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INNOVATIVE CAPACITY AS A DRIVING FORCE OF NATIONAL COMPETITIVENESS

Inovacioni kapacitet kao pokretačka snaga nacionalne konkurentnosti

Abstract

Each national economy has specific characteristics that determine its innovative capabilities to a greater or lesser extent. National innovation capacity can be a source of prosperity and growth for the national economy. Measuring national innovation capacity is very important because it provides knowledge about the dynamics of inventions in economic activities. By measuring the innovative capacity of the economy, indicators are obtained that are significant for the creation of development policy and are an important element in evaluating the success of its implementation. The connection between innovation and competitive advantage is direct and positive because the innovative capacities of companies can create, support, and make sustainable competitiveness both in the domestic and foreign markets.

This paper aims to determine whether there is a relationship between national innovative capacity and competitiveness. To allow for data mutual comparability and generalization, the research included four countries: Serbia and three neighboring European Union member countries (Bulgaria, Hungary, and Romania). The evaluation was conducted using statistical data from international databases (WEF, INSEAD, and WIPO) covering 2008 to 2018. The findings indicate a positive relationship between a country's competitiveness and innovative capacity, as measured by the Global Innovation Index and the Global Competitiveness Index. In the cases of Serbia and Bulgaria, there was a strong correlation between national competitiveness and the country's innovation index. In Hungary and Romania, on the other hand, the correlation coefficient is low. The paper's originality is reflected in the analysis and comparison of the innovation capacities four Eastern European countries (Serbia, Bulgaria, Hungary and Romania), which are rarely the subject of research in innovation.

Keywords: *innovation, competitiveness, national innovative capacity, development.*

Sažetak

Svaka nacionalna privreda ima specifične karakteristike koje u većoj ili manjoj meri određuju njene inovacione sposobnosti. Nacionalni inovacioni kapaciteti može biti izvor prosperiteta i rasta za nacionalnu ekonomiju, a merenje nacionalnog inovacionog kapaciteta je veoma važno, jer daje saznanja o dinamici inovacija (pronalazaka) u privrednim aktivnostima. Merenjem inovativnog kapaciteta privrede dobijaju se indikatori koji su značajni za kreiranje razvojne politike i važan su element u proceni uspešnosti njenog sprovođenja. Veza između inovacija i konkurentske prednosti je direktna i pozitivna jer inovativni kapaciteti preduzeća mogu stvoriti, podržati i učiniti održivom konkurentnost kako na domaćem tako i na inostranom tržištu.

Ovaj rad ima za cilj da utvrdi da li postoji veza između nacionalnog inovativnog kapaciteta i konkurentnosti. Da bi se omogućila međusobna uporedivost i generalizacija podataka, istraživanje je obuhvatilo četiri zemlje: Srbiju i tri susedne zemlje članice Evropske unije (Bugarsku, Mađarsku i Rumuniju). Evaluacija je sprovedena korišćenjem statističkih podataka iz međunarodnih baza podataka (WEF, INSEAD i WIPO) koji pokrivaju period od 2008. do 2018. Nalazi ukazuju na pozitivan odnos između konkurentnosti i inovativnog kapaciteta zemlje, mereno Globalnim indeksom inovacija i Globalnim indeksom konkurentnosti. U slučajevima Srbije i Bugarske, postojala je jaka korelacija između nacionalne konkurentnosti i indeksa inovativnosti zemlje, dok je u Mađarskoj i Rumuniji ovaj koeficijent korelacije nizak. Originalnost rada ogleda se u analizi i poređenju inovacionog kapaciteta četiri istočnoevropske zemlje (Srbije, Bugarske, Mađarske i Ruminije), koje su retko predmet istraživanja u oblasti inovacija.

Ključne reči: *inovativnost, konkurentnost, nacionalni inovacioni kapacitet, razvoj.*

Introduction

Innovation is one of the most important factors in achieving competitiveness and gaining a country's competitive advantage. In today's globally interconnected world economy, innovation creates novel solutions to social and economic difficulties, challenges, or opportunities [20], [15]. The ability of an industry to innovate determines a country's competitiveness. National economies gain a competitive advantage through innovative and knowledge-intensive activities [17]. The significance of understanding the role of innovation in competitiveness has long been recognized. Academic researchers and policymakers have been focusing on determining what drives a country's innovation capacity in their search for strategies to boost countries' competitiveness.

This paper aims to determine whether there is a relationship between national innovative capacity and competitiveness. To allow for data mutual comparability and generalization, the research included four countries: Serbia and three neighboring European Union member countries (Bulgaria, Hungary, and Romania). The evaluation was conducted using statistical data from international databases (WEF, INSEAD, and WIPO) covering 2008 to 2018.

The findings add to the existing body of knowledge on innovation in four transition countries, which are not frequently the subjects of research in the fields of research, development, and innovation, and to which the generalizations reached in research conducted in developed countries do not apply.

The paper is structured into five sections. Following the introduction, the second section defines the concepts of national competitiveness and innovative capacity, discusses the relationship between innovation, national competitiveness, and economic growth, and presents previous research findings on the relationship between innovative capacity and a country's competitiveness. Section three presents the research methodology and data sources, while section four presents empirical findings for each country included in the analysis. Section five summarizes the findings on a correlation between a country's national innovation capacity and competitiveness as measured by the Global Index of Innovation and the Global Index of Competitiveness in the cases of Serbia, Bulgaria, Hungary, and Romania.

