IMPACT OF STRUCTURAL FUNDS ON REGIONAL COMPETITIVENESS: THE CASE OF BULGARIA

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Abstract- In the current knowledge driven economy, countries, regions and even cities strive to be competitive in order to survive in the new global marketplace and the new economic competitive environment, without any clear political or conceptual framework. Moreover, the process of European Union integration aims to increase the efficiency and competitiveness of the fragmented European economy in the face of increasing internationalization, exposing countries and regions with unequal resources and technology and different economic structures to international competition. Such is the case of Bulgaria that, after joining the European Union in 2007, was given an opportunity to recover in terms of competitiveness and economic growth, through structural funds as a form of nonrefundable financial help. In this respect, the paper aims to analyze the relation between structural funds' absorption and the degree of regional competitiveness for the six development regions of Bulgaria, during the first programming period. The obtained results underline the critical influence of these funds upon Bulgaria's regional competitiveness, providing reliable data for policy decision makers.

Keywords- Competitiveness, Development Regions, EU Structural Funds, Regional Competitiveness.

I. INTRODUCTION

In the 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 European Union (EU) expansion process, oriented on convergence, implies difficulties for new member states for they need to have similar economic cycles. Since joining the EU in 2007, Bulgaria has shown focus towards the European economic and social cohesion, considering the necessity to reduce its development disparities, a lengthy process focused on the least developed EU regions.

Moreover, the opportunity to recover in terms of regional performance and economic growth was given by large allocations of EU structural funds although, for the 2007-2013 programming period, the rate of absorption into the local economy is below 40%.

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

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

II. LITERATURE REVIEW

Competitiveness is a multi-faceted concept that has widely permeated economic thinking over the past two decades. First, three major groups of thought can be distinguished: (a) a comparative advantage and/or price competitiveness perspective [1], [2]; (b) a strategy and management perspective [3], [4]; (c) a historical and socio-cultural perspective [5], [6].

Later on, competitiveness was defined 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 [7].

Recently, the concept's approach has shifted towards identifying various levels of competitiveness: (a) firm level competitiveness [8], [9]; (b) sectors competitiveness [10], [11]; (c) regional competitiveness [12]; (d) national competitiveness [13]; (e) international competitiveness [14].

Likewise, 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 [15]. The World Economic Forum defines competitiveness as the set of institutions, policies and factors that determine the

level of productivity of a country, linking micro competitiveness (firm level) to macro competitiveness (country-level), approach that has been broadly criticized since a country cannot go out of business and competition between countries can benefit both, whereas competition between companies in the same sector is more likely to be a zero sum game [16].

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 [17]. Therefore, although widely associated to economic entities [18], competitiveness analysis has been extended to regions and sub-regions level [19] underlining the development of the regional competitiveness concept.

Some researchers define regional competitiveness by the actions of economic agents in a particular area in order to ensure increased standard of living [20] whereas other studies either approach it as a cumulative outcome of factors or are focused on a particular driver [21], [22].

Regardless of the defining, competitiveness is always linked to successful economic development and tangible results, being traditionally measured through GDP per capita even if other indicators should be defined in order to integrate the social, environmental, health and well-being dimensions.

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 and then by comparing the results in order to quantify the degree of success achieved [22] - [24].

The European Commission uses different measurement indicators mentioned in the Reports on Economic and Social Cohesion, as well as 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.

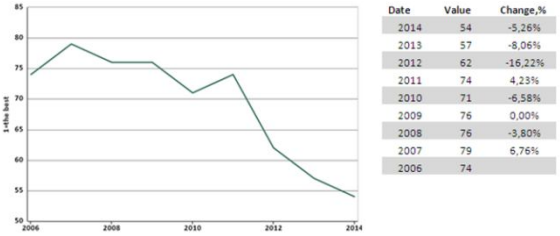
Consequently, no unique indicator of regional competitiveness can be established, being rather seen as a combination of interconnected and measurable economic categories: per capita regional GDP; regional labour productivity; regional employment rate; regional economic openness and so forth.

