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FACTORS INFLUENCING NUTS3 LEVEL REGIONAL COMPETITIVENESS IN CENTER REGION, ROMANIA. A PANEL REGRESSION ANALYSIS

Lehel Györfy*, Szilárd Madaras

Department of Economics and Business Administration in Hungarian Language,
Faculty of Economics and Business Administration,
Babeș-Bolyai University, Cluj-Napoca
E-mail: lehel.gyorfy@econ.ubbcluj.ro
* Corresponding author

Biographical Notes

Lehel Györfy is associate professor at the Babeș-Bolyai University in Cluj-Napoca, Romania. The field of his research is entrepreneurship, management, regional economics. He received his PhD in 2009 in Management. He is the author of more than 50 scientific publications in the field of entrepreneurship and regional economics and he is member of numerous prestigious international research networks, e.g. the Global Entrepreneurship Monitor.

Szilárd Madaras is university lecturer at the Sapientia Hungarian University of Transylvania, Miercurea Ciuc, Romania. He received his PhD in Economics in 2010. His research interests cover regional economics, labour force employment, regional and rural development, tourism and time series analysis.

Abstract

The paper analyses the aspect of regional competitiveness in case of the Center region of Romania, which contains six NUTS3 regions. The study refers to the 2000-2013 period, and it deals with regional competitiveness influencing factors and areas known from the literature, such as: Economic development, Infrastructure, Health, Education, Labor market, Urbanisation, Business sophistication and Innovation. A regional panel database was set up for the indicators, and their influence on the GDP per capita was tested using cross-section fixed, period fixed and period random effects models, as well as the Arellano-Bond dynamic panel-data estimation. The results indicate that in the region

the Business sophistication and the Labor market areas have to be considered priority areas in the regional economic development planning.

Keywords: regional economics, regional competiveness, panel regression, panel regression
JEL Classification: R11, R15, C33

1. Introduction

Competitiveness and its evaluation have a significant position in the European Union, but also in the world (Nevima and Melecky, 2011). Regional competitiveness, how an area rates in comparison with others, is receiving increasing attention in trade publications and the popular press (Berry and Glaeser, 2005). Individual firms that continuously lose market share and face decreasing profitability are characterised as being 'uncompetitive', and may finally go out of business. At aggregate level, most definitions of competitiveness refer to a territory's economic 'performance', such as the Gross Domestic Product (GDP) per head, productivity, or trade balance, recent definitions focusing on the 'ability to produce goods and services that meet the test of international markets, while at the same time maintaining high and sustainable levels of income and employment' (Martin, 2015). The term ”competitiveness” is a relatively new one in the literature and the idea of competitiveness has attracted a large debate. Definitions of regional competitiveness are numerous and most definitions include profitable firms and an improving quality of life for local people (Barkley, 2008). The definitions testify to the fact that some regions do better – in terms of average prosperity, standard of living, employment, growth or some other measure of 'performance' – than others (Martin, 2015). Houvari et al. (2001) adopted the view that regional competitiveness is the 'ability of regions to foster, attract and support economic activity so that its citizens enjoy relatively good economic welfare'. Because of the lack of mainstream approach to regional competitiveness evaluation, there is a space for individual approach application (Nevima and Melecky, 2011). Proter (2003) showed that in the global economy regions are increasingly becoming the drivers of the economy and generally one of the most striking features of regional economies is the presence of clusters, or geographic concentrations of linked industries (Nevima and Melecky, 2011).

Porter's (2001) 'new economics of competition' is associated with six transitions: from macroeconomic policies to microeconomic policies, from the economy as a whole to a focus on 'clusters', from separate to integrated economic and social policy, from a concern with current productivity to emphasizing innovation, from internal to external sources of company success, and from national to regional and local levels as the level of analysis and policy intervention (Porter, 2001; Martin, 2015). Krugman (2003) argues that success for a regional economy, then, would mean providing sufficiently attractive wages and/or employment prospects and return on capital to draw in labour and capital from other regions (Krugman, 2003; Martin, 2015). Other arguments on regional competitiveness focus on the holders of the creative capital, the type of human capital, location decisions of the people (Florida, 2000), or 'the ability of a regional economy to attract and maintain firms with stable or rising market shares in an activity while maintaining or increasing standards of living for those who participate in it' (Storper, 1997). On basis of Krugman (1994), Nevima and Melecky (2011) also warned that even the macroeconomic concept of national competitiveness cannot be fully applied at the regional level because the regional competitiveness is much less clear defined and they argue that definitions given by scientists for regional competitiveness are key points in starting their analyses and in defining their tools and indicators. The regional disparities and the competition between the regions are facts that justify the relevance of regional competitiveness and of the regional policies (Camagni, 2010).

