of the European Union with financial support focused towards areas and regions where results may be significant, being thus the expression of EU's solidarity with less developed countries and regions.

Extensive studies were conducted on the impact of regional policies on a nation's growth, either simulation models, case studies or econometric models, but the results and conclusions are often different due mainly to the

method applied. The most comprehensive study is that of Dall'erba et al. (2009) [11] who found that more than 100 studies were centered on European regional policies, with results that range from a positive and absolute impact of the funds on growth to a non-significant or even negative impact of the funds.

3. Research framework and hypotheses

Our research is centered on identifying the existence and the strength of the absorbed European structural funds' impact upon regional competitiveness in the new EU countries, considering that Romania and Bulgaria started to benefit from European nonrefundable financial support with the aim of regional development.

In order to implement the regional development policy in both countries, according to the national economic and social cohesion objectives, development regions were established (eight for Romania and six for Bulgaria), with no administrative or legal status, but territorial units large enough to represent a good basis for developing and implementing regional strategies and allowing an efficient use of resources, financial and human likewise.

When discussing regional competitiveness in Romania, the country is characterized by an increase of disparities in the level of socio-economic development of different regions where predominantly agricultural counties coexist with the more developed ones. This is a consequence of economic restructuring, especially in mono-industrial areas, whose population was affected by unemployment due to the closure of unprofitable state enterprises.

For Bulgaria, with the dragging on of the economic crisis in Europe, there has been mild deterioration of the majority of the competitiveness factors. Although the country continues to be fiscally stable, open and export-oriented economy with one of the lowest living and business costs in Europe, Bulgaria continues to suffer from the lack of adequate business culture and institutional framework, while also being plagued by a labour market crisis leading to one of the lowest employment levels in its post-communist history registered in 2013 (Center for the study of democracy, 2013) [7]. These negative developments are directly related to the weak domestic economy and social framework coupled with the lack of adequate support for innovation (through building modern scientific and entrepreneurship infrastructure).

In terms of competitiveness ranking, there are several international organisms that asses a country's competitiveness through specific composite indicators, publishing annual reports that allow comparisons throughout the world's economies. Such is the case of the Swiss Institute for Management Development (IMD), a top-ranked global business school based in Switzerland that publishes *The World Competitiveness Scoreboard*, of the World Economic Forum with *The Global Competitiveness Report*, of the World Bank with its *Doing Business* report or of the Legatum Institute (United Kingdom) with its annual ranking – *Legatum Prosperity Index*.

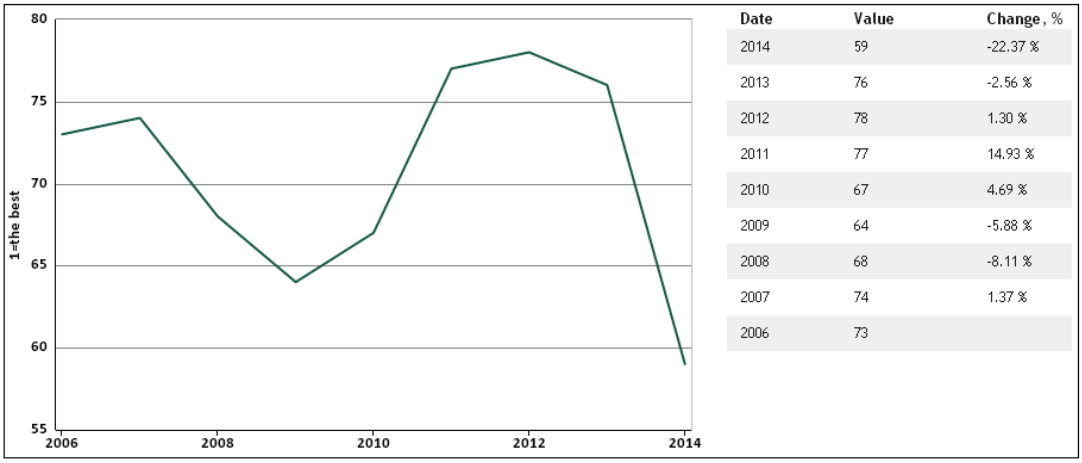
For 2013 and 2014, the competitiveness rankings for Romania and Bulgaria, as released by the aforementioned institutions, are structured in table 3.