Literature review

In 1990, Michael Porter's famous Competitive advantage of nations sparked a debate among academics and policymakers about the importance of national competitiveness in achieving economic growth [31]. The term has evolved, gaining prominence in the context of promoting economic development. Despite widespread use, neither the definition of national competitiveness nor the simple theory of competitiveness has been agreed upon. It has been examined from various perspectives to identify new sources of growth. National competitiveness is associated with prosperity and economic growth [19], [28]. National competitiveness refers to a country's ability to generate wealth, or the ability of a country to compete on a global scale [6]. The World Economic Forum's Global Competitiveness Report analyses and compares factors that improve national competitiveness, defining it as "the set of institutions, policies, and factors that determine a country's level of productivity," pointing out that a more competitive economy will most likely grow faster in the long run [40]. If the economy is more competitive, it will lead to an increase in production and, therefore, exports [18]. National competitiveness can have meaning if viewed as a relative concept used to make comparisons [2]. In the research presented in this paper, competitiveness is defined as the ability of an economy to profitably create, produce, and distribute goods and services in international trade.

Innovation is required to achieve sustainable development in today's highly globalized environment. Economic growth is determined by an economy's innovativeness [37], [16]. The creation and application of new knowledge through innovation is a fundamental source of economic growth. Innovations, R&D expenditures, and technological investments increasingly influence competitiveness and prosperity [29], while growth based on innovation is the primary strategy for increasing competitiveness [1]. Innovation and productivity are key factors in increasing competitiveness, given that competitive performance depends on the formation of intellectual capital and

society's ability to innovate [14], [7]. Competitiveness stems from developing locally differentiated capabilities through innovation, which is required to maintain growth in a globally competitive environment [5].

There is compelling evidence of a link between innovation, national competitiveness, and economic growth. Doğan [12] examined the effect of innovation factors on competitiveness for European Union members and candidate countries, revealing the positive impact of knowledge and technology output, along with creative output. Countries with science-technology-innovation-focused global competitiveness strategies have long-term competitiveness and growth [36]. Ciocanel & Pavelescu [9] used econometric analysis to prove the existence of a cause-effect relationship between innovation and competitiveness. The main findings of a 2007-2018 empirical analysis of 16 emerging countries [25] show that innovative activities positively impact competitiveness.

The role of innovation in competitiveness and economic growth has sparked discussion about what factors influence an economy's innovation intensity [13]. A country's innovative capacity is the primary driving force behind its economic performance; it measures the institutional structures and support systems that sustain innovative activity [24]. In their research, the authors stress the importance of taking a holistic approach to increasing innovative capacity rather than focusing on single factors [33]. The efficiency of the national innovation ecosystem in OECD countries is largely determined by public expenditures, ICT investments, and education level [32]. In high-income and upper-middle-income countries, the institutional environment, human capital and research, supporting infrastructure, and business environment impact innovation performance [39].

Various approaches have been used to assess an economy's capacity for innovation. International ratings are often used to determine an economy's innovation capacity. Rusnak & Prokhorchuk have assessed the Ukrainian economy's capacity for innovation using the Global Innovation Index, the Bloomberg Innovation Index, the Global Competitiveness Index, the Innovation Union Scoreboard, and the Global Talent Competitiveness Index that evaluate innovation potential, technological and innovation competitiveness [34]. The global competitiveness index is the most comprehensive indicator of a country's competitiveness, as it quantifies macro and micro competitiveness positions [11].

There is convincing evidence of a link between innovation and national competitiveness [3], [36], [30], [4]. Many studies have been conducted on the relationship between national innovative capacity and competitiveness. Innovation potential significantly contributes to the competitiveness of the EU-developed countries' national economies [27]. Cvetanović & Sredojević have investigated the relationship between global competitiveness and the level of innovativeness of the world's twenty-five most innovative economies, finding that countries with global competitiveness strategies focused on science, technology, and innovation have long-term competitiveness and growth [10]. Considering an econometric model that determines the impact of national innovation potential on competitiveness, Chang & Chang attempted to build a correlation model between international connections and national innovative capacity to improve national competitiveness [8].

Research methodology

The paper aims to determine whether there is a relationship between national innovative capacity and competitiveness as measured by the Global Index of Innovation and the Global Index of Competitiveness. Because it examines the relationships between variables measured on an interval or ratio scale, the paper employs a quantitative research design. At the same time, data analysis employs a wide range of statistical methods, techniques, and tests, with measurement, causal relationships, and an attempt to arrive at generalizations serving as its foundation [4], [35]. The research included four countries so that the results could be compared and generalized. In addition to Serbia, three European Union neighboring countries - Bulgaria, Hungary, and Romania were analyzed. Furthermore, the comparative approach was chosen because it is based on comparison logic, which emphasizes that we can only better understand social phenomena by comparing them in two or more empirical research cases or situations [4].