Snieška and Bruneckiene (2009) consider that the regional competitiveness is a complex term and it cannot be fully described by one or several indicators, but only with a complex measurement of competitiveness. Nevima and Melecky (2011) examined the possibility of assessing the competitiveness of the regions of the Visegrad Four (V4) countries at NUTS 2 level in terms of macro econometric modeling, using panel data regression model techniques. Under regional data they used time series of five explanatory indicators, and one dependent variable, on annual basis, including: gross domestic product (GDP), gross fixed capital formation (GFCF), gross expenditure on research and development (GERD), net disposable income of households (NDI) the Employment rate (ER), and the number of students in tertiary education, variables which were chosen arbitrary. Their gradual model correction needed GFCF and NST exclusion as they showed very low impact on GDP production. Audretsch and Pena-Legazkue (2012) analysed the linkage between the entrepreneurial activity of a region and its level of competitiveness. They point out that 'an economically advanced region may be better suited to nurture innovation-driven high growth ventures, but, at the same time, a high boost and concentration of the so-called gazelle firms in a given territory is expected to enhance its level of competitiveness and prosperity'. Policy makers are recommended to understand that innovation alone does not suffice for improving regional competitiveness and entrepreneurship plays a crucial role, that local economic effects derived from an enriched entrepreneurial capital will arise in long term, and that the idiosyncratic nature of a local economy makes it difficult to replicate and apply practices that have worked well in other regions (Audretsch and Pena-Legazkue, 2012). Berry and Glaeser (2005) found that 'initial high income, and high skill places are increasingly attracting more people (with college degrees).' They attribute this to skilled people starting businesses that hire other skilled people. Barkley (2008) stated that measures of regional competitiveness vary between studies that focus on ‘inputs critical to the regional production function or outputs and outcomes of the production process’. There it can be pointed out that indicators such as labor productivity (Krugman, 1990) or productivity in the traded goods and services sectors (Porter, 2000) are considered by most of the authors’ critical output measures (Barkley, 2008). However, Kitson et al. (2004) noted that productivity is very difficult to measure, and, that regional productivity may be increased also by simply eliminating low-productivity jobs. They also add that unfavorable outcomes (job losses) may result from what appear to be favorable changes. They recommend that competitiveness also should include outcome measures such as ‘the ability to sustain a high rate of employment amongst the working age population’. Related to this, Budd and Hirmis (2004) suggested the consideration of the ‘quality of jobs’ in the area. As condition for regional competitiveness, Houvari et al. (2001) emphasized the role of production environment with high accessibility that perpetuates and attracts mobile production factors (skilled labour, innovative entrepreneurs and footloose capital), and results in fostering the economy. In their attempt to assess regional competitiveness, Mereuță et al. (2007) built up an operational model in order to evaluate national competitiveness, based on five criteria: overall operational economic performance, energy use, information and communication technology, gross value added structure and participation in the international markets. Goschin (2014), on the other hand, focused on the role of regional R&D efforts in regional competitiveness, her results indicating a significant impact of R&D expenditures on the regional economic growth process in Romania in the 1995-2010 period.

To improve the understanding of regional competitiveness, the European Commission has developed the Regional Competitiveness Index (RCI)- for each of the EU NUTS2 regions, showing their weaknesses and strengths. According to this Index, in 2013, the Romanian, Bulgarian and Greek regions (except for the capital regions) are steadily worst performers in the EU (Annoni and Dijkstra, 2013). Prior to the construction and calculation of the RCI,regional competitiveness was defined as the ‘ability to offer an attractive and sustainable environment for firms and residents to live and work’ (Dijkstra et al., 2011). The index is based on eleven pillars describing inputs and outputs of territorial competitiveness, grouped into three sets presenting basic, efficiency and innovative factors of competitiveness. The basic pillars represent the basic drivers of all economies. They include (1) Quality of Institutions, (2) Macro-economic Stability, (3) Infrastructure, (4) Health and the (5) Quality of Primary and Secondary Education. The efficiency pillars are (6) Higher Education and Lifelong Learning (7) Labour Market Efficiency and (8) Market Size. The innovation pillars, which are particularly important for the most advanced regional economies, include (9) Technological Readiness, (10) Business Sophistication and (11) Innovation. This group plays a more important role for intermediate and especially for highly developed regions’ (Annoni and Dijkstra, 2013). Dijkstra et al. (2011) set clear that the RCI index focuses on NUTS 2 regions in the European Union, and that the competitiveness should be calculated for a functional region with important political and administrative role. Snieška and Bruneckiene (2009) indicated that the stages of the RCI calculation are the followings: ‘the determination and grouping of the factors of regional competitiveness, the identification of indicators, the identification and normalizing values of indicators, the weighting of factors, the formation of RCI function, the calculation of RCI and the analysis of its uncertainty and sensitivity’.

