Comparative Analysis of Business Sophistication of Serbia and Its Neighbouring Countries *

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Summary:
Innovation of an economy refers to the ability of a national economy to create and use knowledge in the production of new products, services and processes. In the economy of knowledge, innovation represents a key determinant of the competition of a country at the world market. Metrics Global Innovation Index is valuable for countries such as Serbia because it is a good indicator of its speed and direction of movement in relation to the proclaimed goals of economic development policy. This paper analyzes the business sophistication, as one of the five determinants of innovativeness of countries measured by the methodology of the Global Innovation Index, Serbia and neighboring countries.

Key words:
business sophistication, innovation, innovation capacity of the economy, knowledge economy

Rezime:
Inovativnost privrede označava sposobnost nacionalne ekonomije da stvara i koristi znanja u produkciji novih proizvoda, usluga i procesa. U ekonomiji znanja inovativnost predstavlja ključnu determinantu konkurentnosti zemlje na svetskom tržištu. Metrika Indeksa globalne inovativnosti dragocena je za zemlje poput Srbije jer je ona dobar pokazatelj brzine i smera kretanja zemlje u odnosu na proklamovane ciljeve ekonomsko i razvojne politike. U radu se analizira poslovna sofisticiranost, kao jedna od pet determinant inovativnosti zemalja merenoj po metodologiji Indeksa globalne inovativnosti, Srbije i zemalja okruženja.

Ključne reči:
EKONOMIJA ZNANJA, INOVATIVNOST, INOVACIONI KAPACITET PRIVREDE, POSLOVNA SOFISTICIRANOST

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1. INTRODUCTION

Sustainable economic development implies a continuous flow of new ideas and products in order to improve the quality of life, independently of the fact whether the innovation is considered as a simple improvement of products, services or processes, or as a complex sophisticated invention.

In order to explore mutual correlations and influences among the key indicators of economic efficiency and innovation, and business sophistication, as an important innovation determinant, a comparative analysis has been conducted in this paper. Also, the position of Serbia, in relation to the countries of its immediate environment, has been determined, with an illustration of global trends made in addition. The best known statistical methods of regression and correlation have been used (a simple regression and correlation analysis). Furthermore, a cluster analysis has also been conducted, which has enabled the “reduction” of the number of countries to the smaller number of the similar groups (classes). The use of the above-mentioned analytic set of instruments is supported by the visualisation method. The framework of the Global Innovation Index has been used in this paper as a conceptual framework, developed by the Confederation of Indian Industry, INSEAD (The Business School for the World) and Canon India.

Considering that it is very important to regard the events in the sphere of innovation as realistic as possible, which is the key competitiveness factor of a country in nowadays economic conditions, this paper is analyzing Business Sophistication as one of five innovation determinants of the countries, measured according to the methodology of the Global Innovation Index.

2. ECONOMIC INNOVATION IN THE KNOWLEDGE ECONOMY

In economic science, innovation of a country is often identified with a term ‘innovative capacity of an economy’. Due to its significance as regards to interpreting the quality of the key macroeconomic performances, the researchers pose the following question, and with a good reason: Which are the doctrines of special importance in explaining the concept of the innovative capacity of an economy? Without engaging into more detailed explication of the possible approaches, we hold the opinion that it is of the greatest importance to understand the essence of a concept ‘innovative capacity of an economy’ for comprehending the messages of the following models: a) the model of economic growth, based on the ideas of Paul Romer, b) the model of national competitive advantage, according to Michael Porter, and c) the model of national innovation system, by Christopher Freeman. These doctrines explicate more closely the
factors which the innovative capacity of an economy depends on. They mutually differ in the level of abstraction and the identification of key determinants of the innovative capacity of an economy.

The model of economic growth based on the ideas of Paul Romer represents a beginning of forming a new theory of growth ([6], pp.1002-1037). It emphasizes the fact that the ideas are essentially different in their characters than the rest of the goods since they do not have the quality of exclusivity. This quality denotes that the production will not be characterized by diminishing returns. On the other hand, the existence of non-diminishing returns connotes abandoning the model of perfect competition in interpreting the physiology of economic growth.

Incentives for creating new ideas depend on the profit which the inventor expects to realize (private benefit), and not on the total profit amount which the idea brings with itself (social benefit). Some ideas, which are very valuable, may stay unused in case the private and social benefits mutually differ to a great extent. The intellectual property rights are legal mechanisms whose economic goal is to make private and social benefits of the invention approximate in value.

