COMPETITIVENESS OF V4 COUNTRIES USING THE GLOBAL COMPETITIVENESS INDEX

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Abstract. The article is focused on the evaluation and comparison of the international competitiveness of the Visegrad countries – four countries - Slovak Republic, Czech Republic, Hungary and Poland. The article consists of four chapters. The first chapter is focused on a short introduction to the issue. The second chapter briefly describes the methodology used in writing the article. It analyzes in detail the individual parts and subindices of the Global Competitiveness Index. The third chapter evaluates the specific values of the index which the countries of Visegrad four achieved from 2010 to 2018. The fourth chapter focuses on assessing the strengths and weaknesses of the countries' competitiveness. It also contains a proposal for the future direction of states. The concept of global competitiveness is increasingly being used to assess many different methods and indices in comparing countries. One of the best known indices is the Global Competitiveness Index, which is compiled annually by the World Economic Forum. It assesses how countries achieve and maintain economic growth and how business of every country is influenced by competitiveness. Higher quality of financial reports makes companies more competitiveness and motivate investors to put money into them.

1 Introduction

The business environment is a very important aspect of each country's economy. It includes important factors such as customers, competition, suppliers, government influence, social and cultural circumstances. Its flawless functioning is essential for the proper development, level of competitiveness of the business sector and countries. Globalization of the world economy is making very strong pressure on countries economies to increase their competitiveness, but not only in corporate level, but also in macroeconomic and the government administration, which is very important for efficient and competitive business environment. Globalization has been very influenced by economic integration. Four freedoms of EU increased flows of people, goods, services and capital. Integration is connected to globalization. Countries which have became the fist members of the European union, have higher level of globalization. on the other hand countries which joined the European union have lower level of globalization. The lowest level globalization is connected with countries outside the European union. It is also confirmed by analysing the KOF data. [15]

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There is no uniform definition of competitiveness in this time. The individual theories and authors are influenced by the original definitions of Adam Smith, and they are divided to competitiveness at company, region or country level. The country's competitiveness is a complex phenomenon which involves macroeconomics and microeconomics areas. Competitiveness starts to existence during the production of good and services. Technical and technological knowledge is the main part of competitiveness and is related to the production of products with higher added value. [13]

The World Economic Forum (WEF) defines competitiveness as the set of institutions, policies, and factors. This indicators are important for productivity of the country to influence the level of income and the growth potential of each economy. The productivity of the country means a country’s ability to maintain a high level of income, but it is also one of the main factors influencing the return on investment that reflects the growth potential of the specific economy. [11] Competitiveness is an important factor to defines state and maturity of every country. [7] In assessing competitiveness, it is noted that the countries most in need focus on the knowledge economy, research, innovation, technology and IT. These are essential factors for global competitiveness and sustainable growth. [8] Higher competitiveness is connected with higher productivity of the country´s economy, which leads to effective and more higher economic growth. Result of economic growth is to bring higher living standards and prosperity of the country´s citizen. [14] Competitiveness is influenced by strengths and weaknesses of the national innovation systems of every country. It means that innovations are very important source of country´s competitiveness. [10] Porter studied the relationship between environmental targets and industrial competitiveness. The successful result of this fight is innovation-based solutions that improve environmentalism but also industrial competitiveness. [16] Competitiveness is also connected with the logistics. There is the effect of the competitiveness pillars of the Global Competitiveness index on logistics performance. [17]

2 Methodology

The main objective of the article is to assess the competitiveness of the Visegrad countries using selected the Global Competitiveness Index from 2010 to 2018. The figures were obtained on the basis of the Global Competitiveness Report published annually and subsequently processed into a chart and a table. Article containes works of Slovak and foreign authors which are related to this problem. Positive benefit of the article is the use of scientific articles, anthologies and publications from the Web of Science, Scopus, journals like Journal of Interdisciplinary research, Journal of competitiveness, Strengths and weaknesses were evaluated by the method of mutual comparison. Countries were also compared with each other. The main shortcomings, differences between countries, but also the benefits of a competitive business environment were described.

2.1 Global competitiveness index

The Global Competitiveness Index (GCI) has been published since 2004 by the World Economic Forum as part of the World Competitiveness Report. The index is composed of twelve pillars, which are divided into three basic groups - basic requirements, efficiency enhancers and the last group innovation and sophistication factors. The index focuses mainly on the assessment of sustained economic growth, prosperity, global competitiveness.

