FACTORs OF COMPETITIVENESS VS. LEVEL AND DYNAMICS
OF ECONOMIC GROWTH IN THE EUROPEAN REGIONAL SPACE

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Key words:
Factors of competitiveness – level and dynamics of economic growth

Abstract:
The objective of the hereby study is the analysis and assessment of interrelations occurring between the selected attributes of regions’ competitiveness, as well as the level and dynamics of economic growth. Spatial scope of the research is based on regional division of the European Union countries, for which NUTS II units, defined according to the Nomenclature of Territorial Units for Statistics, have become the points of reference. Time span of the research covers one year – 2005. The level and dynamics of Gross Domestic Product and attributes illustrating region’s competitiveness like: production factors, social and economic climate, related and supporting sectors, constitute basic characteristics used for the analysis. The study is of empirical nature.

1. Introduction
Regions’ competitiveness is observed as the firm and stable advantage of some regions over the other, or as a distance separating one region from others [2, 15-26]. It may be assumed that region’s competitiveness translates itself into the capacity for creating more extensive wealth, as compared to other regions regarded as competitors [3, 14]. A competitive region is successful in establishing such conditions for enterprises situated in its area which facilitate them in winning against the competition, besides the region is capable of winning competitive advantage against other regions if it captures investment capital and mainly the capital accumulated in projects characterized by high level of innovation [1, 124].

The attributes illustrating region’s competitiveness may represent diversified significance with regard to different hierarchy of objectives, potential, line of business or strategy for an enterprise development. Following the publication by M.E. Poter [5, 260-265], the mentioned below, mutually interrelated factors, constituting the, so called, rhombus of competitive advantage, may be distinguished: production factors, demand conditions, social and economic climate, related and supporting sectors. Each factor is associated with adequate features of the region, which at the same time constitute contemporary criteria responsible for the attractiveness of a foreign enterprise business activity spatial location.

At present, among production determinants, the dominating importance is associated with labour force qualifications and innovations related to creating, disseminating and applying knowledge. It is also directly associated with implementing the latest information and telecommunication technologies. Among demand determinants the utmost importance, apart from its volume, is associated with quality defined by consumption patterns and purchasing power of the region inhabitants [6, 41-51]. Social
and economic climate is influenced by conditions of conducting economic activity, as well as living conditions in the region. They play the role of additional encouraging factors for enterprises looking for attractive foreign markets. The final factor of region’s competitive advantage is the, so called, related and supporting sectors. Their importance results from observing a competitive region as an area in which a strong system of network relations is being established nowadays [4].

The most frequently applied measure of economic growth is Gross Domestic Product obtained in a given region. It may seem controversial that regional development, as a complex and manifold process, is measured by means of just one factor. Undoubtedly it does manifest certain simplification of the problem, however, the application of Gross Domestic Product is supported by methodological and interpretational simplicity, accompanied by information availability.

2. Information background for research

The European Union regions, distinguished in line with NUTS II classification, have become the basis for research. Eurostat data base was used while choosing statistical information. The segmentation of 271 European NUTS 2 level regions turned out impossible due to unavailability of statistical information. Therefore, the analysis covered the sample made up of 229 European regions. The study did not cover 42 regions, including eight Greek, seven French, five Danish, German and British, two Spanish, Slovenian, Polish and Portuguese, as well as one Belgium, Italian, Finish and Austrian region.

The analysis was conducted for 2005 and focused on the level of regional development, as compared to an average European Union level and the rate of growth. The following statistical attributes were applied: Y1 – Gross Domestic Product / 1 inhabitant in PPS units (Purchasing Power Standards) (EU-27 = 100), Y2 – GDP growth rate in 2005 as compared to 2002 (in %)).

The following set of statistical attributes, distinctive for each factor of competitiveness, was suggested:

I – production factors:
\[ X_1 = \text{share of the employed tertiary education graduates in the total labour force number aged 25-64 (in %)} \]
\[ X_2 = \text{share of the employed tertiary education graduates in the total population number aged 25-64 (in %)} \]
\[ X_3 = \text{share of adult population (aged 25-64) participating in lifelong learning in the total population number aged 25-64 (in %)} \]
\[ X_4 = \text{human resources in science and technology as % of total population number} \]
\[ X_5 = \text{human resources in science and technology as % of professionally active population aged 25-64} \]
\[ X_6 = \text{number of patents registered in the European Patent Office per 1 million of labour force} \]

II – social and economic climate:
\[ X_7 = \text{share of the employed in services dealing with financial mediation and consultancy, real estate intermediary, rental and general business in the total number of labour force (in %)} \]
$X_8$ – unemployment rate (in %),
$X_9$ – long term unemployment (at least 12 months) as % of total unemployment,

III – related and supporting sectors:
$X_{10}$ – share of the employed in high-tech sectors (high-tech industry and services and knowledge based services) in the total number of labour force (in %),
$X_{11}$ – share of the employed in high and mid-tech industry in the total number of labour force (in %),
$X_{12}$ – share of the employed in services based on knowledge and high-tech services in the total number of labour force (in %),
$X_{13}$ – share of the employed in knowledge based services in the total number of labour force (in %),
$X_{14}$ – share of the employed in market services based on knowledge in the total number of labour force (in %),
$X_{15}$ – share of the employed in financial services based on knowledge in the total number of labour force (in %),
$X_{16}$ – work capacity (Gross Domestic Product per 1 employee) in thousands of PPS.