A continuous production increase in models of endogenous growth is possible only under the assumption of preventing the manifestation of the diminishing returns tendency, that is, under the condition that the returns, on the basis of using a new technology, do not correlate with the expenses of creating the innovations nor with the transfer costs, that is, with the purchase of ready technological solutions. The essence of this possibility is hidden in the synergic character of the influence of innovations on the productivity growth and the economic efficiency improvement. ([3], p.18)

The competitiveness of a country according to Michael Porter is a function of industry potential to innovate and to implement constant improvements within all domains of business activity. Innovations generate and maintain competitiveness. Competitiveness of a country depends on the ability of its economy to innovate itself and to make progress. ([5], p.159)

One of the theoretical pillars in researches of economic innovation refers to the concept of national innovation system. ([4], p. 4) In short, national innovation system denotes a network of public and private institutions, whose activities and interactions determine development, import, continual improving and the widest diffusion of new technologies. ([2], p. 4) It represents an entirety of mutual connections and relations of the organisations occupied by production and diffusion of scientific and technological knowledge into the production process, and even wider, into the society, on the territory bounded by the state borders. The model of national innovation system describes the interconnection of the elements which constitute it, the private sector, whose role is reflected in using the technologies developed as a result of its own research, conquering the markets through innovations, supporting the country in creating new theoretical and applied knowledge, and in creating infrastructure and institutional conditions suitable for development of innovative activities in private companies. In a word, the term 'national innovation system' implies a form of organizing the economy and the society, which, in the conditions of the fast and turbulent technological
changes, provides a sustainable development of the national economy. ([7], p. 284)

In 1990s, the dynamic technological progress and the explosive development of the scientifically founded segments of production gave a new impulse to the unprecedented economic growth in the industrially developed countries. A new paradigm of economic growth was being formed at the global level on the basis of using knowledge and innovations as the most significant production resources.

In nowadays business conditions, innovations, within the whole array of cases, push the productivity limits almost to the theoretical maximum, simultaneously shifting the emphasis in creation of the economic values from the production of goods and services towards generating new knowledge and technologies, whose synergic character of functioning exceeds the total costs of their creation manifold. ([9], pp. 29-31)

3. THE GLOBAL INNOVATION INDEX

Having detected the role of innovations for economic development of certain countries, the Confederation of Indian Industry, along with INSEAD (The Business School for the World) and Canon India, has developed the Global Innovation Index – GII, whose basic aim is to point out the innovation of certain countries. [8] Besides, its goal is to recognize the obstacles which stand in the way of reaching the effects, on the basis of using innovations in the companies and the economy on the whole.

Innovation Input and Innovation Output are sub-indices which the Global Innovation Index rests on. The sub-indices have their constituents, the pillars, which are further branching into sub-pillars. Innovation Input Sub-Index consists of five pillars which show the potentials for the innovative activities of the national economy, and those are: (1) Institutions, (2) Human Capital and Research, (3) Infrastructure, (4) Market Sophistication, and (5) Business Sophistication. Innovation Output Sub-Index branches into two pillars denoting the real results of innovations: (6) Scientific Outputs and (7) Creative Outputs. Each sub-pillar consists of separate indicators. Stimulative or input parameters define the aspects of the benefits of the environment which are necessary for stimulation of the innovations in the economy. The outputs are the proof of the innovation input results, such as: patents, trademarks, copyrights, creative products, employees in the domain of services based on knowledge, a share of the export of highly technological products in the total export.

Using the model shown on Fig. 1, the countries are ranked in accordance with their Innovation Input and Innovation Output, which together determine total value of the GII. Countries get their position in the rankings on the basis of this index. Since 2011, beside the Global Innovation Index, the Innovation Efficiency
Index has been introduced, which, as a ratio of Innovation Output and Innovation Input, shows an innovation efficiency level of an economy.

- The average of the values of the first five pillars makes the *Innovation Input* Sub-Index.
- The average of the values of the last two pillars makes the *Innovation Output* Sub-Index.
- *The Global Innovation Index* is presented as an average of the Innovation Input and Innovation Output: \((\text{II} + \text{IO})/2\).
- *The Innovation Efficiency Index* represents a ratio of the Innovation Output and the Innovation Input: \(\text{IO} / \text{II}\).