III. RESEARCH FRAMEWORK AND HYPOTHESES

Implementing the regional development policy in Bulgaria supposed the creation of six development regions, with no administrative or legal status, but territorial units large enough to represent a good basis for allowing an efficient use of financial and human resources. When discussing regional competitiveness in 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, it continues to suffer from the lack of adequate business culture and institutional framework, being also plagued by a labour market crisis leading to one of the lowest employment levels in its post-communist history registered in 2013 [25]. 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, Bulgaria is in its 2nd development stage, stage dictated by efficiency criteria, being considered an efficiency-driven economy. Bulgaria occupies the 54th place out of 144 countries, with a 4.37 score out of 7 [26].

The report ranks Bulgaria as the best in the Balkans in terms of competitiveness, stating that it moved up in the world competitive ranking by three places compared to last year's report (see fig. 1). However, this ranking underlines major problems in the development regions' performance, with direct consequences on the national economical development.



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	

Fig. 1. Evolution of Bulgaria's global competitiveness rank (2006 - 2014)

The main opportunity for Bulgaria to recover in terms of socio-economic disparities and become competitive with other EU Member States is through structural funds. 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, Bulgaria received 6.67 billion Euros, which represented 956 euro/capita for a then population of 20.06 million inhabitants [27]. Nevertheless, Bulgaria registered a low absorption rate (54% in October 2014) [28], 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 the nation's funds administration. In this context, the performance of EU structural funds allocation may impact upon the following programming period and its related allocations. Besides, the country's 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 [27], [29] or the topic of regional disparities [30], 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 [31], [32].

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

As we were further preoccupied with the nature of the impact, among the studies identified, there are those that find a positive impact [33] – [36], as well as those using more reliable econometric model who concluded that the impact is always significant and positive, albeit small [37].

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

IV. 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 mainly on socio-economic indicators measured by Eurostat [38]. 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 (see table I). In the context of our research, the dependable variables that define regional competitiveness were determined as described in table I, thus collecting data for the six Bulgarian development regions, 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, data was collected from the Unified Management Information System for the EU structural instruments of Bulgaria.

Table I: 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
E2 – Labour productivity (GDP/employees)	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	Statistical yearbook

Indicator	Meaning	Source
	activity, except military personnel, political organizations, non-government employees and detainees	
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	Statistical yearbook
	market with competitiveness	

Given the purpose of our research and the reduced number of observations, 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 II the descriptive statistics for the seven panel type variables, for the seven years period of time taken under consideration, with 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 II: Descriptive statistics

Var.	Mean	Std. Dev.	Variance	Skewness	Kurtosis
E1	87.56	36.56	13.51	1.69	1.60
E2	25.31	6.40	40.97	0.04	-0.93
S1	38.28	37.00	575.22	1.57	0.97
S2	20.79	14.18	196.96	0.70	0.26
T1	67.33	12.40	151.78	1.09	1.93
T2	35.69	4.24	203.43	1.82	1.48
SF	55.47	16.20	284.87	0.95	1.16
N^o obs.	42	42	42	42	42

According to the paper's goal, we next carried out separate regression analysis to underline the connections between each dependant variable and the independent one. 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 III presents the regression analysis output, for all of the six cases considered.

Table III: Analysis results

Variable	Coefficient	Multiple R	R Square	t-stat
E1	0.002	0.37	0.14	2.59
E2	4.94	0.33	0.11	2.26
S1	8.51	0.33	0.10	2.24
S2	4.98	0.35	0.12	2.39
T1	0.02	0.31	0.10	2.15
T2	0.001	0.32	0.10	2.19

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 all of the indicators, observations that 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 the analyzed countries, thus validating H2.

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 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 underlined a poor capacity of the Bulgarian 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 paths 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, Bulgaria is considered a problem-orientated region, lacking when comparing factors and defining regional competitiveness indicators. In the short term, absorption of structural funds is crucial in improving the country's competitiveness and supporting its 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 Bulgaria.

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