Table 3: **Competitiveness ranking of Romania and Bulgaria (2013-2014)**

Report (Organism)	**Competitiveness ranking 2013**		**Competitiveness ranking 2014**	
	Romania	**Bulgaria**	**Romania**	**Bulgaria**
The Global Competitiveness Report (World Economic Forum) [53]	76	57	59	54
World Competitiveness Scoreboard (IMD) [24]	47	57	55	56
Doing Business (World Bank) [51]	50	36	48	38
Legatum Prosperity Index (Legatum Institute) [31]	55	49	60	48

From the rankings presented above, in light of our study's goal, we focused our attention on the World Economic Forum, thus detailing the two countries' competitiveness.

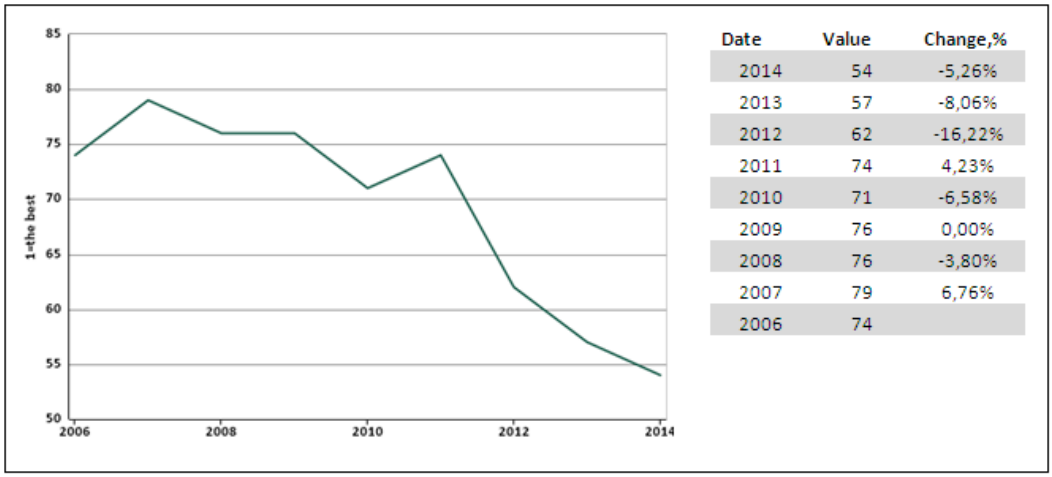
According to the *2014 – 2015 Global Competitiveness Report* [53] currently, Romania is in its 2nd development stage; stage dictated by efficiency criteria, occupying the 59th place out of 144 countries, with a 4.30 score out of 7 (figure 1). These rankings underline major problems in development regions' performance, with direct consequences on the national economical development.



Date	Value	Change, %
2014	59	-22.37 %
2013	76	-2.56 %
2012	78	1.30 %
2011	77	14.93 %
2010	67	4.69 %
2009	64	-5.88 %
2008	68	-8.11 %
2007	74	1.37 %
2006	73	

Figure 1: **Evolution of Romania's global competitiveness rank (2006 - 2014)**

As for Bulgaria, the same report places the country also in its 2nd development stage, along with Romania, being considered an efficiency-driven economy. Bulgaria occupies the 54th place out of 144 countries, with a 4.37 score out of 7 (figure 2).



Date	Value	Change,%
2014	54	-5,26%
2013	57	-8,06%
2012	62	-16,22%
2011	74	4,23%
2010	71	-6,58%
2009	76	0,00%
2008	76	-3,80%
2007	79	6,76%
2006	74	

Figure 2: **Evolution of Bulgaria's global competitiveness rank (2006 - 2014)**

However, the World Economic Forum report [53] ranks Bulgaria as the best in the Balkans in terms of competitiveness, appreciating that both Bulgaria and Romania have moved up in the world competitive rankings (Bulgaria by three places and Romania by 17), Romania showing the biggest progress compared to last year's report, in which it was ranked 76th (figure 3).