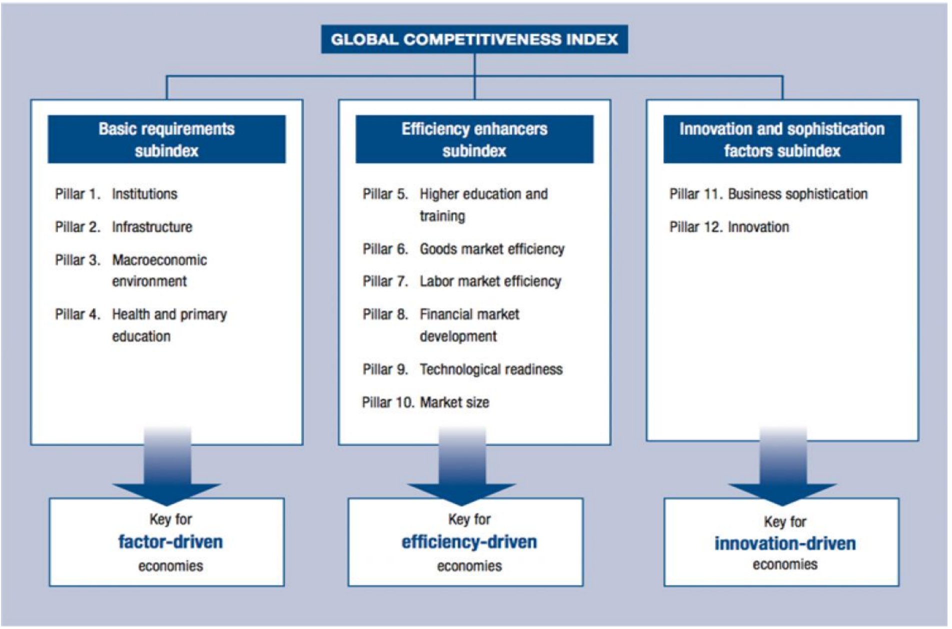

Fig. 1. The Global Competitiveness index.

The twelve pillars do not have an independent effect on competitiveness but complement the pillars. Low values of one pillar may have adverse effects on other pillars and areas. Although the pillars together form a single index, they are evaluated and measured individually. Subindices have different weights when the Global Competitiveness Index is calculated. These weights depend on GDP per capita and export shares, which are represented by raw material as is illustrated in Table 1. The weights of subindices also depend on the level of development of individual economies. A country with economy formed mainly by low-skilled economy and natural resources is mainly affected by pillars – Institutions, Infrastructure, Macroeconomic Environment, Health and Primary Education. Conversely, countries whose economies are based on complex manufacturing processes and product quality have a greater weight on pillars of Higher Education and Training, Good Market Efficiency, Labor Market Efficiency, Financial Market Development, Technological Readiness, and Market Size. The third types of economies – innovation economy – are based on business and research and development activities. Economies have high weight on Business Sophistication and Innovation. In the European Union, the Innovation and Sophistication of Business index is one of the most important sub-indexes. This is because many member states have their economies based on innovation or the efficiency of the economy. [1]

Since 2018, the World Economic Forum has introduced a new methodology for assessing competitiveness, which uses statistical data and the results of executive opinion surveys. However, it is not compatible with the methodology used hitherto and because of it is not possible to compare the development of the competitiveness of countries. The new method re-evaluates the 12 pillars of competitiveness: Institutions, Infrastructure, Technological Maturity, Macroeconomic Environment, Health, Education and Skills, Goods Market, Labor Market, Financial System, Market Size, Business Dynamics, Innovation Capacity. [12]

Table 1. Subindex weights and income for stage of development.

	Stage of development				
	Stage 1: Factor-driven	Transition from stage 1 to stage 2	Stage 2: Efficiency-driven	Transition from stage 2 to stage 3	Stage 3: Innovation driven
GDP per capita (USD) thresholds	<2000	2000-2.999	3000-8999	9009-17000	>17000
Weight for basic requirements	60%	40% - 60%	40%	20% - 40%	20%
Weight for efficiency enhancers	35%	35% -50%	50%	50%	50%
Weight for innovation and sophistication factors	5%	5% - 10%	10%	10% - 30%	30%

3 Results

The values of the Global Competitiveness Index were used to compare the competitiveness of the Visegrad countries from 2010 to 2018. The competitiveness of the countries was also compared through individual sub-indices in 2018.