The data on the investigated phenomena were obtained through desk research, which included a search of statistical databases on the Internet containing data on the four countries studied. The databases were used to gather secondary data on the researched phenomena. The decision to conduct research using secondary data was based on the numerous benefits that these data provide. These benefits include their immediate availability, the ability to access the same, mutually comparable data for many different countries, and the data's quality and representativeness. These data have already been collected using rigorous methodologies. They do not have the bias that can appear in primary data due to the researcher's refusal to provide answers or the researcher's biased role, the ability to collect data quickly on the changes of the researched phenomena over a specific period, and the availability of similar data on the investigated occurrences in several countries. One significant advantage is that it does not necessitate the lengthy collection process inherent in primary data collection, giving the researcher more time to devote to their more detailed analysis [35], [41], [4]. Furthermore, an important criterion for selecting secondary data sources was their up-to-datedness, i.e., the selection should contain the most recent data related to the researched phenomena [22].

However, because not all secondary data sources have the previously listed advantages, it was necessary to define the criteria for selecting secondary data sources. The basic selection criteria were reliability and validity, the reputation of the data source and the methodology used to collect the data, their up-to-datedness, i.e., the availability of the most recent data on the investigated phenomena, and the availability of data for all four countries included in the analysis [26]. To avoid the possibility of different measuring instruments for the same phenomenon in the national statistics of the countries included in the analysis, national statistics data were not chosen, but rather statistical data provided by international organizations.

The following international databases were chosen as secondary data sources:

1. World Economic Forum (Global Competitiveness Index),
2. Cornell University, Institut Européen d'Administration des Affaires and World Intellectual Property Organization (Global Innovation Index).

Following the research objective, the variables in Table 1 were extracted from international statistical databases.

The listed variables were chosen for secondary data analysis from 2008 to 2018 to achieve two goals. First, collect data on the trend of the investigated phenomena, i.e., their variations over a medium-term period. Second, build a model that defines the relationships between the variables in the analysis [41].

Traditional regression models were used to analyze the data. Univariate and multivariate regression models were used, with the assumptions on which they are based previously checked. In the case of a violation, the data was transformed appropriately, and the verification was carried out using correlation analysis.

Empirical findings

The main objective of this paper was to confirm the existence of a correlation between national competitiveness and innovation. For verification, data from the Global Competitiveness Index and the Global Innovation Index were used. The research findings are presented for each country included in the analysis.

The data used in the analysis are presented in Table 2.

The Pearson correlation coefficient was calculated to statistically test the relationship between competitiveness and innovation. This correlation coefficient calculation was chosen because it shows the relationship between two variables, determines its direction and strength, and considers the quantitative methodology of this research,

Table 1. Variables included in the research, their types, and sources

Independent variable	Dependent variable	Source
National competitiveness	National economy's innovativeness	• Global Competitiveness Index • Global Innovation Index

Table 2. Data on competitiveness and innovation

Country	Serbia		Bulgaria		Hungary		Romania	
Year/index	GCI*	GII**	GCI*	GII**	GCI*	GII**	GCI*	GII**
2008	3.90	-	4.03	2.12	4.22	2.88	4.10	2.44
2009	3.77	2.57	4.02	2.85	4.22	3.34	4.11	2.92
2010	3.84	2.68	4.13	3.26	4.36	3.54	4.16	3.22
2011	3.88	36.31	4.16	38.42	4.36	48.12	4.08	36.83
2012	3.87	40.00	4.27	40.70	4.30	46.50	4.07	37.80
2013	3.77	37.87	4.31	41.33	4.25	46.93	4.13	40.33
2014	3.90	35.89	4.30	40.74	4.28	44.61	4.37	38.08
2015	3.89	36.47	4.32	42.16	4.25	43.00	4.32	38.20
2016	3.97	33.75	4.44	41.42	4.20	44.71	4.30	37.90
2017	4.14	35.34	4.46	42.84	4.33	41.74	4.28	39.16
2018	60.90	35.46	63.60	42.65	64.30	44.94	63.50	37.59

Note: GCI* = Global Competitiveness Index; GII** = Global Innovation Index
Source: World Economic Forum (2008-2018); Cornell University, Institut Européen d'Administration des Affaires and World Intellectual Property Organization (2008-2018).

the continuous nature of the collected data, and their measurement on a ratio scale. The statistical assumptions on which the Pearson correlation coefficient is based were checked before calculating, i.e., whether the relevant variables were measured on an interval or ratio scale, whether there is a linear relationship between the variables, whether the variables follow a normal distribution, and whether atypical points are excluded [23], [38]. Among the checking techniques used was an insight into the nature of the variables, descriptive statistics of the variables, distribution diagrams, histograms, and the Shapiro-Wilk test. A correlation in the range of 0.10 to 0.29 is considered a small correlation, a correlation in the range of 0.30 to 0.49 is considered a medium correlation, and a correlation in the range of 0.50 to 1 is considered a large correlation, according to Cohen's criteria [21].

However, to analyze the presented data, it was also necessary to address the issue of the various methodologies used to present the data. Since 2018, the World Economic Forum has used a different methodology for reporting the country's overall competitiveness index than in the past, and Cornell University, the Institut Européen d'Administration des Affaires, and the World Intellectual Property Organization have done the same for reporting data on the country's global innovation since 2011. Due to the incomparability of the data due to the use of different methodologies, an analysis of the correlation between competitiveness and innovation was performed for the 2011-2017 period in which both indices' data were presented using the same methodology, while data for years that did not include this period were excluded from the analysis.