![Figure 29: The Global Innovation Index (GII) – sub-indices, pillars and sub-pillars](Source: ([8], p.9))

Thus defined metrics is precious for the countries such as Serbia because it is a good indicator of its speed and direction in relation to the proclaimed aims of the economic policy.
4. BUSINESS SOPHISTICATION INDICATOR – ONE OF THE INNOVATION INPUTS OF THE GLOBAL INNOVATION INDEX

One of the five Innovation Input pillars is Business Sophistication. It determines production growth and competitiveness of the country in the world market to a large extent. In its own way, it reflects the quality of the business network of the country, as well as of the quality of the business strategies of the firms. This is of vital importance for the economy of knowledge, in which the material inputs of the production are significantly exhausted. The quality of business networks and supporting industry is important for various reasons. When the firms and the suppliers from certain sectors are mutually connected into clusters, the effects are intensified, greater possibilities for innovations are being provided, and the obstacles to the entry of new firms are reduced. Individual activities and strategies of enterprises may lead to sophisticated and modern business operations.

Business Sophistication tends to detect the level of business sophistication in order to estimate to what extent the firms are ready for the innovative activities (Table 1). It is divided into three subbranches: Science Workers, Innovation Linkages, and Knowledge Absorption (Fig. 2).

![Figure 30: Business Sophistication with sub-pillars and the corresponding indicators](image)

The Science Workers branch is further divided into four segments concerning the knowledge of workers: the employed in the scientific-research sector, formal training availability at the company level, research and development activities...
which are being performed in the companies, as well as all research and development activities financed from the company budget.

The Innovation Linkages sub-pillar relies on the qualitative and the quantitative data on the collaboration of the economy and the university in the research and development domain, the diffusion of well and thoroughly developed clusters, the cooperation concerning inventive activities, as well as the level of expences for research and development activities, which are financed by abroad. One of the indicators of this sub-pillar refers to the number of contracts on joint ventures and strategic alliances, and it was included for the first time in 2011. Apart from it, a certain number of registered patents with at least one foreign inventor has been included as an indicator of the Innovation Linkage.

The Knowledge Absorption comprises four indicators which are related to the sectors with a great share of high technology or which are of vital importance for innovations: costs of the obtained licences as a percentage of the gross domestic product; import of high technology goods as a percentage of total import; import of computer and communication services as a percentage of total import of goods and services, and net inflows of foreign direct investments as a percentage of the gross domestic product.

<table>
<thead>
<tr>
<th>Table 5: The 5th pillar of GII – Business Sophistication</th>
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<tbody>
<tr>
<td>Indicator</td>
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<tr>
<td>-----------</td>
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<tr>
<td>5. Business sophistication</td>
</tr>
<tr>
<td>5.1. Knowledge workers</td>
</tr>
<tr>
<td>5.1.1. Knowledge-intensive employment, %</td>
</tr>
<tr>
<td>5.1.2. Firms offering formal training, % firms</td>
</tr>
<tr>
<td>5.1.3. R&amp;D performed by business, % a</td>
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<td>5.1.4. R&amp;D financed by business, % a</td>
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<tr>
<td>5.2. Innovation linkages</td>
</tr>
<tr>
<td>5.2.1. University/industry collaboration</td>
</tr>
<tr>
<td>5.2.2. State of cluster development</td>
</tr>
<tr>
<td>5.2.3. R&amp;D financed by abroad, % a</td>
</tr>
<tr>
<td>5.2.4. JV/strategic alliance deals/total GDP</td>
</tr>
<tr>
<td>5.2.5. PCT patent filings with foreign inventor, %</td>
</tr>
<tr>
<td>5.3. Knowledge absorption</td>
</tr>
<tr>
<td>5.3.1. Royalty &amp; license fees payments, % GDP</td>
</tr>
<tr>
<td>5.3.2. High-tech imports less re-exports, %</td>
</tr>
<tr>
<td>5.3.3. Computer &amp; comm. service imports, %</td>
</tr>
<tr>
<td>5.3.4. FDI net inflows, % GDP</td>
</tr>
</tbody>
</table>

Note: (*) High Income: Croatia, Greece, Slovenia; Upper-Middle Income: Albania, Bosnia and Herzegovina, Bulgaria, Macedonia, Romania, Serbia; (†) survey questions, (a) mean of the results.
5. BUSINESS SOPHISTICATION ANALYSIS OF SERBIA AND THE NEIGHBOURING COUNTRIES

Fig. 3 shows the Business Sophistication of Serbia in comparison to its level in the neighbouring countries with the corresponding sub-pillars. It is visually notable that the highest level of Business Sophistication, expressed in number of Science Workers, belongs to Bosnia and Herzegovina. However, while interpreting this indicator, one should be very cautious because the detailed analysis of this category has not yet been conducted for Bosnia and Herzegovina (due to unavailability of the data on all indicators of the sub-pillar Science Workers, Table in Appendix 1), as in the case of the rest of the countries. The synthetic expression of Business Sophistication is represented by the red line and it can be easily noticed that the lowest level of Sophistication belongs to Albania, whereas the economy of Slovenia holds the top position in the Business Sophistication level. Other analyzed countries hold an approximately equal level of Business Sophistication. The aforementioned facts can clearly be noticed on Fig. 5 (Dendrogram for Serbia and the neighbouring countries).