Table 2. Values of the Global Competitiveness Index of the V4 countries from 2010 to 2018

Year	The Slovak Republic	The Czech Republic	Poland	Hungary
2010	4,3	4,66	4,32	4,21
2011	4,24	4,56	4,5	4,32
2012	4,18	4,52	4,46	4,36
2013	4,14	4,51	4,46	4,3
2014	4,1	4,43	4,45	4,24
2015	4,14	4,53	4,48	4,28
2016	4,22	4,69	4,49	4,25
2017	4,3	4,7	4,6	4,2
2018	4,3	4,8	4,6	4,3

Table 2 shows the figures of the Global Competitiveness Index for the V4 countries from 2010 to 2018. The Czech Republic achieved the best rating during the reporting period. It reached its highest ranking in 2018, ranking 31st, as in 2017, ranking 31st with 4.7. The second place went to the Republic of Poland with a rating of 4.6. The ranking achieved was the same in 2017 and 2018, but fell by 39 places in 2018 as a result of the country's placement. Nevertheless, among the countries under comparison, the position of the Republic of Poland is the most stable and shows the smallest fluctuations. In 2010, the Slovak Republic achieved a higher ranking than the Republic of Hungary, but already in 2011 Hungary was ahead of the Slovak Republic. The worst ranking was achieved by the Slovak Republic in 2014, when it ranked 78th. Significant change occurred in 2017, the Slovak Republic was rated 4.3, ranked 65th and even overtaken Hungary. The situation was the same in 2018, when the country improved by 6 ranks and got to 59th place, Hungary with a rating of 4.3 placed 60th.

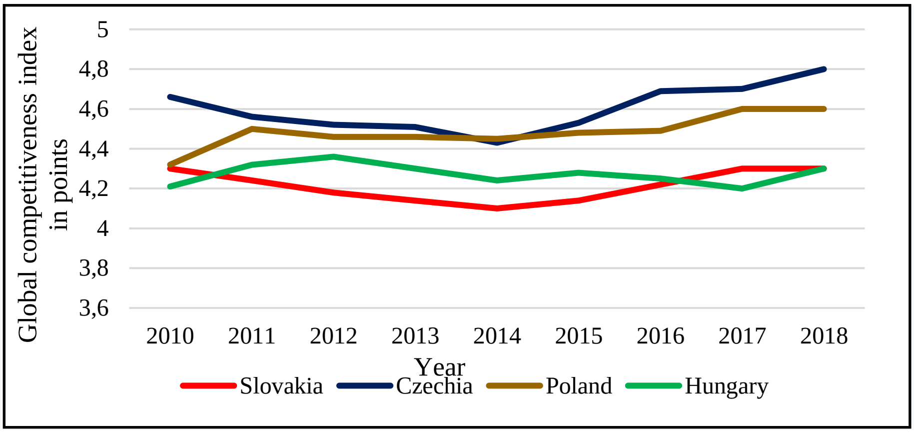

Fig. 2. Development of competitiveness of V4 from 2010 to 2018.

Figure 2 shows development of The Global Competitiveness Index in V4 from 2010 to 2018. The first position belongs to The Czech Republic. Poland reached higher amount of points just in 2014. Except for this year Poland is the country in the second post. In 2010 Hungary had just 4,2 points and it occupied the last post. But from 2011 to 2016 the situation changed and the competitiveness of Slovakia was the worst compared to others countries. In 2018 the Czech republics achieved 4,8 points. According to The Global Competitiveness index its competitiveness was the best. The second position belonged to Poland. The Slovak republic and Hungary had the same amount of points – 4,3. In general competitiveness of V4 countries is slowly increasing.

Table 5. Values of individual pillars of the Global Competitiveness Index of the V4 countries in 2018

Subindex	Pillars	Slovak republic	Czech republic	Poland republic	Hungary
1.	**1. Institutions**	3,5	4,2	3,8	3,5
	2. Infrastructure	4,3	4,6	4,7	4,4
	3. Macroeconomic environment	5,4	6,2	5,2	5,1
	4. Health and primary education	6,1	6,4	6,2	5,6
2.	**5. Higher education and training**	4,5	5,2	5	4,3
	6. Good market efficiency	4,5	4,7	4,6	4,4
	7. Labor market efficiency	4	4,5	4,1	4,2
	8. Financial market development	4,6	4,8	4,2	4,3
	9. Technological readiness	5,1	5,5	4,9	5,1
	10. Market size	4,1	4,5	5,2	4,3
3.	**11. Business sophistication**	4,2	4,6	4,1	3,7
	12. Innovation	3,3	3,9	3,4	3,4

Table 5 contains an assessment of the individual GCI pillars of the V4 countries based on the World Economic Forum report 2017-2018. It is important to note that the pillars do not affect competitiveness individually but complement each other. Adverse results in one pillar often negatively affect other areas. The pillars range from 1 to 7, with 1 being the worst rating and 7 the best pillar rating.