1. Correlation between competitiveness and innovation in the case of Serbia

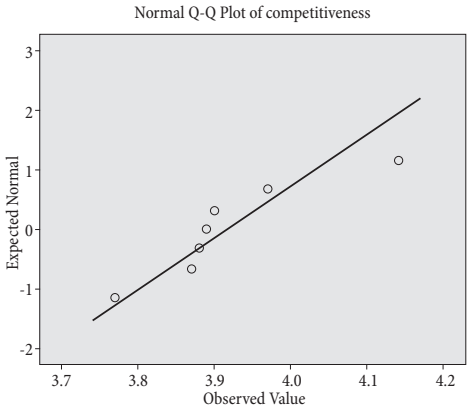
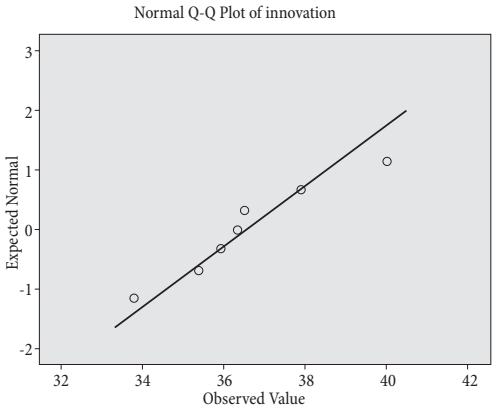
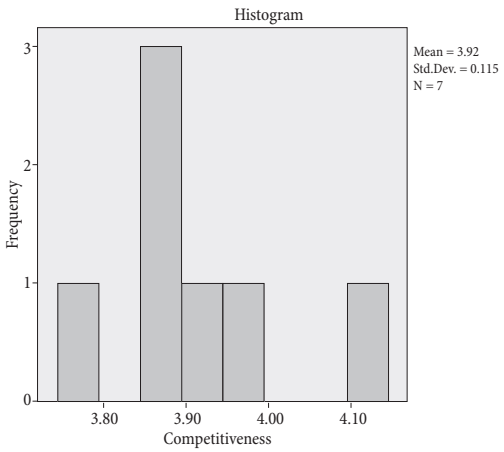
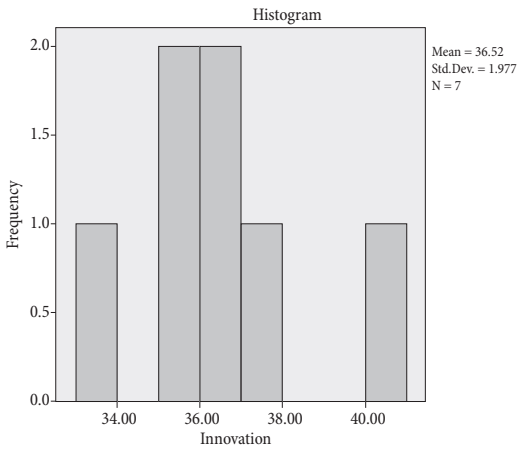
Table 3 shows descriptive statistics for the data collected in the case of Serbia obtained using the Descriptive and Explore options in the computer package IBM SPSS, as well as the Shapiro-Wilk test result.

The previously presented data did not meet the statistical assumptions for calculating the Pearson correlation coefficient in their original form because, as demonstrated by histograms, distribution diagrams, and the results of the Shapiro-Wickle test, there was no normality of the distribution and atypical points were present. As a result, to calculate the Pearson correlation coefficient, data were transformed using the logarithm according to the formula:

$$\text{New variable} = \text{LOG10 (old variable)} \qquad (1)$$

This transformation was done in the computer package IBM SPSS using the *Transform* and *Compute* options. An analysis of the transformed data revealed the existence of a correlation between innovativeness and competitiveness in the case of Serbia $r = 0.563$, $n = 7$, $p = 0.188$, with a coefficient of determination $r^2 = 0.316969$. According to Cohen's criteria, this correlation is high, implying that the variables innovation and competitiveness account for 31.69% of the common variance in Serbia. However,

Table 3. Descriptive statistics and Shapiro-Wilk test results in the case of Serbia

Variable	Competitiveness (n = 7)	Innovation Index (n = 7)
Mean (Std. Error)	3.9171 (0.04330)	36.5186 (0.74708)
Std. Deviation	0.11456	1.97660
Variance	0.013	3.907
Skewness	1.218	0.651
Kurtosis	2.595	1.053
Distribution diagram		
Histogram		
Shapiro-Wilk test	W = 0.883, df = 7, p = 0.240	W = 0.960, df = 7, p = 0.816

Source: Authors' research

due to the small sample size (n 30), this correlation was not statistically significant (p > 0.050).

