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DO CLUSTERS AND BUSINESS ENVIRONMENT FOSTER NATIONAL COMPETITIVENESS IN BULGARIA? A COMPARATIVE STUDY WITH EU COUNTRIES

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Abstract: *The business environment and cluster development in given economy have a defining role for the development, maintenance and enhancement of national competitiveness and this has been proven repeatedly in theory and in practice. Cluster development in Bulgaria started with some delay compared to the other European countries. In Bulgaria, companies even though being a member of a cluster, they do not fully realize their advantages in terms of competition and joint efforts. The reason is that clusters in Bulgaria are still in a process of building efficient internal interactions between their members. The study focuses on the way and the extent the state of business environment and cluster development foster national competitiveness in the case of Bulgaria and selected Central and Eastern European EU member states countries. For the purposes of the study of business environment the Diamond Model of Michael Porter is employed and it is carried out through the World Economic Forum's indicators of Global Competitiveness Reports. Both, business environment and the level of cluster development in Bulgaria are evaluated in a comparative context with selected Central and Eastern European EU member states countries. The results of the study show domination of limitations and obstacles to enhancing national competitiveness. We may conclude that the state of the business environment, the level of cluster development, and their interaction are not very favourable for more intensive competitive development of Bulgarian economy.*

Keywords: *clusters; competitiveness; business environment; Bulgaria; EU countries.*

JEL classification:*C38, M21.*

Časopis za ekonomiju i tržišne komunikacije/ Economy and Market Communication Review
God./Vol. 11 • Br./No. 1 • Banja Luka, Jun/June 2021 • pp. 158-175

159

INTRODUCTION

Achieving and maintaining national competitiveness in the global economy is a challenge that nations approach in a different way. Relative to the strong historical dependency of the aggregate institutional factors emphasized in the macroeconomics literature, policymakers (and even private sector leaders) have significant latitude to strengthen microeconomic competitiveness by enhancing the national business environment, enabling cluster development, and improving the sophistication of company operations and strategy(Delgado, Ketels, Porter, & Stern, 2012:2). Business environment is understood as internal and external factors for the companies that affect their functioning and outcomes. The focus of the article are issues related to national competitiveness, that are of high significance for any economy and attract growing attention of politicians, academic circles and researchers: the role of the business environment, the extent of cluster development, and the interaction between the two, as a premise to enhance national competitiveness.

The main research question of the study is: Do the business environment and cluster development foster the enhancement of national competitiveness?

The research is structured as follows: in the first part, a brief literature review of the basic concepts as competitiveness, clusters, business environment is presented. The second part introduce the research methodology, including the research hypotheses of the study. The third part discussthe results of the study and conclusions are derived in regard to the state of the business environment and the degree of cluster development in Bulgaria, as well as their interaction as a premise to enhance national competitiveness. Finally, the conclusion highlights the favorable prerequisites and problematic areas for the future development and enhancement of Bulgarian economy's competitiveness.

The study of the business environment is developed through the Diamond Model of Porter. Each determinant of national advantage (factor conditions; firm strategy, structure and rivalry; demand conditions, related supporting industries) (Porter, 2004) is characterized (analyzed and evaluated) using indicators of the World Economic Forum from the Global Competitiveness Reports.The research on the cluster development in Bulgaria is carried out in a comparative context with the Central and Eastern European EU member states, taking into account the fact that the extent of their development is a manifestation of historical and geographic determinism(Solvell, Lindqvist, & Ketels, 2003).Comparative analysis, descriptive statistics, and correlational analysis were applied for the purposes of the study.

COMPETITIVENESS, CLUSTERS, BUSINESS ENVIRONMENT: A BRIEF LITERATURE REVIEW

National competitiveness

Achieving and maintaining national competitiveness in the global economy is a challenge that nations approach in a different way. The fact that different nations belong to different stages of economic development (most generally - developed and developing countries) and the need to deal with different historical and economic predispositions explain the variety of perceptions and models of national competitiveness.

The notion "national competitiveness" is more strongly contested than "competitiveness" of firms and regions(Lachmann, 2001). Well-known are the statements of

Hristo Katrandjiev, et al.