In the years 2017 and 2018 **Slovak Republic** achieved a total of 4.3 points out of 7. The overall score is compiled according to the pillar group ratings. Within the framework of the basic requirements - the first four pillars, the Slovak Republic achieved a score of 4.8 and reached the 52nd position, even surpassing the overall score. It achieved the highest ranking in the fourth pillar - Health and Education up to 6.1 points. The sub-index of efficiency stimulator again slightly exceeded the overall score with 4.5 points and the most points in the sub-index reached pillar 9 - Technological Readiness. Conversely, the country fell in the sub-index factors of innovation and sophistication - they reached a lower rating of 3.8 points and at the same time there is the index with the lowest rating of 3.3 - Innovation. Some of the pillars examined can be influenced by the decisions of the companies themselves or by the state administration, but some of the pillars cannot be influenced by the companies.

The most problematic factors of competitiveness:
• corruption,
• inefficiency of state bureaucracy,
• tax rates,
• tax regulations,
• restrictions on work regulations.

The country has problems in the quality of public institutions, the promotion of talented people, and the lack of staff education. It stagnates in the fight against clientelism and the efficiency of the judiciary; it has little use of the tax system to support citizens in getting new jobs. In these areas, the country occupies the last ten places out of 137 countries. The low rating of the Slovak education system also has a negative impact on the country's technological and innovation base. The result of this is also a weaker interest of foreign investors to invest in domestic research and innovation, which is also caused by a lack of experts in the fields. [9] On the other hand, the positive location is influenced by the higher number of mobile lines, the improvement of the internet transmission speed, but also by the growth of the number of airlines. Nevertheless, Slovakia is still ranked as one of the worst countries to do business in the European Union. Beyond the country there are only Greece, Croatia, Romania, Cyprus and the neighboring country Hungary, which occupied 60th place. For business of every country it is very important to invest in the development of strategies to increase competitive advantage in the market when they operate. One of the possibilities is to aimed to branding and its management because they are very significant for managers of global companies. Branding and its management are therefore very important for managers of global companies. Nowadays brand is the most valuable tool for every company and it allows to be more competitiveness. [3]

The 11th subindex - Business sophistication - is connected with sophisticated business practices. It consisted of the quality of business networks and the quality of operations and strategies of individual companies. There is the relationship between efficiency of investments and the quality of accounting information, which can be measured by earnings management practices. Chief financial officers believe that earnings management can influence investors and increase valuation of their companies. [6]

A significant advantage of the Slovak Republic compared to other V4 countries is the fact that the country was the only country to apply the Euro. When we compare the banking sector between countries, the banking sectors within the Eurozone are much more effective than the banking sectors of countries that have not apply the euro yet. The efficiency of the banking sector of European Monetary Union countries was at 57, 89%, while the efficiency of the banking sector of the others is only 44.44%. [2]

The Czech Republic achieved a score of 4.8 points over the period 2017-2018, which is the highest score among the countries evaluated. In all pillars it occupied the first rungs, except the second and the tenth pillars, where a higher ranking was given to Poland. The basic requirements were rated 5.4 points. Pillar 4 - Health and education achieved scoring 6.4. The efficiency stimulator of 4.9 received a high rating in the 9th pillar of Technology Readiness - 5.5 points. The last sub-index with a level of 4.2 reached a lower level in the Innovation pillar - 3.9, but this level still exceeds the value of innovation of the Slovak Republic by 0.9 points.

The most problematic factors of competitiveness:

- tax regulation,
- inefficiency of government bureaucracy;
- the level of tax rates,
- political instability;
- corruption.