The use of the panel models are a new field of regional researches, in case of which the time series data of the territorial units (countries, regions, etc.) are input data.

In one of their reference works, using panel data, Van Steland Suddle (2008) analyzed for the NUTS 3 regions of the Netherlands the time-effect relation between the regional entrepreneurship start-ups and employment.

Fixed effect and random effect cross-section regression models were used by Naudé and Saayman (2005) in order to identify the determinants of tourist arrivals in 43 African countries between 1996–2000, using a series of regional indicators describing the economic, social, and public health conditions of the countries.

Kangasharju (2000) analyzed on basis of a panel database 19 NUTS3 regions of Finland for the period 1989-1993, focusing on the regional factors on firm formation, using a set of indicators, in a cross-sectional regression model.

A fixed-effect model was used by Arbia and Piras (2005) to describe the convergence of per-capita GDP in the NUTS 2 regions of some European countries.

In case of the Center region of Romania, in the six counties (Alba, Brașov, Covasna, Harghita, Mureș, Sibiu) a panel dataset has been built up for the 1997-2007 period. On basis of this, a random-effects linear regression model described the evolution of the unemployment rate, as dependent variable, with the use of a set of socio-economic indicators (Madaras, 2009).

2. The linear panel data regression models

The panel regression analysis method is regarded to time series data of variable n with period T (panel matrix). The form of the basic model equation is:

$$y_{it} = \alpha + x_{it}\beta + \upsilon_i + \varepsilon_{it},\ \text{i = 1, ..., n and t = 1, ..., T} \quad (1)$$

where, α is constant, β are the parameters of the model, estimated with calculations, $\nu_i + \varepsilon_{it}$ are is the error term, ν_i are the unit-specific error term; it differs between units, but for any particular unit, its value is constant and ε_{it} is the usually used error term with the following properties: the mean is equal to 0, it is uncorrelated with itself,and uncorrelated with x, also uncorrelated with ν, and it is homoskedastic. (Baltagi, 2013; Wooldridge, 2010, 2013)

For panel datasets linear static and dynamic models are the most generally used. The *period fixed-effect* model estimates the ε_{it} time dependent paramterer for all *i*, in the *cross-section fixed-effect* model v_i is estimated as a parameter for each cross section observation, while the *random-effect* model treats the latent variable as a random variable. (Wooldridge, 2010)

The dynamic panel-data model has the following form:

$$y_{it} = \sum_{j=1}^{p} \alpha_j y_{i,t-j} + x_{it}\beta_1 + w_{it}\beta_2 + v_i + \varepsilon_{it} \qquad i = 1,...,N \quad t = 1,...T_i \tag{2}$$

where *p* refers to the lags of the dependent variable, and α_j and β_1 are parameters estimated with the generalized method of moments (GMM) estimator proposed by Arellano and Bond (1991). The w_{it} component of the model refers to the predetermined and endogenous covariates, and the model also contain unobserved, panel-level effects v_i, while the ε_{it} are i.i.d. The model is used for testing theories and evaluating policies as the exogenous parameters from the panel database are selected in thise sense (Wooldridge, 2010; STATA, 2015).

The general "systematic overview of panel data models", as useful method in regional science, was performed by Elhorst (2003). Static and dynamic models in the estimation of the factors influencing the primary and secondary market spreads by sub-sovereign European governments were used by Bellot et. al. (2017).

The dynamic and autoregressive spatial lag panel data model was used by Baltagi et. al. (2011) for the estimation of regional Gross Value Added (GVA) in 255 NUTS-2 regions, from 25 EU countries for T=9 period of time, concluding that the dynamic first order spatial autoregressive model (SAR-RE) means a real alternative to the commonly used Arellano and Bond (1991) model.

Brülhart and Mathys (2008) estimated agglomeration economies, defined as the effect of density on labour productivity in European regions, using dynamic panel estimation techniques (system GMM).