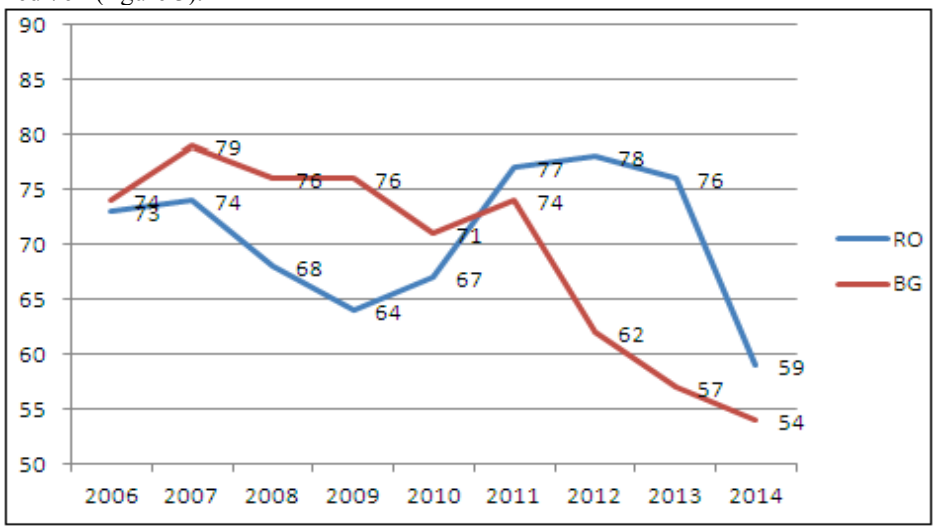


Figure 3: **Evolution of Romania and Bulgaria in terms of global competitiveness rank (2006 - 2014)**

As discussed above, many national or international organisms are preoccupied with developing a competitiveness profile for each country; in light of creating and maintaining an environment that sustains value creation for its enterprises and prosperity for its people.

Considering the comparative competitiveness analysis presented above, it can be concluded that both countries face some major challenges on the way to improve their competitiveness, especially at different levels of the state and local authorities, as well as innovation in view of increasing productivity, energy efficiency and so forth.

With Romania and Bulgaria's accession to the EU in 2007, an opportunity to recover the economic growth arose, namely structural funds as a form of nonrefundable European financial help. These funds represent the countries' chance to recover in terms of socio-economic disparities and become competitive with other EU Member States.

Implemented on the principle of contribution (EU gives a percentage of total costs, and the Member State is committed to supporting its own contribution of these costs), structural funds represent a net gain for development objectives can be met by relatively lower costs have they been financed outside this resource. As such, for the first programming period of 2007 - 2013, Romania has received 19.18 billion Euros for investments in the public and private sector while Bulgaria received 6.67 billion Euros. With a then population of 20.06 million inhabitants for Romania and 7.28 million inhabitants for Bulgaria, the higher average EU funds/capita was found in Romania – 917 euro/capita as opposed to 956 euro/capita (KPMG, 2014) [28].

Nevertheless, both countries registered low absorption rates, according to their Ministry of European Funds (Romania: 37.8% and Bulgaria: 54% in October 2014), due mainly to systemic failures of the institutions responsible with the implementation of effective mechanisms and management systems appropriate to a budget the size of which is unprecedented in the history of either nation's funds administration. The consequences of these systemic problems concerning the low level of absorption can be funds cancellations (amounts returned unused towards the EU budget) and suspension risk for certain operational programs.

In this context, the performance of EU structural funds allocation may impact upon the following programming period and its related allocations. Besides, both countries' development objectives through these funds can be questioned on the long term, with the lack of reforms in ensuring effective management and effective control over the nonrefundable expenditure.