2. *Correlation between competitiveness and innovation in the case of Bulgaria*

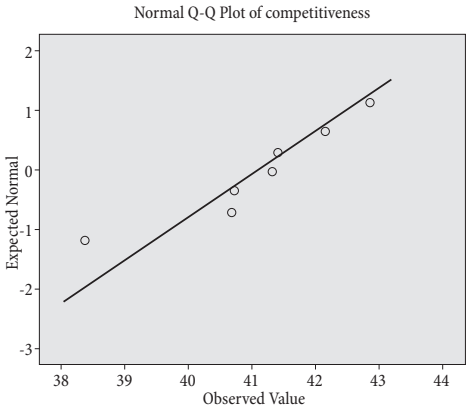
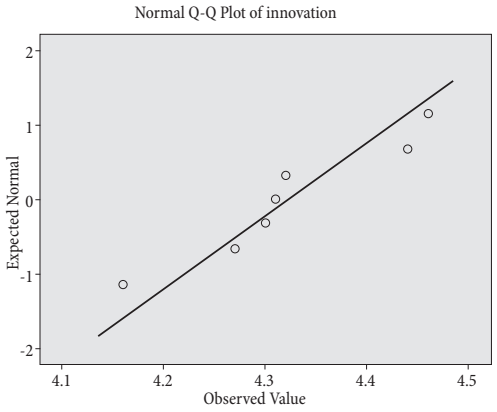
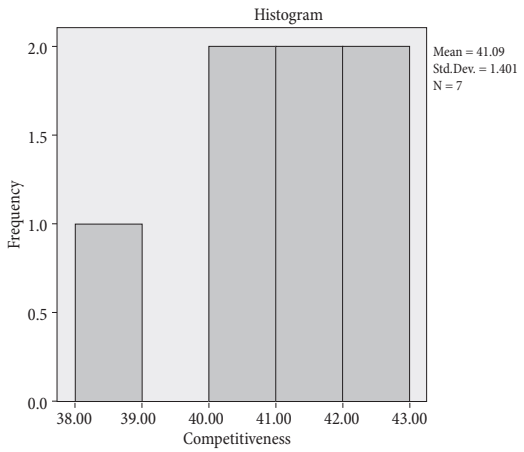
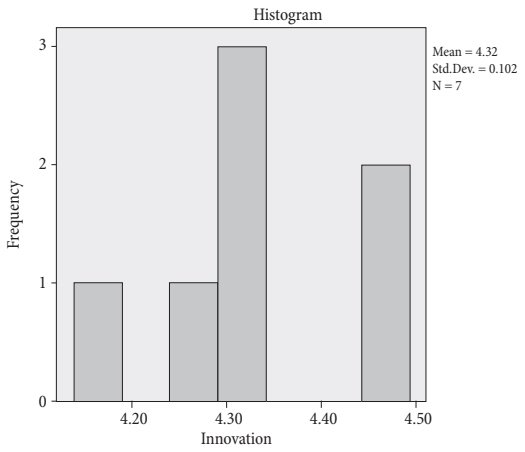
Table 4 shows descriptive statistics for the data collected in the case of Bulgaria obtained using the *Descriptive* and *Explore* options in the computer package IBM SPSS, as well as the Shapiro-Wilk test result.

The previously presented data did not meet the statistical assumptions for calculating the Pearson correlation coefficient in their original form because, as demonstrated by histograms, distribution diagrams, and the results of the Shapiro-Wickle test, there was no normality of the distribution and atypical points were present. As a result, to calculate the Pearson correlation coefficient, data were transformed using the logarithm according to the formula:

$$\text{New variable} = \text{LOG10 (old variable)} \qquad (2)$$

This transformation was done in the computer package IBM SPSS using the *Transform* and *Compute* options. An analysis of the transformed data revealed the existence of a statistically significant correlation between innovation and competitiveness in the case of Bulgaria (r = 0.861, n = 7, p = 0.013, with a coefficient of determination r^2 = 0,741321. According to Cohen's criteria, this correlation

Table 4. Descriptive statistics and Shapiro-Wilk test results in the case of Bulgaria

Variable	Competitiveness (n = 7)	Innovation Index (n = 7)
Mean (Std. Error)	41.0871 (0.52954)	4.3229 (0.03859)
Std. Deviation	1.40103	0.10210
Variance	1.963	0.010
Skewness	-1.052	-0.065
Kurtosis	2.039	-0.016
Distribution diagram		
Histogram		
Shapiro-Wilk test	W = 0.920, df = 7, p = 0.473	W = 0.931, df = 7, p = 0.557

Source: Authors' research

is high, which means that in the case of Bulgaria, the variables innovation and competitiveness account for 74.13% of the common variance.