160   DO CLUSTERS AND BUSINESS ENVIRONMENT FOSTER NATIONAL COMPETITIVENESS IN BULGARIA? A COMPARATIVE STUDY WITH EU COUNTRIES

scientist and researchers who disagree about the notion(Krugman, 1994; De Grauwe, 2010). Most of these arguments emanate from the ideas of the international trade theory. Krugman, the most prominent opponent of national competitiveness, supports the idea that countries do not engage in trade as in a zero-sum game. Similar idea can be found with Andrea Boltho "If a certain country grows, possibly faster than the others, then the global markets will expand, and all foreign trading partners will benefit from the availability of better or cheaper products and from more favourable terms of trade. Consequently, there are neither winners nor losers"(Boltho, 1996:1-16).

There is also a lack of consensus about the definition of competitiveness (Bristow, 2005; Greene, Tracey, & Cowling, 2007; Martin, 2005; Thompson, 2004). "In practice, there is a dichotomy in how policy makers think about competitiveness: On the one hand, competitiveness is associated with qualities that enable a high standard of living (e.g., a country like Sweden is prosperous because of its high competitiveness). On the other hand, competitiveness is associated with locational attributes that drive growth…" (Delgado, Ketels, Porter, & Stern, 2012:2). Michael Porter, an authority in the field of competitiveness, provided a systemic view of competitive advantage of nations trough the "Diamond model". According to him, four and interlinked are the main groups of factors determining national competitiveness: factor conditions, demand conditions, related and supporting industries, and firm strategy, structure and rivalry. Porter builds that model on the premise that the productivity of factors determines the competitiveness of the economy(Porter, 2004).Garelli, the director of the World Competitiveness Centre, states that "competitiveness is not an objective, by itself, but an economic tool. However, a tool is linked and dependent on the objectives pursued by the various economic actors, which constitute a nation"(Garelli, 2012:488-489).

This is the reason competitiveness is considered to be a dynamic concept that implements three ideas: (1) to be efficient, (2) to make choices, (3) in what way the disposable resources are being used. Different definitions, to a different extent, stress on one or some of these ideas(Global Competitiveness Index WEF, 2016:4; Tyson, 1992).

What Flanagan, Lu, Shen and Jewell conclude in their research is that "The plethora of definitions is a proof of the diversity, inclusivity and complexity of the concept." (Flanagan, Lu, Shen, & Jewell, 2007:990). What is common between the most accepted and used definitions of national competitiveness is that the successful (economic) performance typically is judged in terms of rising standard of living or real incomes and open type of market conditions(Bankova, 2015:114-123). Flanagan et all (Flanagan, Jewell, Ericsson, & Henricsson, 2005)stress that "Competitiveness may be described as something that is multi-defined, multi-measured, multi-layered, dependent, relative, dynamic and process related."

What can be outlined is that competitiveness is usually defined in terms of the outcome(s) (ex. standard of living/incomes) rather than the factors that determine competitiveness. Scholars have come up with different sources of national competitiveness. They include, among others, relative labour costs real exchange rate, manufacturing, knowledge-intensive service sector, foreign direct investment, technology, innovation, institutions and government policies, and regulations. What is common about them is that the level of sophistication of the factors raises. To create and sustain competitive advantage over the time factors of a higher order are needed. These are factors that

cannot be easily copied. That is why so much attention is paid to the knowledge and innovations. Moreover, the application of modern technologies has changed significantly the role of most common factors of competitiveness. Globalisation also matters. According to Tanushev "The diversity of relationships raises a number of contradictions that should be taken into account in the activities of governments, corporations, non-government organizations, and people." (Tanushev, 2016).

Nowadays beside the innovation competitiveness depends increasingly on the ability of the companies to co-operate, the effectiveness of the public administration and political decisions that aim at creating more favourable external environment for the companies(Bankova, 2011).Michael Porter (Porter, 2004), claims that "firms compete in industries, not nations". It is also true that the *economic value is indirectly generated by nations trough enterprises* hence the main and most important role of the nations (countries) is to establish an environment that supports the activities of enterprises. National Governments continue to shape the competitiveness environment in different ways via taxation, education, health issues and recently through the application of cluster policy. Clusters presume a co-operation and innovation that's why they are perceived as a key driver for achieving a sustainable competitiveness.