The Republic of Poland is the largest country and has the most inhabitants, which significantly affected the above-mentioned pillars. In the first sub-index the number of points allocated to the Republic of Poland was 5.0, which is more than the country's overall score. The Republic of Poland achieved the best rating in the second pillar Infrastructure - 4.7 points. The Efficiency Stimulator Subindex again exceeded the overall rating of 4.7, and the most successful is the tenth pillar - Market Size with 5.2 points. In the last sub-index Factors of Innovation and Sophistication, the evaluation of the country was identical with the value for the Slovak Republic - 3.8 points.

The most problematic factors of competitiveness:

- tax regulation,
- value of tax rates,
- restrictions on working regulations,
- political instability;
- Inefficiency of government bureaucracy.

Corruption was rated at 1.5 points and reached thirteenth level. Poland is the only country where corruption is not consider as main problem. It is caused because corruption is not widespread. Some scandals appeared in Poland but they were investigated very seriously. [4]

Hungary has moved 9 places to 60th place compared to the previous period. The improvement was largely due to Pillar 9 - Technological Readiness. The country has also seen positive developments in the financial markets, business environment and innovation. In the Global Competitiveness Index, it reached the same overall value of 4.3 points as the Slovak Republic, although its ranking was 60th. The first criterion - The Essential Requirements was rated 4.6 points and the country fell to 64th. Compared to the V4 countries, Hungary lags in the Health and Education pillar, which has only 5.6 points. The second criterion is again in the last place among the countries, compared to the Slovak Republic is worse by 0.1 points. The last criterion Factors of Innovation and Sophistication reached a score of 3.5.

The most problematic factors of competitiveness:

- insufficient education of the workforce;
- corruption,
- value of tax rates,
- tax regulation,
- access to financial resources.

4 Conclusion

Based on the surveyed index, it can be concluded that the best ranking is maintained by the Czech Republic as the most competitive country and as the country with the best business conditions. The biggest advantages of the country are freedom of trade, financial freedom, property rights. The disadvantages of the country are bureaucracy and corruption, instability of the political system, changes in tax rates and tax regulations, restrictions on labor regulations.

Poland came second, as the country with the best results in assessing corruption. Another advantage is the size of the market and the related domestic demand, market dominance, level of education. On the other hand, the disadvantages of the country are tax regulation, the instability of the political system, tax regulation and the rate of taxation, limited access to financial resources and bureaucracy.

The Slovak Republic occupies the third position, although it achieves very similar results in the global competitiveness index as Hungary. Problematic factors of the country in the field of business are especially high level of corruption and bureaucracy, lack of functionality and inefficiency of government, rate of tax burden, constant changes in tax laws and changes in business conditions, low level of education. Slovakia should concentrate to support of research institution which are focused on new technologies and implementation of know-how in the business field. Country have to prepare suitable conditions for progress of research and development. It is very important for businesses to adapt very quickly to changing conditions to increase competitiveness of country. Problem of the Slovak republic is lack of explicit innovative tools for creating innovative and effective economy. The low level of innovation, caused by lack of capital and underdeveloped of cooperation between companies, is connected with lower state of competitiveness [5] Freedom of trade, the possibility of cross-border trade, investment freedom are factors supporting competitiveness within a country. Slovakia has a significantly high position in terms of attractiveness for foreign direct investment compared to other V4 countries.

Negatives of the Republic of Hungary are low level of transparency of the political system, again tax rates and inadequate tax regulation, low level of education of labor, level of corruption, high government expenditures. Positives are freedom of trade, currencies, low crime and violence in the business environment, paying taxes

The competitiveness of the Visegrad Four countries is filled with a wide range of political, economic and social factors. It is an association of Central European countries whose development and direction are interconnected and shaped by a common history. A common feature of the countries is, with the exception of the Republic of Poland, that these are smaller economies, which require their participation in the international division of labor to make sure their economic growth. Lower economic power of countries is offset by higher specialization in production processes. In the process of globalization, the global economic development has a significant impact on the national economies of the Visegrad Four. Every crisis and the recession of the global economy have a significant impact on the economies of these countries. In assessing the competitiveness of states the Czech Republic maintains its leading position, followed by the equilibrium development of the Republic of Poland. Third place went to the Republic of Hungary and the worst results are achieved by the Slovak Republic. The placement of Slovakia may be due to an inappropriate innovation policy in the post-crisis period and therefore the country should start to focus on innovation potential in the future. Negative impacts on the location of a country may also have a problem for businesses in finding workers in some sectors, a constant increase in the tax burden and frequent changes in business conditions.

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