The main factors influencing the regional labor productivity in the regions of Greece were estimated by Benos and Karagiannis (2016) using FE and dynamic system GMM estimators based on a human capital indicators of panel data.

3. The factors of the competitiveness in the Center region. A regression model.

As our literature review emphasized, the GDP per capita is the most frequently used indicator in the literature in order to characterize the competitiveness of a territory. Our regression model is built up to highlight the main influencing factors of the regional GDP per capita in the Center region of

Romania, taking in consideration the level and the dynamics of the possibly influencing indicators registered in the six NUTS 3 level counties. The comparative situation of the GDP per capita is presented in Table 1 below. The data indicates that in 2013 the GDP per capita was lower in the Center region than it was generally in Romania, but it was higher than in the Macro-region One (consisting of the Center and the North-West NUTS 2 region). However, the dynamics of the GDP per capita between 2000 and 2013 is lower than it is in Romania and the Macro-region One. Analyzing by countries, the GDP per capita is the highest in Brașov county, followed by Sibiu and Alba, Mureș, Harghita and Covasna (only at 59,87% of the level of the leading county in the region). The dynamics between 2000 and 2013 indicate a higher increase of the indicator than the regional average in Alba, Sibiu and Brașov, and lower increase in Mureș, Harghita and Covasna.

Table 1. The GDP per capita indicator and its dynamics between 2000 and 2013 in the counties of the Center region (real prices)

	2013, RON	2013, relative share to the leading county (%)	2013-2000 relative share between the value in 2013 and 2000, (%)
Romania	5822.71	X	163.5245
Macroregion one	5299.98	X	155.0006
Center region	5454.403	X	147.9464
Alba county	5510.99	79.81	176.8015
Brașov county	6905.252	100.00	157.2715
Covasna county	4134.245	59.87	108.7548
Harghita county	4214.495	61.03	124.3164
Mureș county	4641.495	67.22	131.9679
Sibiu county	6045.059	87.54	167.0048

Source: own calculation on basis of INSSE database

The starting point of our further analysis of the 2000-2013 period and for the six counties of the Center region of Romania was the database built up by nine indicators. The changes of the GDP per capita indicator were described and explained as an influence of such indicators, which describe the following areas in our model: infrastructure, health, education, labor market, urbanisation, business sophistication and innovation. These areas are those established by the Regional Competitiveness Index (RCI), except for the Market size and Technological readiness areas, which were not included in our database because of lack of county (NUTS 3) level data. The indicators used to characterize the certain areas were indicators frequently used in literature (Nemes-Nagy, 2005) or, in some cases, these were replaced by indicators with close sense due to data availability reasons.

In the literature we found several examples regarding the improvement of the generally used set of indicators (Brooksbank and Pickernell, 1999) and to the adaptation of these indicators to the limitations of the available statistical data in the researched area (Goschin et. al., 2008).

The economic development area is described by the GDP per capita indicator, the dependent variable of our model. Table 2 describes the variables of our model, presenting also the areas characterized by the certain indicators.

Table 2. The database of variables used in regression analysis

Area	Indicators						
	Nr.	Description	Measurment unit	Mean	Std. Err.	Min	Max
Economic development	1	GDP per capita	Milion lei / 1000 inhabitants	4.697381	0.1079732	4.482627	4.912135
Infrastructure	2	Share of modernised roads of total roads	%	28.00298	0.9832478	26.04734	29.95862
Health	3	Number of hospital beds per 1000 inhabitants	Beds / 1000 inhabitants	6.874405	0.1207841	6.63417	7.114639
Education	4	Number of high-school graduates per 1000 inhabitants	High-school graduates / 1000 inhabitants	3.568452	0.0470228	3.474926	3.661979
	5	Number of university graduates per 1000 inhabitants	University graduates / 1000 inhabitants	5.400714	0.7086321	3.991274	6.810155
Labor market	6	Employment rate	%	62.9	0.4985607	61.90838	63.89162
Urbanisation	7	Share of urban population of total population	%	58.88202	1.139855	56.6149	61.14915
Business sophistication	8	Number of enterprises (economic units) per 1000 inhabitants	Number of entreprises / 1000 inhabitants	19.66167	0.5209698	18.62548	20.69785
Innovation	9	Total R+D expentiture	Logarithmed value	9.290833	0.1763871	8.940006	9.64166

Source: own calculation on basis of INSSE database

Panel unit root tests analyse the stationarity of the variables. Levin Lin and Chu (LLC) (2002) provided commonly used unit root tests for panel data. The Breitung (2000) and the LLC tests employ a null hypothesis of a unit root.