The above factors, owing to the absence of statistical data, do not include the factor which defines demand conditions.

3. The analysis of interdependencies between factors of the European regions’ competitiveness and the level and dynamics of regional GDP

Having conducted the analysis on statistical information availability, the following variables $X_{10}$, $X_{12}$, $X_{15}$ were removed from the set of regions’ competitiveness attributes, since the number of missing data exceeded 15%. The other variables were characterized by information availability and sufficient variability, higher than 10%.

The analysis of competitive attributes correlation with the level and economic development growth ($Y_1$, $Y_2$) was conducted in regional studies. Critical value of correlation coefficient was set at the level of $r^* = 0.13$. It represents border value, above which correlation coefficient is statistically significant at the level of $\alpha = 0.05$, for $N - 2 = 227$ degrees of freedom. Table 1 presents correlation coefficients of the attributes referring to regions’ competitiveness (excluding unavailable variables ($X_{10}$, $X_{12}$, $X_{15}$)) together with economic growth level and rate ($Y_1$, $Y_2$). The only attribute insignificantly correlated with both the rate and level of growth was $X_6$ variable – the number of patents registered in the European Patent Office per 1 million of labour force. $X_{11}$ was insignificantly correlated with $Y_1$ (GDP per capita level (EU-27=100)), and variables $X_1$, $X_2$, $X_8$ and $X_9$ with $Y_2$ (GDP growth rate in 2005 as compared to 2002 (in %)). Significant correlation with both the level and rate of growth occurred in case of the following variables: $X_3$ – share of adult population (aged 25-64) participating in lifelong learning in the total population number aged 25-64 (in %), $X_4$ – human resources in science and technology as % of total population number, $X_5$ – human resources in science and technology as % of professionally active population aged 25-64, $X_7$ – share of the employed in services dealing with financial mediation and consultancy, real estate intermediary, rental and general business in the total number of labour force (in %), $X_{13}$ – share of the employed in knowledge based services in the total number of labour force (in %), $X_{14}$ - share of the employed in market services.
Based on knowledge in the total number of labour force (in %), $X_{16}$ – work capacity in thousands of PPS.

**TAB. 1: Correlation of attributes illustrating regions’ competitiveness with the level and rate of economic growth in 2005.**

<table>
<thead>
<tr>
<th>Attributes of competitiveness</th>
<th>Level and rate of growth</th>
<th>Variables significantly correlated with competitiveness attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>$X_1$</td>
<td>0.544</td>
<td>$Y_1$</td>
</tr>
<tr>
<td>$X_2$</td>
<td>0.595</td>
<td>$Y_1$</td>
</tr>
<tr>
<td>$X_3$</td>
<td>0.489</td>
<td>$Y_1, Y_2$</td>
</tr>
<tr>
<td>$X_4$</td>
<td>0.714</td>
<td>$Y_1, Y_2$</td>
</tr>
<tr>
<td>$X_5$</td>
<td>0.734</td>
<td>$Y_1, Y_2$</td>
</tr>
<tr>
<td>$X_6$</td>
<td>0.019</td>
<td>0.071</td>
</tr>
<tr>
<td>$X_7$</td>
<td>0.836</td>
<td>$Y_1, Y_2$</td>
</tr>
<tr>
<td>$X_8$</td>
<td>-0.413</td>
<td>$Y_1$</td>
</tr>
<tr>
<td>$X_9$</td>
<td>-0.429</td>
<td>$Y_1$</td>
</tr>
<tr>
<td>$X_{11}$</td>
<td>0.085</td>
<td>$Y_2$</td>
</tr>
<tr>
<td>$X_{13}$</td>
<td>0.700</td>
<td>$Y_1, Y_2$</td>
</tr>
<tr>
<td>$X_{14}$</td>
<td>0.781</td>
<td>$Y_1, Y_2$</td>
</tr>
<tr>
<td>$X_{16}$</td>
<td>0.957</td>
<td>$Y_1, Y_2$</td>
</tr>
</tbody>
</table>

Source: author’s calculations.

It is quite characteristic that the relation of presented variables with GDP level was much stronger and positive, while with GDP growth rate was weaker and negative. It means that the regions representing high level of development are also characterized by high level of competitiveness attributes values in case of $X_3$, $X_4$, $X_5$, $X_7$, $X_{13}$, $X_{14}$, $X_1$. On the other hand, these European regions which are characterized by high dynamics of development show relatively low values of the analyzed competitiveness factors. It results from the fact that the relatively wealthy European NUTS II level regions (high GDP/1 inhabitant) are developing slower than the less developed regions, and therefore values of attributes illustrating competitiveness present lower value there.

**Literature:**