Clusters

A cluster, according to Porter, is "a geographic concentration of interconnected companies and associated institutions in a particular field, which are community bound and mutually complementing. The geographic scope of the cluster can be a region, country or even a separate town, around which it could be situated, or neighboring countries ... Being more than individual industries, clusters encompass a series of related industries and other organizations of importance for competition" (Porter, 2003:199).Due to the high geographic concentration of companies connected vertically or horizontally in a given industry (Madsen, Smith, & Dilling-Hansen, 2003:5),as well as the wide scope of possible participants in the cluster (the business, educational institutions, local authorities, state institutions, non-governmental organizations), clusters represent a specific form of collaboration (Knauseder, 2009), which has been acquiring great importance in recent years. Clusters are developing in all countries, and the stage of their emergence varies (Oxford Research, 2008).

Clusters, as already stated, have been the subject of many studies which prove the need for their development and outline their role in several directions. Predominant are those which concentrate mainly on the economic advantages of clusters and focus on innovations to improve competitiveness. Clusters are perceived as drivers of competition, innovations and regional development (Garanti, Zvirbule-Berzina, & Yesilada, 2014); they provide the companies forming a given cluster with easy access to important resources, reduction of transportation costs, access to consumers and labour (Marshall, 2009; Porter, 2000; Krugman, 1993).Clusters are defined as a dominant factor nowadays(Dumais, Ellison, & Glaeser, 2002), both in reducing transaction costs and providing access to specialized services (Shott, 1988), and development of infrastructure and competitive business environment (Lin, Tung, & Huang, 2006), which leads to enhanced efficiency and productivity. Besides, the advantages of clusters, "resulting from local embeddedness and spatial proximity, strategic cooperation and constructive competition, as well as the considerable influence of external players can

162   DO CLUSTERS AND BUSINESS ENVIRONMENT FOSTER NATIONAL COMPETITIVENESS IN BULGARIA? A COMPARATIVE STUDY WITH EU COUNTRIES

Hristo Katrandjiev, et al.

be used to promote responsible business practices and joint CRS activities" (Slavova, 2014:61).

According to Porter *clusters represent a new way of thinking about national and local economies*, and they necessitate new roles for companies, government, and other institutions in enhancing competitiveness (Porter, 2000) as well as that … clusters represent a new and complementary way of understanding an economy, organizing economic development thinking and practice, and setting the public policy (Porter, 2000). While in the different definitions of clusters (Rosenfeld, 1997; Feldman, Francis, & Bercovitz, 2005)the accent is placed on different aspects, the clusters concept usually has three important dimensions.

First, it is widely accepted and indisputable to view clusters as a geographic concentration of specialized companies, advanced skills and competences of the workforce, as well as support for institutions, which increase knowledge flows and their dissemination, as a result of their proximity. This grouping of different strengths is often called a prospective strategy for maintaining competitiveness on a global scale.

Second, clusters include a network of joint/cooperative enterprises (businesses which have officially established, economic and social ties among them). They offer good functions for providing a set of specialized and personalized services to a particular group of companies, such as the provision of specialized infrastructure, specific support for the business by means of consulting services or training. In this sense, clusters are a form of "self-organization", which offers competitive advantages. It is believed that geographic proximity facilitates the transfer of knowledge flows and unplanned interactions, which are important elements of the innovation process.

Third, clusters are characterized by a certain dynamic social and organizational element, the so-called "institutional attachment/fixing" – various interconnected innovation actors are attracted, such as universities, research institutes; non-governmental and governmental organizations, public authorities - in this way the intensive interaction and cooperation between them is facilitated. Rocha and Sternberg (Rocha & Sternberg, 2005) call the third dimension of clusters a network of cooperative organizations (it is not only companies that are connected, but also various governmental and non-governmental organizations, including educational institutions).

EU countries began to develop and implement cluster development policies in the early 1990s. Models of formation, growth and development agree on the general principles of cluster existence, but each country has its own ways of realizing these principles.