Despite an increasing interest amongst researchers and international organizations alike in analyzing and debating the topic and of low absorption capacity, few studies consider the impact of the structural funds' absorbed upon the regional competitiveness's evolution.

In general, such studies focus on either the problem of structural funds' absorption (Constantin, 2008; Morovan, 2010; Cace et al., 2011; Institute for Public Policy of Romania, 2012; Şurubaru, 2013; KPMG, 2014; Paliova and Lybek, 2014) [8], [34], [5], [25], [50], [28]; [36] or the topic of regional disparities (Lefterand and Constantin, 2009; Muntean et al., 2010; Surd et al., 2011; Davies, 2011) [30], [35], [49], [12], with reduced emphasis on their correlation.

A further analysis of the specific literature revealed a great number of international studies that follow the impact of structural funds on the convergence process but with often different results, mainly due to the employed methodology (Ederveen et al., 2002; Dall'erba and Le Gallo, 2003) [13], [10].

Thereby, our first research hypothesis was formulated as follows: **H1 - Structural funds have an impact on regional competitiveness in the case of Romania and Bulgaria.**

As we were further preoccupied with the nature of the impact, among the studies identified, there are those that find a positive impact, such as Garcia-Solanes and María- Dolores (2001) [21], Cappelen et al. (2003) [6], Beugelsdijk and Eijffinger (2005) [4], Puigcerver-Peñalver (2007) [41], as well as Dall'erba et al. (2009) [11] who, using a more reliable econometric model concluded that the impact is always significant and positive, albeit small.

This led to the second research hypothesis: **H2 – Structural funds have a positive impact on regional competitiveness in the case of Romania and Bulgaria.**

4. Methodology and results

In order to evaluate the impact of structural funds on regional competitiveness, we first established the most representative indicators, considering the statistical data regularly available at a regional level.

Thus, although our literature review revealed vast different opinions on measuring regional competitiveness, European studies focus on the indicators proposed by the Group of Applied Economics (2007) [23], mainly socio-economic indicators measured by Eurostat. This is due to the adoption of the Lisbon Agenda which aims to promote economic growth based on knowledge and innovation to render Europe more attractive in terms of investment and work.

Due to regional statistical data's availability, we selected six indicators that reflect regional competitiveness, whose relevance in the paper's context is given by the defined aspects of each category and the correlations between them, grouping the indicators into three categories (table 4).

Table 4: **Overview of regional factors of competitiveness**

Indicator	Meaning	Source
Economic Indicators (EI)		
E1 – GDP/capita	the value of all goods and services produced less the value of any goods or services used in their creation	Statistical yearbook

Indicator	Meaning	Source
E2 – Labour productivity (GDP/employees)	measures the amount of goods and services produced by each member of the labour force or the output per input of labour	Statistical yearbook
Social Indicators (SI)		
S1 - Employment (total)	all persons who, in the reference year, conducted a socio-economic income generating activity, except military personnel, political organizations, non-government employees and detainees	Statistical yearbook
S2 - Employment (women)	all female persons who, in the reference year, conducted a socio-economic income generating activity, except military personnel, political organizations, non-government employees and detainees	Statistical yearbook
Technological Indicators (TI)		
T1 – R&D total expenditure	R&D expenses incurred by central and local government, the private and academic sector	Statistical yearbook
T2 - Employment in high-tech sectors	the economy's intensity in creating technology, the indicator connects labour market with competitiveness	Statistical yearbook

In the context of our research, the dependable variables that define regional competitiveness were determined as described in table 4, thus collecting data for both the 8 Romanian development regions (data provided by The Romanian National Institute of Statistics) and the 6 Bulgarian development regions (data provided by The National Statistical Institute of Bulgaria) for the 7 years considered (2007 – 2013). The independent variable in our study is the volume of structural funds absorbed per development region (SF) for each of the seven years considered. In this respect, for Romania, the most comprehensive study realized is the 2014 Report of the Bucharest Institute for Public Policy from which the necessary information was extracted and for Bulgaria, data was collected from the Unified Management Information System for the EU structural instruments.