Source: The diagram is based on the database from The Global Innovation Index 2011, Accelerating Growth and Development, INSEAD.

Figure 31: Business Sophistication of Serbia and its neighbouring countries
Fig. 4 is showing that the Innovation Input and Innovation Output values of the Balkans are significantly lagging behind Slovenia. This is even more emphasized when the pillar of Business Sophistication is concerned. Insufficiently clear situation refers to the position of Bosnia and Herzegovina, which, due to a significant deficiency of data on the corresponding indicators of the Science Workers sub-pillar of Business Sophistication (the only available data are related to the indicator – Firms offering a formal training), indicates unrealistically high values in comparison to the average of the Balkans.

Source: The diagram is based on the database from The Global Innovation Index 2011, Accelerating Growth and Development, INSEAD.

Figure 32: Innovation Inputs, Innovation Outputs and Business Sophistication of Serbia and the neighbouring countries

In the process of clustering of nine selected countries according to the observed variables, the bottom-up method of the agglomerative hierarchical clustering was used. Initially, each country was treated as a separate cluster. Their joining in cluster pairs, on the basis of mutual similarity concerning the values of the observed variables, represents a result of all latter clustering iterations until all the observed entities are joined within one cluster. If a diversity level of about 7200 is considered as a possible dendrogram intersection, there can be identified three clusters of the observed countries. The largest group includes six countries, that is, approximately 75% out of total number of the observed countries. The second cluster includes only Slovenia. The third cluster refers to Bosnia and Herzegovina and Albania. Regarding the diversity level of about 9000, Slovenia joins the first cluster, and thus, two clusters are finally singled out. This may lead to the conclusion that Business Sophistication is in correlation with the integration process, that is, with the process of inclusion into regional integrative flows.
By analyzing the Business Sophistication level of Serbia and the Balkans, as well as the corresponding sub-pillars (Science Workers, Innovation Linkages and Knowledge Absorption), it may be noted that, according to these indicators, the position Serbia holds lies within the average values of the Balkans, except in the case of the Knowledge Absorption indicator, where it is above the average of the analyzed countries.

**Figure 33: Dendrogram of Business Sophistication of Serbia and the neighbouring countries**

**Figure 34: Parallel overview of Innovation Inputs and Business Sophistication with corresponding sub-pillars of Serbia and the Balkans**
On the basis of further division of the analyzed indicators into subcategories (Fig. 7), it can be noted that Serbia does not have the data on all indicators at its disposal. It holds a distinctly bad position regarding I&R activities performed in companies, whereas, concerning formal training of the company staff, import of ICT services, as well as the collaboration between universities and industry, its position rises significantly above the average. The aforementioned facts indicate high but insufficiently explored potentials of Business Sophistication.

Source: The diagram is based on the database from *The Global Innovation Index 2011, Accelerating Growth and Development*, INSEAD.

**Figure 35: Parallel overview of the Business Sophistication indicators of Serbia and the Balkans**

Fig. 8 is a graphic illustration of the Innovation Input and Innovation Output ratio, symbolized by the balloon size. It illustrates a relative ratio of Business Sophistication of the included countries. Furthermore, it can be concluded that Serbia is reaching certain Innovation Outputs even with not so high Innovation Inputs, among which is also Business Sophistication. That explains the high 16th place that Serbia holds in the world regarding the Innovation Efficiency Index. On the other hand, in regard to Business Sophistication, Serbia holds the 73rd place in the world. ([6]) It is obvious that Serbia lacks a strategic approach for the increase of the Innovation Inputs, but also of the Business Sophistication. However, the relatively good Innovation Output at the moment is a result of the implemented concepts of development in the period of ex-Yugoslavia. Without a clear innovation strategy, Serbia will soon exhaust the potential of its relatively good but inherited Innovation Outputs.
Figure 36: Correlation among Innovation Inputs, Outputs and Business Sophistication of Serbia and the neighbouring countries