3. *Correlation between competitiveness and innovation in the case of Hungary*

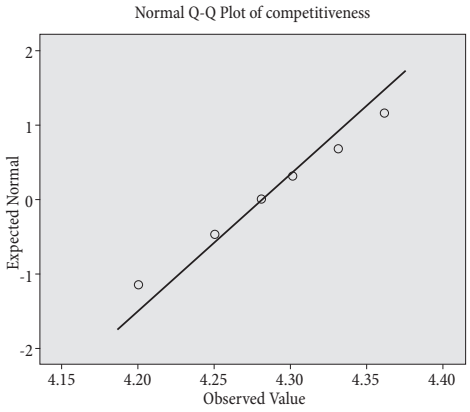
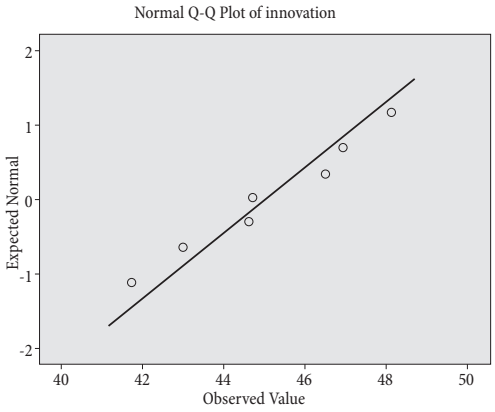
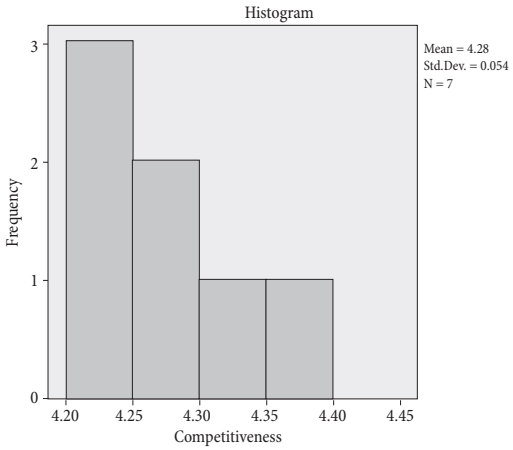
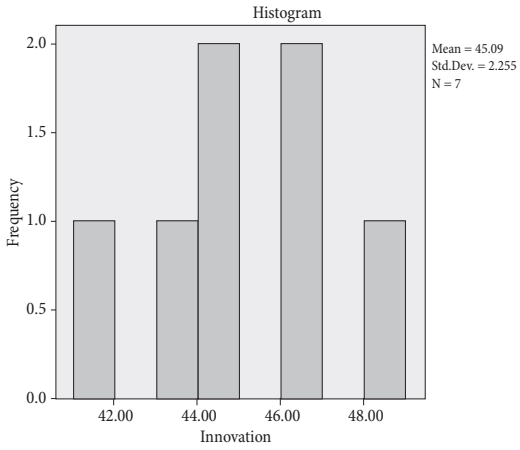
Table 5 shows descriptive statistics for the data collected in the case of Hungary obtained using the *Descriptive* and *Explore* options in the computer package IBM SPSS, as well as the Shapiro-Wilk test result.

The previously presented data did not meet the statistical assumptions for calculating the Pearson correlation coefficient in their original form because, as demonstrated by histograms, distribution diagrams, and the results of the Shapiro-Wickle test, there was no normality of the distribution and atypical points were present. As a result, to calculate the Pearson correlation coefficient, data were transformed using the logarithm according to the formula:

$$\text{New variable} = \text{LOG10 (old variable)} \qquad (3)$$

This transformation was done in the computer package IBM SPSS using the *Transform* and *Compute* options. An analysis of the transformed data revealed the existence of a correlation between innovation and competitiveness in the case of Hungary r = 0.175, n = 7, p = 0.707, with a coefficient of determination r^2 = 0,30625. According to

Table 5. Descriptive statistics and Shapiro-Wilk test results in the case of Hungary

Variable	Competitiveness (n = 7)	Innovation Index (n = 7)
Mean (Std. Error)	4.2814 (0.02040)	45.0871 (0.85245)
Std. Deviation	0.05398	2.25536
Variance	0.003	5.087
Skewness	0.006	-0.199
Kurtosis	-0.471	-0.987
Distribution diagram		
Histogram		
Shapiro-Wilk test	W = 0.981, df = 7, p = 0.966	W = 0.967, df = 7, p = 0.877

Source: Authors' research

Cohen's criteria, this correlation is small, and in the case of Hungary, the variables innovation and competitiveness account for 30.624% of the common variance.

4. *Correlation between competitiveness and innovation in the case of Romania*

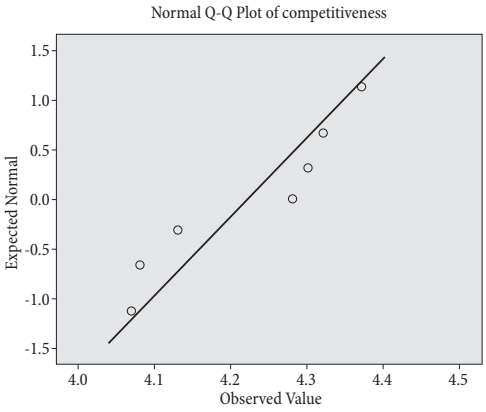
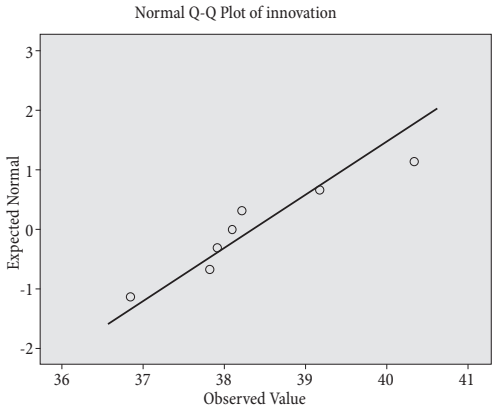
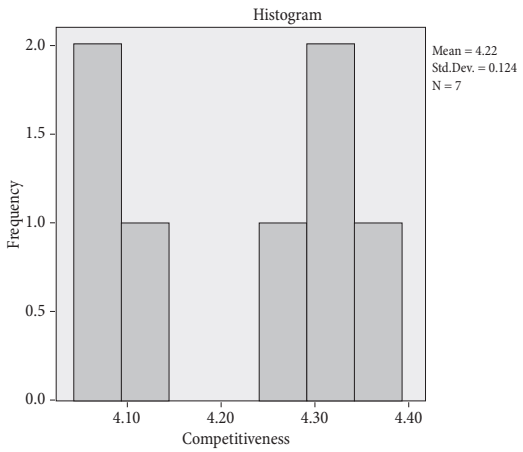
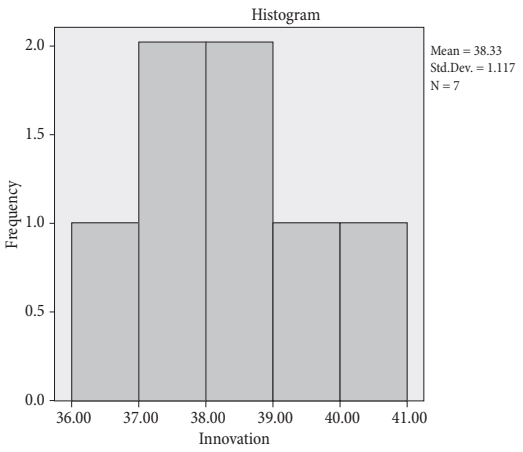
Table 6 shows descriptive statistics for the data collected in the case of Hungary obtained using the *Descriptive* and *Explore* options in the computer package IBM SPSS, as well as the Shapiro-Wilk test result.