Given the purpose of our research and the reduced number of observations (56 for Romania and 42 for Bulgaria), the most appropriate research method was a quantitative one – regression analysis – performed using Microsoft Office Excel 2007.

We first performed a quantitative analysis of the collected data, highlighting in table 5 the descriptive statistics for the seven panel type variables, for the seven years period of time taken under consideration, with eight sections, corresponding to the number of development regions in Romania and six sections, corresponding to the number of development regions in Bulgaria. Since the values of the asymmetry coefficient are not significantly different from the corresponding value of 0 and the values for Kurtosis are less than 3, the distribution is platykurtic, flatter than a normal distribution with a wider peak.

Table 5: **Descriptive statistics**

Variable	Mean		Std. Dev.		Variance		Skewness		Kurtosis	
	RO	BG	RO	BG	RO	BG	RO	BG	RO	BG
E1	28.5	87.56	16.30	36.56	266	13.51	0	1.69	1.79	1.60
E2	21.53	25.31	11.41	6.40	130.21	40.97	0.11	0.04	1.87	-0.93
S1	19.60	38.28	10.89	37.00	118.71	575.22	0.02	1.57	1.78	0.97
S2	18.71	20.79	11.41	14.18	130.38	196.96	0.06	0.70	1.73	0.26
T1	19.46	67.33	11.15	12.40	124.47	151.78	0.10	1.09	1.80	1.93
T2	19.16	35.69	10.77	4.24	116.17	203.43	-0.00	1.82	1.95	1.48
SF	20.17	55.47	10.45	16.20	109.24	284.87	-0.31	0.95	1.93	1.16
N^o obs.	56	42	56	42	56	42	56	42	56	42

According to the paper's goal, we next carried out separate regression analysis (Green, 2000) [22] to underline the connections between each dependant variable and the independent one (formula 1).

$$y_{it} = \alpha_i + \chi_{it}\beta + \varepsilon_{it} \quad (1)$$

where:

y_{it} – the dependant variable, i=entity, t=time;

α_i – the unknown intercept for each entity;

x_{it} - independent variable;

β - the coefficient for the independent variable;

e_{it} – within entity error.

This approach aimed to achieve regression parameters and intensity estimation for the connection between endogenous and exogenous variables, performing a Student's t-test for which an empirical value greater than 2 is expected. Moreover, greater correlation intensity is found in higher values. Table 6 presents the regression analysis output, for all of the six cases considered, for both countries.

Table 6: **Analysis results**

Variable	Coefficient		Multiple R		R Square		t-stat	
	RO	BG	RO	BG	RO	BG	RO	BG

E1	74.16	0.002	0.60	0.37	0.36	0.14	4.77	2.59
E2	0.04	4.94	0.60	0.33	0.36	0.11	4.75	2.26
S1	4.05	8.51	0.73	0.33	0.54	0.10	6.79	2.24
S2	1.81	4.98	0.73	0.35	0.53	0.12	6.72	2.39
T1	777.20	0.02	0.30	0.31	0.09	0.10	1.96	2.15
T2	13.43	0.001	0.37	0.32	0.13	0.10	2.51	2.19

For Romania, considering the six dependent variables, results show that:

E1 - a 1% increase in the value of structural funds absorbed determines an increase of the regions' GDP/capita of 74.16%;

E2 - a 1% increase in the value of structural funds absorbed determines an increase of the regions' labour productivity of 0.04%;

S1 – a 1% increase in the value of structural funds absorbed determines an increase of the regions' employment of 4.05%;

S2 – a 1% increase in the value of structural funds absorbed determines an increase of the regions' employment (women) of 1.81%;

T1 and T2 - there is no significant impact of the structural funds' absorption upon regional R&D total expenditure or regional employment in high-tech sectors.