Cluster formation programs are aimed at encouraging innovation and dissemination of knowledge, as well as the development of technologies. In many post-socialist European countries, such as Bulgaria, projects have been implemented to promote the best practices gathered through observation, which is the basis for analysis. Today, cluster development policies are increasingly focused on the development of existing clusters, on their improvement by connecting with local development and research institutions, universities and the local community. (Mitrović & Mitrović, 2020:258)

Clusters and business environment

"A nation's economy contains a mix of clusters, whose makeup and competitive advantage (or disadvantage) reflect the state of the economy's development". (Porter,

Časopis za ekonomiju i tržišne komunikacije/ Economy and Market Communication Review
God./Vol. 11 • Br./No. 1 • Banja Luka, Jun/June 2021 • pp. 158-175

163

2004). Countries and regions, regardless of the supposed homogenizing effects of globalization, still manifest substantial differences in terms of specialization, competitiveness and industrial dynamics. Successful industries and industrial clusters in a country or region often maintain their leading advantage over long periods of time, despite the efforts of others to imitate their success. Sustainable competitive advantage is created by a combination of internal and external resources existing in the national and local business environment, where strategic decisions are taken and entrepreneurial activity is formed(Solvell, Lindqvist, & Ketels, 2003).

In business environment, there is a tendency for resources and capacities to renew themselves in a mutually strengthening process, and as research shows(Lin, Tung, & Huang, 2006; Solvell, Lindqvist, & Ketels, 2003; Porter, 2004)cluster dynamics play a decisive role in the process of building and developing a competitive business environment. Dynamic business environment, most often represented by Porter's Diamond, consists of a process of improvement and specialization of the production factors and infrastructures, growing demand (domestic and foreign), intensive rivalry and collaboration, development of competitive related supporting industries(Porter, 2004). Dynamic environment acts as a driver of cluster growth and innovations. (Solvell, Lindqvist, & Ketels, 2003). Based on the understanding established in economic theory and practice of the interaction between the business environment and clusters– on the one hand, dynamic clusters are of decisive importance for the development of a competitive business environment, and on the other, dynamic environment acts as a driver of cluster growth and innovations (Solvell, Lindqvist, & Ketels, 2003). The research, presented in the article, studies the state of cluster development and the business environment in Bulgaria and their interaction, in an attempt to answer the research question: "Do clusters and the business environment in Bulgaria foster the national competitiveness?"

RESEARCH METHODOLOGY

The paper aims to study the state and connection between cluster development and the business environment in Bulgaria (in a comparative context with Central and Eastern Europe EU member states) on the one hand, and their role as a prerequisite for enhancing national competitiveness, on the other.

The brief literature review related to competitiveness, clusters and business environment and the goal of the research lead to the formulation of three research hypotheses.

• Hypothesis 1: The business environment in Bulgaria is similar to that in Central and Eastern European EU member states and it fosters the development of clusters and enhancement of competitiveness.
• Hypothesis 2: There is an interaction between the business environment and the state of cluster development in Bulgaria.
• Hypothesis 3: The development of clusters and the business environment in Bulgaria support the enhancement of national competitiveness.

The study is based on Porter's "Diamond" and the indicators used are grouped according to the four determinants of national competitiveness: factor conditions; firm strategy, structure and rivalry; demand conditions, related supporting industries (Por-

ter, 2004).The main information source used is the Global Competitiveness Reports of the World Economic Forum and only those indicators (factors)[1] were used which, in the authors' opinion and based on the characteristics of the four determinants defined by Porter, most contribute to achieving the research goal. The determinant "factor conditions" is measured via indicators related to human capital, collaboration between the industry and scientific research institutions, financial capital and infrastructure. Three groups of indicators characterize the determinant Firm Strategy, Structure and Rivalry – the first group are related to competition, the second – to firm strategy and creating competitive advantages, and the third – to the conditions for establishing new enterprises. The determinant "Demand Conditions" is represented through the indicators: buyer sophistication and domestic and foreign market size indexes. The "Related Supporting Industries" determinant encompasses the indicators value chain breadth, availability of latest technologies, indicators on the number and quality of local suppliers.

The study applies a comparative method, descriptive statistics and correlation analysis. First, the comparative method is applied to Hypothesis 1. The geographic scope of the study covers the countries which meet the following criteria: (1) countries from Central and Eastern Europe; (2) former socialist countries; (3) EU member states. Ten countries meet these criteria: Hungary, the Czech Republic, Slovakia, Romania, Slovenia, Croatia, Poland, Estonia, Lithuania, and Latvia. The reason they were thus selected is that clusters in Bulgaria, as in other Central and Eastern European countries emerge at a later stage(Garanti, Zvirbule-Berzina, & Yesilada, 2014)and the extent of their development is a manifestation of the role of historic and geographic determinism(Solvell, Lindqvist, & Ketels, 2003). All countries have experienced the transition from socialism to market economy and are EU member states (accessed at different points in time).