Table 3. Unit root tests for the variables of the panel

Variables	Levin, Lin and Chu (LLC)[1]		Breitung[2]	
	Level	First difference	Level	First difference

gdppc	-2.46535***	-1.12335	-0.07105	-3.21274***
mdroad	-1.09393	-3.67040***	-1.92601**	-1.49802*
sanbds	-6.57818***	-5.07568***	-0.02993	-2.53838***
sclmed	-1.01930	-3.81151***	0.25725	-3.70350***
scluniv	-1.30499*	-4.80431***	0.16274	-5.22670***
ratoc	-1.33142*	-5.28903***	-1.47415*	-2.57845***
popurb	0.88841	-1.90336**	0.20784	2.61189
entrp	-4.82730***	-2.46981***	-1.85465**	-4.30420***
resdev	-1.72713**	-3.45530***	-3.05547***	-3.49747***

*Note: [1] individual intercept, [2]individual intercept and trend. * and ** respectively *** significant at 10%, 5% and %1 respectively.*

Source: own calculation on basis of INSSE database

Levin, Lin and Chu (LLC) (2002) test results show that GDP per capita, number of hospital beds per 1000 inhabitants and the density of enterprises are significant at 1% level, and, the R+D expenditure at 5% level. The first difference is significant at 1% level in case of all studied indicators except for GDP per capita and the share of urban population, at 5% level the share of urban population is also significant. (Table 3)

The Breitung test results indicate the R+D expenditure significance at 1% level, and the share of modernized roads and the density of enterprises is significant at 5% level. The first difference is significant at 1% level in case of all studied indicators except for the share of modernized roads and the share of urban population. (Table 3)

The Geweke-Granger causality tests was performed to understand the nature of the relationship between the (competitiveness described by) GDP per capita and the set of regional indicators included in the analysis. The null hypothesis that *x* indicator does not Granger cause the GDP per capita (GDPPC) was rejected in all cases, excepting the share of urban population of total population (POPURB) and the total R+D expenditure (RESDEV) (Table 4).

Table 4. Causality test results

Null Hypothesis: *x* does not Granger Cause *GDPPC*		
x	F-Statistic	Probability
ENTRP	1.76936	0.17831
MDROAD	0.43341	0.65010
POPURB	8.10592	0.00070
RATOC	1.66229	0.19743
RESDEV	3.32143	0.04213
SANBDS	0.66228	0.51902
SCLMED	0.15675	0.85523
SCLUNIV	1.20992	0.30465

Source: own calculation on basis of INSSE database

Those indicators which do not explain the GDP per capita, based on the causality test results, were excluded from the following calculations. The database narrowed down; in this way, it was analyzed with different models known from the literature.

The longitudinal data models were performed as follow: the cross-section fixed effects model results shows positive connection of GDP per capita with the indicators: the number of enterprises per 1000 inhabitants (ENTRP), the share of modernized roads of total roads (MDROAD), the employment rate (RATOC), and negative with the number of hospital beds per 1000 inhabitants (SANBDS), number of high-school graduates per 1000 inhabitants (SCLMED) at 1% significance level. The period fixed effects model emphasizes positive and significant influence on the GDP per capita in case of thenumber of enterprises per 1000 inhabitants (ENTRP) and the number of university graduates per 1000 inhabitants (SCLUNIV) at 1% level, and the share of modernized roads of total roads (MDROAD) at 5% level. The period random effects model indicates the positive and significant influence to the GDP per capita, at 1% significance level for the indicators: the number of enterprises per 1000 inhabitants (ENTRP), the share of modernized roads of total roads (MDROAD) and the number of university graduates per 1000 inhabitants (SCLUNIV). (Table 5)

Table 5. The estimates of the static regional competitiveness models

Variable	Coefficients		
	Cross-section fixed effects	Period fixed effects	Period random effects
Constant	-1.399943	-1.726634	1.106543
ENTRP	0.142359***	0.129630***	0.113887***
MDROAD	0.024916***	0.017059**	0.020654***
RATOC	0.075040***	0.051462*	0.034490*
SANBDS	-0.191459***	-0.017445	-0.125761*
SCLMED	-0.220593***	-0.009002	-0.223203*
SCLUNIV	-0.002994	0.057866***	0.049032***
Adj. R-sq.	0.927437	0.760757	0.778008
F-statistic	97.43888	14.89092	49.48129
Prob(F-stat.)	0.000000	0.000000	0.000000

