

# REGIONAL COMPETITIVENESS AND THE IMPACT OF EU STRUCTURAL FUNDS: THE CASE OF ROMANIA

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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. Romania's accession to the European Union in 2007 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. Our research is thus focused on analyzing the impact of structural funds' absorption upon regional competitiveness in Romania, using extensive data over a period of seven years. Results show that EU funds critically influence the competitiveness of Romanian regions, providing reliable data for policy decision makers.

**JEL classification: R11, R58**

Key words: EU structural funds; competitiveness; regional competitiveness; development regions

## 1. INTRODUCTION

In recent years, academics and policy makers alike have shown increasing concern towards the concept of competitiveness since 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. Therefore, competitiveness has become a recurring theme in international and national economies' assessments and a point of interest for the European Commission (EC).

The main driving force of change is the process of European Union (EU) integration aiming to increase the efficiency and competitiveness of the fragmented European economy in the face of increasing internationalization. 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.

Thus, 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.

According to the Europe 2020 Competitiveness Report (World Economic Forum, 2012), 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. Preoccupied with the inferior competitiveness of the European Union as opposed to that of the United States, one of the main current goals in this respect is to encourage 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.

For Romania, since 2007 when the country joined the European Union, the topic of European economic and social cohesion has become increasingly debated, taking into account the country's necessity to reduce its development disparities, a lengthy process focused on the least developed EU regions. 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.

Although an extensive research is centered on the topic of regional performance or regional disparities, less significance is given to the relationship between structural funds and regional competitiveness.

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

The paper is organized 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

Addressing the issue of competitiveness is often a difficult process, due to its character as a collective notion of economics, characterized by different perspectives in defining, understanding and measuring techniques. Throughout its development and defining, three major groups of thought can be distinguished: a comparative advantage and/or price competitiveness perspective (Porter, 1990; Rugman & D'Cruz, 1993); a strategy and management perspective (Mahmoud et al., 1992; Powell, 1992) and even a historical and socio-cultural perspective (Franke et al., 1991; Porter et al., 2001), that suggested different indicators in explaining or measuring competitiveness.

The concept's approach has shifted recently towards identifying various levels of competitiveness, as follows: (i) firm level competitiveness (Snieska & Draksaitė, 2007; Balzaravičienė & Pilinkienė, 2012); (ii) sectors competitiveness (Peters, 2010; Balkytė & Tvaronavičienė, 2010); (iii) regional competitiveness (Sepic, 2005; Snieška & Bruneckienė, 2009); (iv) national competitiveness (Arslan & Tathdil, 2012); (v) international competitiveness (Faucheux & Nicolai, 2011).

The World Economic Forum defines competitiveness as the set of institutions, policies and factors that determine the level of productivity of a country (Schwab &

Porter, 2007), linking micro- (firm level) to macro - (country-level) competitiveness, approach that has been broadly criticized since a country cannot go out of business and competition between countries can benefit both (Krugman, 1996).

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). Therefore, although widely associated to economic entities (Jurcut, 2014; Feder, 2014), competitiveness analysis has been extended to regions and sub-regions level (Reiljan et al., 2000) 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 while other studies either approach it as a cumulative outcome of factors or are focused on a particular driver (Lengyel, 2004; Garden & Martin, 2005).

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. Despite the increasing number of research on regional competitiveness, there is no common methodology or techniques of measurement established with the existing methods pursuing the measurement by building a set of indicators (as shown in table no. 1 below) and then by comparing the results in order to quantify the degree of success achieved.

**Table no. 1 Overview of regional competitiveness indicators**

Author(s)	Regional competitiveness indicators
Garden and Martin, 2005	Infrastructure and accessibility; Human resources; Productive environment.
Lengyel, 2004	Per capita GDP of the region; Labor productivity; Employment rate; Economic openness.
Kitson, Martin and Tyler, 2004	Innovation; Entrepreneurship; Economic governance; Internationalization; Quality of place.

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. These Reports are studies on the EU regions, 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 no. 2).

**Table no. 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/km <sup>2</sup> ); % of the population aged under 15, between 15-64, more than 65.
Education	educational attainment of those aged 25-59 (low, medium, high).

When considering the main objective of the EU 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) 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 EU 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'erna and Le Gallo (2007) 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.

As for the studies conducted and published regarding Romania's regional competitiveness, the literature research concluded that the majority of the studies are descriptive ones, approaching the subject through analyzes of statistical indicators' evolution.

### 3. RESEARCH FRAMEWORK. HYPOTHESES AND CONCEPTUAL MODEL

The main idea of our research is to identify the existence and the strength of the absorbed European structural funds' impact upon Romania's regions' competitiveness, considering that Romania started to benefit from European nonrefundable financial support with the aim of regional development.

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

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.