The comparison between the countries encompasses comparisons of business environment factors differentiated according to the characteristics of the four determinants of national competitiveness under M. Porter's Diamond Model. The differences and similarities in the business environment in the countries are established through descriptive statistics. Data from the Global Competitiveness Report 2016-2017 of the World Economic Forum were used.

At the next level, correlation analysis was applied[2]. The object of study are the indicators for Bulgaria characterizing its business environment and the extent of cluster development for the 2016-2017 period. Correlation coefficients were calculated for the "extent of cluster development" indicator and all other indicators included in the study. A t-test for significance was applied and only the significant correlation coefficients are presented and analysed. The analysis leads to the formulation of conclusions based on which the statement in Hypothesis 2 on the importance of the business environment in Bulgaria for cluster development can be confirmed or rejected.

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[1]   The Global Competitiveness Index is calculated on the basis of both macro- and microeconomic factors, distributed in 12 pillars. These pillars are so grouped that they construct the three main sub-indexes: main requirements; efficiency accelerators; innovation factors, see WEF, Global Competitiveness Index, https://www.weforum.org/reports/the-global-competitiveness-report-2016-2017-1, accessed 31.08.2017

[2]   Correlation analysis was carried out in MSExcel 2016

Časopis za ekonomiju i tržišne komunikacije/ Economy and Market Communication Review
God./Vol. 11 • Br./No. 1 • Banja Luka, Jun/June 2021 • pp. 158-175

165

The paper ends with a summary of the main conclusions and results for cluster development and the business environment in Bulgaria as a prerequisite for enhancing the national competitiveness. – supporting or rejecting Hypothesis 3.

RESULTS, DISCUSSION AND CONCLUSIONS

Business environment in Bulgaria in a comparative context

The starting point in studying the business environment is the stage of competitive development of Bulgarian economy. According to the criteria used by WEF in their annual Global Competitiveness Reports (Global Competitiveness Index WEF, 2016:4), countries are differentiated according to the stage of their competitive development (3 basic and 2 transitional stages). Bulgaria is at stage two of competitive development, where it is believed that development and competitiveness depend mainly on efficiency-driven factors (the same holds for Romania). Among the CEE EU member states, Slovenia, Estonia and the Czech Republic are leaders, and thus they have a bigger competitive advantage. They have reached the highest 3rd stage, where development is innovation-driven. All other CEE EU member states are in transition from stage 2 to stage 3, and development there is due to the transition from efficiency-driven to innovation-driven (Figure 1).

Figure 1. Stages of competitive development and position under the Global Competitiveness Index
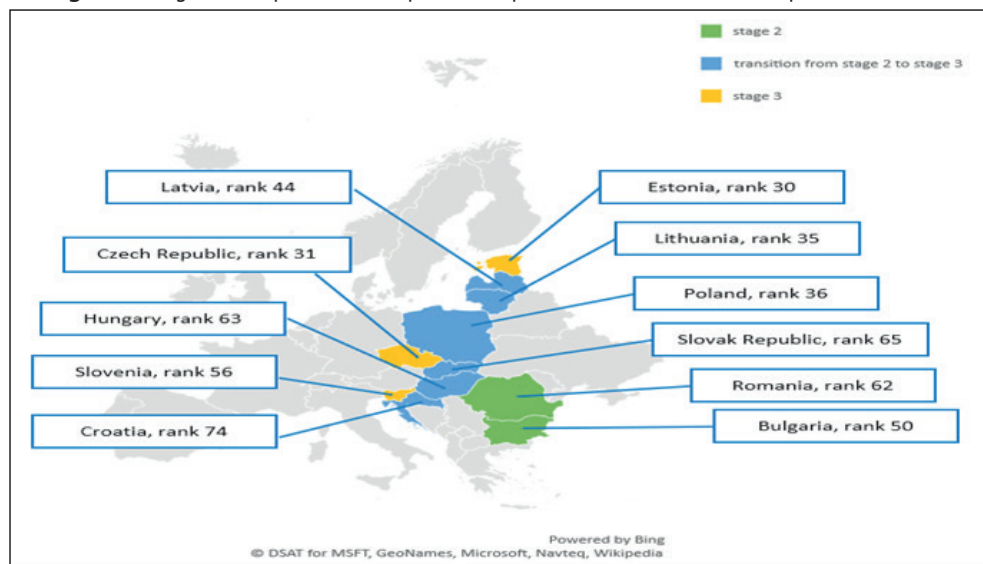
Source: Compiled by on data from WEF, Global Competitiveness Index 2016-2017