The previously presented data did not meet the statistical assumptions for calculating the Pearson correlation coefficient in their original form because, as demonstrated by histograms, distribution diagrams, and the results of the Shapiro-Wickle test, there was no normality of the distribution and atypical points were present. As a result, to calculate the Pearson correlation coefficient, data were transformed using the logarithm according to the formula:

$$\text{New variable} = \text{LOG10 (old variable)} \quad (4)$$

This transformation was done in the computer package IBM SPSS using the *Transform* and *Compute* options. An analysis of the transformed data revealed the existence of a correlation between innovation and competitiveness in the case of Romania r = 0.105, n = 7, p = 0.823, with a coefficient of determination r^2 =

Table 6. Descriptive statistics and Shapiro-Wilk test results in the case of Romania

Variable	Competitiveness (n = 7)	Innovation Index (n = 7)
Mean (Std. Error)	4.2214 (0.04698)	38.3286 (0.42213)
Std. Deviation	0.12429	1.11685
Variance	0.015	1.247
Skewness	-0.260	0.835
Kurtosis	-2.218	1.103
Distribution diagram		
Histogram		
Shapiro-Wilk test	W = 0.868, df = 7, p = 0.178	W = 0.928, df = 7, p = 0.534

Source: Authors' research

0,11025. According to Cohen's criteria, this correlation is small, and in the case of Romania, the variables innovation and competitiveness account for 11.025% of the common variance.

Table 7 provides a comparative presentation of the obtained results in all four countries and a summary of the hypothesis testing.

Data and previous analyses presented in the cases of Serbia, Bulgaria, Hungary, and Romania shows that the hypothesis concerning a correlation between innovation and competitiveness was not refuted. The following points are to be considered:

- the values of the Pearson correlation coefficients obtained according to Cohen's criteria can be considered high in the case of Serbia (r = 0.563, r > 0.500) and Bulgaria (r = 0.861, r > 0.500);
- the values of the Pearson correlation coefficients obtained according to Cohen's criteria can be considered low in the case of Hungary (r = 0.175, r < 0.300) and Romania (r = 0.105, r < 0.300);
- the correlation between innovation and competitiveness is statistically significant only in the case of Bulgaria (r = 0.861, p = 0.013, p < 0.050).