Figure 37: The dispersion diagram of the Innovation Efficiency Index and Business Sophistication

The graphic illustration of the pairs of data on variables of the Innovation Efficiency Index and Business Sophistication of the selected countries (Fig. 9) indicates the absence or a very low interdependence among variations of the
observed variables. The adjustment of the linear form of the interdependence and the analyses of the components of the established model also refers to the previously stated, visually noted observation. The linear function of regression, in fact, possesses the following form: \( y = 0.728 - 0.001x \), with the statistics \( R^2 = 0.01 \) and \( R = -0.1 \). The value of the coefficient of determination \( (R^2 = 0.01) \) is exceedingly insignificant for formulating valid conclusions on the variation interdependence of the observed variables. A confirmation of the above-mentioned is also an extremely low value of the correlation coefficient, \( R = -0.1 \), and it indicates the "presence" of an extremely weak form of linear interdependence between the observed variables. Despite a general tendency of the Balkans, the position of Serbia is relatively good because, as regards to the level of Business Sophistication, which is insignificantly above the average of the neighbouring countries, the Innovation Efficiency Index has the highest value.

The graphic interpretation of the pairs of data on Business Sophistication and Innovation Inputs for the group of 125 countries (Fig. 10) shows a strong positive correlation. The adjustment of the linear form of interdependence and the analyses of the components of the established model also refers to the previously stated, visually noted observation. In fact, the linear function of regression has the following form: \( y = 12.738 + 0.7856x \), with the statistics \( R^2 = 0.78 \) and \( R = 0.88 \). The value of the coefficient of determination indicates that 78% of the Innovation Input Index variations are explained by the Business Sophistication variations, that is, by the regression model, and that 22% are the

Source: [8], the authors’ estimate

**Figure 38: The dispersion diagram of Innovation Inputs and Business Sophistication**
influence of other factors which are not included by this model. Very strong positive interdependence is confirmed by the correlation coefficient of 0.88.

The consideration of the correlation between these variables for Serbia and its neighbouring countries reflects similar tendency. The graphic interpretation of the pairs of data on the Innovation Inputs and Business Sophistication variables of the selected countries shows a distinct interdependence among the variations of the observed variables. The adjustment of the linear form of the interdependence and the analyses of the components of the selected model also emphasizes previously stated and visually noted observation. Namely, the linear function of regression looks like this: \( y = 34.313 + 0.2228 \times X \), with the statistics \( R^2 = 0.458 \) and \( R = 0.677 \). The value of the coefficient of determination \( (R^2 = 0.458) \) implies that 45.8% of variations of the Innovation Input variable are explained by the variations of the Business Sophistication variable, whereas the rest 54.2% represent a result of the influence of other factors which are not included by this model. Distinct interdependence is confirmed by the correlation coefficient of 0.677. Its value reveals the existence of a distinct and direct linear correlation (the straight line is spreading from the bottom left to the top right corner of the graph) among the observed variables as regards to the countries included in the sample. The slant of the line \( (b_1 = 0.2228) \) shows that the increase of the Business Sophistication for one unit of measure leads to the increase of the Innovation Inputs for 0.2228 (in the corresponding units of measure, which the Innovation Input variable is expressed in). By testing the hypothesis on linear interdependence of the observed variables using the appropriate regression coefficient, the result shows the test statistics value of 2.4. With the probability of the test significance level of 0.1 and test threshold of 1.9432, it can be concluded that there exists a statistically significant linear interdependence among the observed variables. A characteristic feature of Serbia is that its Business Sophistication level lies above the average, but its Innovation Inputs are below the average of the Balkans.

The graphic interpretation of the pairs of data for the group of 125 countries shows a strong positive correlation between Business Sophistication and the Innovation Output Index. The adjustment of the linear form of interdependence and the analyses of the components of the established model also refers to the previously stated, visually noted observation. The linear function of regression, in fact, has the following form: \( y = 6.752 + 0.6103x \), with the statistics \( R^2 = 0.57 \) and \( R = 0.76 \). The value of the coefficient of determination indicates that 57% of the variations of the Innovation Output Index are explained by the variations of Business Sophistication, that is, by the regression model, and that 43% represent the influence of other factors which this model does not include. The existing strong positive interdependence is confirmed by the correlation coefficient of 0.76.
On the other hand, the graphic interpretation of the pairs of data on the variables of the Innovation Outputs and Business Sophistication of the selected countries (Serbia and the environment) implies the absence or an extremely low level of interdependence among the variations of the observed variables. The adjustment of the linear form of interdependence and of the components analyses of the established model also indicates to the previously stated, visually noted observation. In fact, the linear function of regression has the following form: $y = 25.996 + 0.059 \times X$, with the statistics $R^2 = 0.007$ and $R = 0.08$. The coefficient of determination value ($R^2 = 0.007$) is utterly insignificant for the formulation of valid conclusions on the interdependence of variations of the observed variables. A confirmation of the above-mentioned is also an extremely low value of the correlation coefficient, $R = 0.08$.