In terms of ranking, according to the *2014 – 2015 Global Competitiveness Report*, prepared by the World Economic Forum (2014), Romania is in its 2<sup>nd</sup> development stage; stage dictated by efficiency criteria, occupying the 59<sup>th</sup> place out of 148 countries, with a 4.30 score out of 7. Also, the report shows that Romania has moved up in the world competitive ranking (by 17 places), showing the biggest progress compared to last year's report, in which it was ranked 76<sup>th</sup>.

However, these rankings underline major problems in the development regions' performance, with direct consequences on the national economical development.

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

States. As such, for the first programming period of 2007 - 2013, Romania has received 19.7 billion Euros for investments in the public and private sector. With a then population of 20.06 million inhabitants, the average EU funds/capita for Romania was 917 euro/capita (KPMG, 2014).

Nevertheless, Romania registered a low rate of absorption (37.8% in October 2014, according to the Ministry of European Funds), due mainly to the systemic failure of the institutions responsible to implement effective mechanisms and appropriate management systems to engage in the implementation of a budget the size of which is unprecedented in the history of national funds' administration. The consequences of these systemic problems concerning the low level of absorption can lead to 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, Romania'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 spending of these funds.

Although the subject of Romania's low absorption capacity is highly discussed in the literature, few studies consider the impact of the structural funds' volume absorbed upon the regional competitiveness's evolution, focusing on either the problem of structural funds' absorption (Oprescu, 2006; Constantin, 2008; Morovan, 2010; Cace et al., 2011) or the topic of regional disparities (Surd et al., 2011; Muntean et al., 2010), with reduced emphasis on their correlation.

A great number of international studies follow the impact of structural funds on the convergence process, results being often different due to the employed methodology (Ederveen et al., 2002). Most studies find a positive impact (Garcia-Solanes & María-Dolores, 2001; Cappelen et al., 2003; Beugelsdijk & Eijffinger, 2005) or significant and positive albeit small (Dall'èrba et al., 2009). Thereby, our first research hypothesis was formulated as follows: **H1 - Structural funds have a positive impact on regional competitiveness in Romania.**

As for the problem of measuring regional competitiveness, several studies indicate the existence of a direct correlation between the volume of structural funds and the selected economic indicators' evolution (Puigcerver-Peñalver, 2007), which led to the second research hypothesis: **H2 – Structural funds' absorption contributes significantly to the increase of regional economic indicators.**

#### 4. METHODOLOGY AND RESULTS

In order to evaluate the impact of structural funds on regional competitiveness in Romania's case, 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, national studies focus on the indicators proposed by the Group of Applied Economics (2007), mainly socio-economic indicators measured by Eurostat.

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. We then grouped the indicators into three categories and collected data from the Regional Statistical yearbook for each of the 8 Romanian development regions for the 2007 – 2013 period,

as follows: (i) Economic Indicators (EI): (a) E1 – GDP/capita; (b) E2 – Labour productivity (GDP/employees); (ii) Social Indicators (SI): (a) S1 - Employment (total); (b) S2 - Employment (women); (iii) Technological Indicators (TI): (a) T1 – R&D total expenditure; (b) T2 - Employment in high-tech sectors. 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, the most comprehensive study realized in Romania is the 2013 Report of the Bucharest Institute for Public Policy from which the necessary information was extracted.

Given the purpose of our research and the reduced number of observations (56), 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 no. 3 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.

**Table no. 3 Descriptive statistics**

Variable	N° obs.	Mean	Std. Dev.	Variance	Skewness	Kurtosis
E1	56	28.5	16.30	266	0	1.79
E2	56	21.53	11.41	130.21	.11	1.87
S1	56	19.60	10.89	118.71	.02	1.78
S2	56	18.71	11.41	130.38	.06	1.73
T1	56	19.46	11.15	124.47	.10	1.80
T2	56	19.16	10.77	116.17	-.00	1.95
SF	56	20.17	10.45	109.24	-.31	1.93

Since the values for Skewness and Kurtosis indicate that the analyzed series are normally distributed, we can further proceed with this approach.

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. In table no. 4, we presented the regression analysis output, for all of the six cases considered.

**Table no. 4 Analysis results**

Variable	Coefficient	Multiple R	R Square	t-stat
E1	74.16	0.60	0.36	4.77
E2	0.04	0.60	0.36	4.75
S1	4.05	0.73	0.54	6.79
S2	1.81	0.73	0.53	6.72
T1	777.20	0.30	0.09	1.96
T2	13.43	0.37	0.13	2.51

Thus, 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%.

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

The analysis's results underline a strong positive correlation between structural funds and the economic and social indicators, 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 significantly to the increase of regional economic indicators, 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 Romania labour productivity has declined for all of the eight 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 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.

It should be noted that the results are consistent with the findings in the current research (analyzed in the literature review section) on the positive effects of structural funds on regional competitiveness, underlining the importance of access and absorption in order to ensure a sustainable development. Therefore, the results have a 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, no later than 2015.

In the European Union's context, Romania is referred to as a problem-orientated region, lacking when comparing factors and defining regional competitiveness indicators. Romania's development should be encouraged through the regional policy's instruments in respect to employment, research and technologies development, production etc.

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