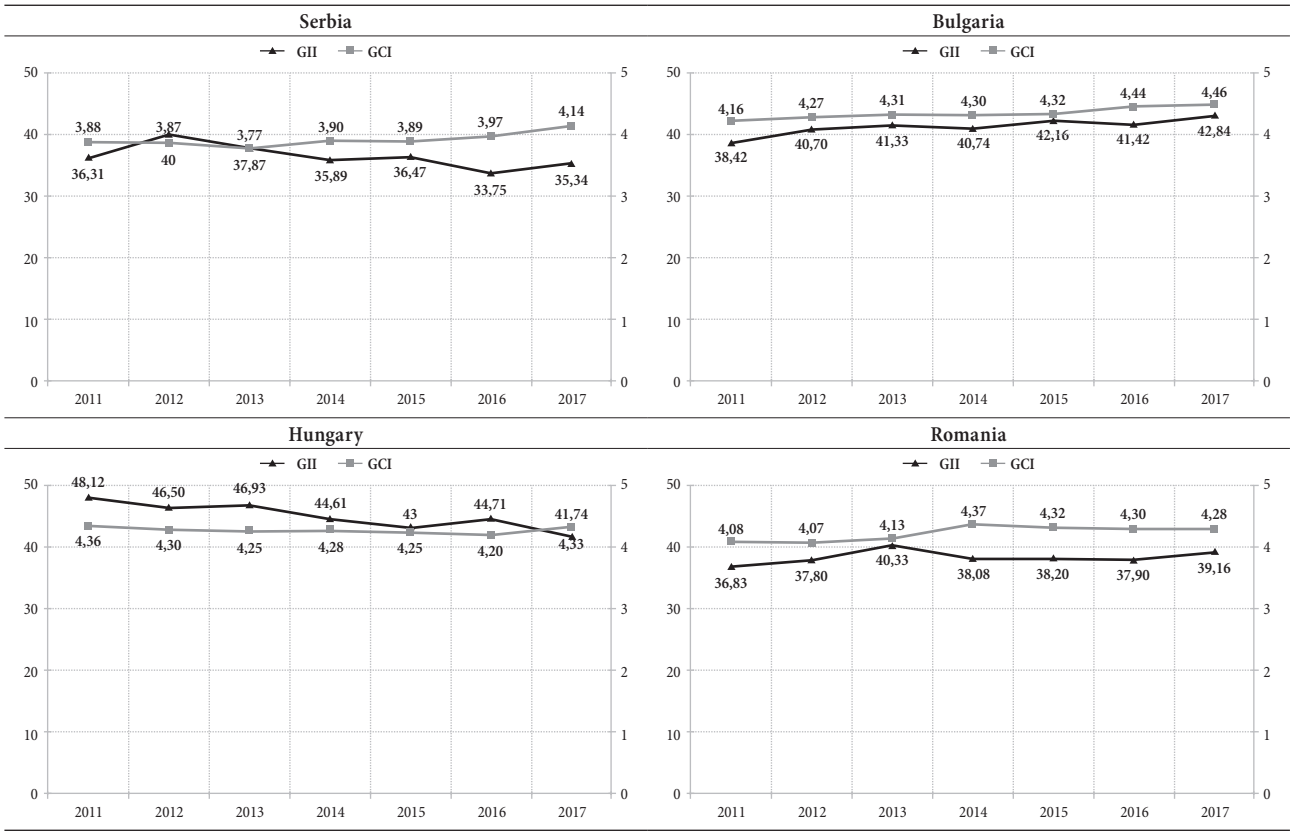
The hypothesis of a correlation between a country's level of competitiveness and its innovation index was not rejected in any of the analyzed countries. Figure 1 depicts the competitiveness and innovation ratios for the four countries.

Table 7. A comparison of testing on the correlation between competitiveness and innovation

	Serbia	Bulgaria	Hungary	Romania
The result of the test	Has not been rejected	Has not been rejected	Has not been rejected	Has not been rejected
Pearson correlation coefficient r calculated size	0.563	0.861	0.175	0.105
The values of Pearson's correlation coefficient r	High	High	Low	Low
Pearson correlation coefficient r statistical significance	Doesn't exist	Exists	Doesn't exist	Doesn't exist

Source: Authors' research

Figure 1. The relationship between competitiveness and innovation in Serbia, Bulgaria, Hungary, and Romania



Source: World Economic Forum (2008 - 2018); Cornell University, Institut Européen d'Administration des Affaires and World Intellectual Property Organization (2008 - 2018)

Based on the findings, the countries studied can be divided into two groups. The first is Serbia and Bulgaria, where a high-value correlation coefficient was found between the economy's competitiveness and the country's innovation index. Hungary and Romania fall into the second category, with a low correlation coefficient found between the economy's competitiveness and the country's innovation index.

When interpreting these findings, the significant overlap between the economy's competitiveness and the country's innovation index should be considered, which can be determined by analyzing the methodologies used to create the World Economic Forum's Competitiveness Index and the Global Innovation Index.

Conclusions

From the economic, intellectual, and social perspectives, innovation has always been a significant factor in society's relative success. Nowadays, as the global economy has shifted from a model of independent, relatively loosely connected economies to a much deeper connection in the global community, the phenomenon of innovation has taken on greater significance. Given that innovative capacity represents the ability to produce and commercialize the flow of innovative technologies over time and is an important factor affecting competitiveness, particularly in developed, modern economies, it is reasonable to conclude that such economies are on the verge of

exhausting the possibility of further growth based on capital investment and that investing in innovation is a sustainable solution for those countries. The ability of the economy to ensure the efficiency of production that will result in greater economic growth, guarantee the rate of return on invested funds in the economy, and provide the population with a high level of income and consumption is a basic indicator of a country's competitiveness and accordingly of its prosperity.

The research findings indicate that there is a correlation between the national innovation capacity of the economy and the competitiveness of the country's economy as measured by the Global Index of Innovation and the Global Index of Competitiveness in the case of Serbia, but also in the cases of the other three analyzed countries (Bulgaria, Hungary, and Romania). Numerous other authors who have previously analyzed the impact of innovation on the competitiveness of an economy have also found a positive relationship between innovation and economic competitiveness [3], [36], [30], [5]. Accordingly, the findings of the empirical research are consistent with those of previous studies and empirical research. The results are based on the definition of competitiveness as an economy's ability to create, produce, and distribute products and services in international trade while making a profit. Profit arises from the growth of companies operating within a given national economy based on their ability to differentiate products and services. Innovations can be defined as creative processes that can contribute to such growth by improving existing production processes and lowering production costs, an existing product or adding new value to the service or replacing it with new ones that offer greater value to the consumer, or by improving marketing or management.

The results obtained by testing the hypothesis are significant for decision-makers because they demonstrate the close relationship between the national economy's competitiveness and innovation, the intertwining and connection of these two phenomena. This means that investments in innovation, research and development should increase the national economy's competitiveness, but that competitiveness and innovation are inextricably linked.

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