Source: own calculation on basis of INSSE database

The dynamic panel-data model is proposed by literature, being more appropriate than the static models above for testing theories and evaluating policies as selected exogenous parameters of the panel database in a model, which also contain unobserved, panel-level effects. The Arellano-Bond dynamic panel-data estimation of GDP per capita was performed, using the set of indicators as standard parameters in the GMM (Generalized method of moments) estimation, with number of lags p=1 and p=2 in the first respectively the second model. The results of the Arellano-Bond test with the null of no autocorrelation at first-order in the first-differenced errors indicate that the idiosyncratic errors are i.i.d., while in order 2 there are no serial correlations of the errors in the both models. (Table 6)

Table 6. The statistics of the dynamic panel-data models

Variable	Coefficients			
	p = 1		p = 2	
gdppc LD.	.3604575***		.2409764**	
gdppc L2D.			.1512236*	
Entrp	.083754***		.0831827***	
Mdroad	.0082834*		.0080421*	
Ratoc	.0632398***		.0681093***	
Sanbds	-.1528836***		-.1047019	
Sclmed	-.1228795*		-.1034767	
Scluniv	-.0002607		.0006649	
Arellano-Bond test results				
	Z	Prob.	z	Prob.
	-3.8163	0.0001	-4.1281	0.0000
	.9344	0.3501	-.50924	0.6106
	-.33157	0.7402	.523	0.6010

Source: own calculation on basis of INSSE database

The first linear dynamic panel-data model indicates the positive and significant influence at 1% significance level to the GDP per capita in case of the number of enterprises per 1000 inhabitants (ENTRP), the employment rate (RATOC), and negative one with the number of hospital beds per 1000 inhabitants (SANBDS), while second model positive and significant influence in case of the number of enterprises per 1000 inhabitants (ENTRP) and the employment rate (RATOC).

4. Conclusions

Our analysis focused on the empirical investigationof the European Commission developed RCI's (Regional Competitiveness Index) basic pillars in the case of the Center region of Romania. We had the intentention to cover all the dimensions representing the basic pilars of the RCI described by the literature, but in the implementation of our case study we had to adapt the set of regional indicators to the limitations of the available statistical data. This concluded in this particular the case to a panel data base which describe the changes of the GDP per capita in the six counties of the Center region of Romania in the 2000-2013 period using eight indicators of the following areas: infrastructure, health, education, labor market, urbanisation, business sophistication and innovation (Table 2.).

We were interestedin the nature of causality between the GDP per capita and the set of regional indicators included in the analysis in this NUTS2 region. The results of the Granger causality test showed that excepting the share of urban population of total population and the total R+D expenditure, all the indicators have influence on the competitiveness indicator. In the following calculations the database was narrowed down based on these results.

Three panel models were estimated using the selected set of indicators: a cross-section fixed effects, a period fixed effects and a period random effects model. All this models indicate the positive and significant influence to the GDP per capita at 1% significance level of the number of enterprises per 1000 inhabitants and the share of modernized roads of total roads, suggesting the importance of the regional entrepreneuship willingness (inclination) and infrastruture in Central Region.

The cross-sectional effects model results shows positive connection of GDP per capita in almost all indicators included in the estimation, namely, positively with the the number of enterprises per 1000 inhabitants, the share of modernized roads of total roads, the employment rate, and negatively with the number of hospital beds per 1000 inhabitants and the number of high-school graduates per 1000 inhabitants.

In Central Region, the positive significant effect of the number of university graduates per 1000 inhabitants to the regional competitiveness was justified by the results of two models: the period fixed effects and the period random effects models.

For theories testing and politices evaluating the literature purpose the dynamic panel-data model is more appropriate than the static models.

The Arellano-Bond dynamic panel-data estimation of GDP per capita was performed using the GMM (Generalized method of moments) estimation of the variables included in the database. The first model justified the positive significant influence at 1% significance level in case of the number of enterprises per 1000 inhabitants, the employment rateand negative one with the number of hospital beds per 1000 inhabitants, while the second model justified the case of the number of enterprises per 1000 inhabitants and the employment rate.

Our dynamic models demonstrate that in the counties of the Center region of Romania the labor market and business sophistication are those areas of the Regional Competitiveness Index which influence positively the GDP per capita, in concordance with the literature.The policy implications of these results indicate that county level development policies in this region should be prioritized around these two key areas in order to increase the competitiveness.

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