If partially analyzed, Bosnia and Herzegovina holds a high Business Sophistication level but its Innovation Outputs are extremely low. In regard to Serbia, it is characterized by the highest Innovation Outputs in the category of the observed countries. Generally speaking, it is very difficult to find a pattern in the trends of the observed variables on the territory of the Balkans.

The conducted analysis confirms that among the observed variables for 125 countries (at the world level) exists significant dependence between the indicators of Business Sophistication and the Innovation Outputs. However, the above-mentioned is not characteristic for the tendencies of the Balkans.

The graphic interpretation of the pairs of data on the variables of the Global Innovation Index and Business Sophistication of the selected countries expresses low level of interdependence among the variations of the observed variables. The adjustment of the linear function of interdependence and the
components analyses of the established model also indicates the previously stated, visually noted observation. In fact, the linear function of regression has the following form: \( y = 30.147 + 0.1413 \times X \), with the statistics \( R^2 = 0.106 \) and \( R = 0.325 \). The coefficient of determination value \( (R^2 = 0.106) \) shows that only 10.6% of the variations of the Global Innovation Index variable are explained by the variations of the Business Sophistication variable, whereas the rest 89.4% represent a result of the influence of other factors which this model does not include. Accordingly, the adjusted model is not representative for valid statistical conclusions. An extremely low level of the Global Innovation Index is characteristic for Albania and Bosnia and Herzegovina, although they differ in the aspect of the Business Sophistication level. Regarding these indicators, Serbia is above the average.

Figure 40: The dispersion diagram of the Global Innovation Index and Business Sophistication

6. CONCLUSION

On the basis of the conducted empirical research, it is possible to formulate the following conclusions:

- The analysis of the correlation between the Innovation Efficiency Index and Business Sophistication, at the level of the Balkans, shows the absence or an extremely low interdependence among the variations of the observed variables. The position of Serbia in that context is relatively better in comparison to its neighbouring countries. Regarding
the criterium of Business Sophistication, Serbia holds the 73rd place out of total number of 125 world countries, whereas in the category of the Innovation Efficiency Index, it holds the high 16th place on that list, and the first place among the neighbouring countries.

- In regard to the analysis of the correlation between the Innovation Inputs and Business Sophistication, a strong positive correlation has been established, as at the world level, so at the level of the neighbouring countries.

- Regarding the correlation between Business Sophistication and the Innovation Outputs, it is determined that a significant interdependence exists at the world level. On the other hand, the aforementioned is not characteristic for the Balkans. The conducted researches indicate the absence or an extremely low interdependence among the variations of the observed variables of Serbia and its neighbouring countries.

REFERENCES


Appendix 1: Table with the Business Sophistication values of the Balkans and Slovenia

<table>
<thead>
<tr>
<th>Country</th>
<th>Business Sophistication</th>
<th>Knowledge Workers</th>
<th>Employment in knowledge-intensive services</th>
<th>Firms offering formal training</th>
<th>GERD performed by business</th>
<th>GERD financed by business</th>
<th>GERD financed by enterprise</th>
<th>Innovation Linkages</th>
<th>University-industry collaboration on R&amp;D</th>
<th>State of cluster development</th>
<th>Joint ventures/strategic alliances</th>
<th>Deals</th>
<th>Published patents with at least one foreign inventor</th>
<th>Foreign Direct Investment</th>
<th>Knowledge Absorption</th>
<th>Royalty and license fees payments</th>
<th>High-tech Imports</th>
<th>Computer and communications service imports</th>
<th>Forestry, fishing and hunting net inflows</th>
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<tbody>
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<td>Albania</td>
<td>19.65</td>
<td>19.00</td>
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<td>n/a</td>
<td>14.46</td>
<td>20.31</td>
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<td>Bulgaria</td>
<td>35.42</td>
<td>41.54</td>
<td>53.91</td>
<td>32.38</td>
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<td>Greece</td>
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Source: [8]