In the case of Bulgaria, considering the six dependent variables, we found that:

E1 - a 1% increase in the value of structural funds absorbed determines an increase of the regions' GDP/capita of 0.002%;

E2 - a 1% increase in the value of structural funds absorbed determines an increase of the regions' labour productivity of 4.94%;

S1 – a 1% increase in the value of structural funds absorbed determines an increase of the regions' employment of 8.51%;

S2 – a 1% increase in the value of structural funds absorbed determines an increase of the regions' employment (women) of 4.98%;

T1 – a 1% increase in the value of structural funds absorbed determines an increase of the regional R&D total expenditure of 0.02%;

T2 - a 1% increase in the value of structural funds absorbed determines an increase of the regional employment in high-tech sectors of 0.001%.

The analysis's results underline a strong positive correlation between structural funds and the economic and social indicators in the case of Romania, while for Bulgaria, all of the indicators are influenced by structural funds, observations that **partially validate H1,** proving that structural funds' absorption has indeed an impact upon regional competitiveness.

As for the second research hypothesis, results show that structural funds' allocation contributes in a positive manner to the increase of regional competitiveness for both analyzed countries, thus **validating H2.**

5. Conclusions and discussions

As underlined throughout our paper, there are widely differing views amongst economists as to the indicators of regional competitiveness and what happens to regional disparities over time.

Our findings lead to the general conclusion that the absorption of structural funds has a significant positive impact on a country's regional competitiveness, especially in terms of economic and social indicators.

GDP/capita is the most efficient index used in the EU for expressing the level of development of a region, being used by the European Commission in calculating the financial allocations granted to Member States. Examining the relationship between the amount of funds absorbed and the corresponding impact on growth, in terms of GDP/capita, it can be underlined that indeed EU funds' transfers are expected to generate greater additional growth.

In the case of labour productivity, one of the structural funds' purposes is to decrease unemployment which can be obtained indirectly through an increase of productivity. Taking into consideration the fact that in the past years in both Romania and Bulgaria labour productivity has declined for all of the development regions and that cuts in working hours and declines in productivity could slow down employment growth, EU funds absorption should be driven.

When analyzing the impact on social indicators, results are significant since part of the EU expenditures is directly aimed at reducing disparities in the employment sector. The growth of social inclusion (diminishing the unemployment ratio) by creating new jobs, generates both social and economical effects at a local, regional and national level, contributing to the overall economical growth.

For the technological indicators considered, results showed that for Romania there is no correlation between structural funds and employment in high-tech sectors, underlining a poor capacity of the Romanian development regions to offer employment in this sector. This can be explained when considering that investments in high-tech technology assume fewer jobs due to the advanced technical and technological specifications of the infrastructure.

The research's results are consistent with those of similar studies (analyzed in the literature review section), underlining the importance of access and absorption in order to ensure a sustainable development, proving significant informational content for decision making factors regarding EU funds allocation.

However, we consider that regional competitiveness should be evaluated using the design and methods that best adapt to a region's specificity and the needs of the evaluation users for each situation requires a unique and specific evaluation design. Also, there is no single evaluation model amongst all other possible options that can serve as a common methodology for each and every evaluation of regional competitiveness and as such, no ideal methodological design or superior or inferior evaluation methods.

A further research opportunity arose when considering the relatively reduced number of current observations as a consequence of the limited available statistical data (outdated or even unavailable statistical information). Besides, at the beginning of the first programming period, namely in 2007, the volume of structural funds absorbed was significantly reduced.

As such, further research opportunities lie in expanding the number of competitiveness indicators analyzed and reanalyzing the correlations once the current programming period ends and statistical data is available.

In the European Union's context, Romania and Bulgaria are referred to as problem-orientated regions, lacking when comparing factors and defining regional competitiveness indicators. In the short term, absorption of structural funds is crucial in improving the countries' competitiveness and supporting their economic growth, making an increase of the low rate of absorption of the EU Structural Funds a priority for economic policy, thus increasing the necessary investment in infrastructure and human capital without an excessive burden on the national budget.

In the long term, the challenge will be to ensure a paradigm shift away from unskilled labour and energy intensive sectors towards more smart, low-carbon and resource-efficient activities, essential for the future competitiveness of Romania and Bulgaria.

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