The results of the study of the business environment presented by determinants of national advantage(Porter, 2004)are shown in Table 1. The first research hypothesis, in the part regarding similarity between the business environment where clusters in Bulgaria emerge and develop and that in the Central and Eastern European countries selected for the comparative study, is checked on the basis of indicators obtained via descriptive statistics.

The scores of the countries under the studied 26 indicators which characterize the four determinants of national competitive advantage vary from 2 to 5.6 (in a 1-to-7 scale). Estonia, the Czech Republic, Slovakia, Lithuania and Slovenia most frequently rank high, in varying order under the different indicators, which ranks them among the top 50 in the world (out of a total of 138 countries). Under indicators like "intensity of local competition", Estonia, the Czech Republic and Slovakia rank among the top 30. Hungary, Croatia, Romania, Lithuania and Bulgaria mostly have lower scores and rank about and under the 100th position.

The results obtained (Table 1) lead to the conclusion that for most of the analysed indicators, Bulgaria's scores are similar to those of the other countries studied. The coefficients of variance give grounds to confirm similarity between the indicators for the eleven countries. The following indicators have the highest degree of homogeneity of the sample: Local supplier quality; State of cluster development; Value chain breadth; Availability of latest technologies; Degree of customer orientation. For the listed indicators, the value of the coefficient of variance is from 5.61% to 9.50%, which according to the rules adopted in statistics (for values up to 10-12%) is viewed as a sign of small dispersion of the feature and homogeneity of the sample.

Table 1. Business environment, presented by determinants of national advantage

			Mean	Standard Error	Median	Mode	Standard Deviation	Sample Variance	Coefficient of variance	Kurtosis	Skewness	Range	Minimum	Maximum	Sum	Count	Bulgaria
Factor conditions	Human capital	1.Quality of the education system	3.55	0.18	3.60	2.90	0.56	0.32	15.84	-0.98	0.27	1.80	2.8	4.6	39.0	11	3.30
		2.Country capacity to retain talent	2.76	0.14	2.60	2.60	0.44	0.20	15.98	-0.57	0.32	1.50	2.1	3.6	30.4	11	2.60
		3. Pay and productivity	4.18	0.13	4.10	4.00	0.42	0.17	9.93	-0.07	0.36	1.50	3.5	5.0	46.0	11	4.00
	Business – university collaboration	4.University-industry collaboration in R&D	3.46	0.13	3.30	3.30	0.40	0.16	11.43	-0.79	0.33	1.20	2.9	4.1	38.1	11	3.40
		5.Quality of scientific research institutions	4.36	0.15	4.20	3.90	0.47	0.22	10.72	-0.66	0.65	1.50	3.8	5.3	48.0	11	3.90
	Financial capital	6.Ease of access to loans	4.01	0.18	4.20	4.60	0.57	0.32	14.21	-1.55	-0.46	1.60	3.1	4.7	44.1	11	4.10
	Infrastructure	7.Quality of overall infrastructure	4.45	0.15	4.50	4.50	0.48	0.23	10.82	0.92	-0.56	1.80	3.4	5.2	48.9	11	3.90
Firm strategy, structure and rivalry	Competition	8.Intensity of local competition	5.17	0.15	5.30	4.80	0.49	0.24	9.44	-0.49	-0.58	1.60	4.2	5.8	56.9	11	4.60
		9.Nature of competitive advantage	3.50	0.14	3.60	3.60	0.44	0.20	12.66	0.56	0.23	1.70	2.7	4.4	38.5	11	3.20
		10.Extent of market dominance	3.85	0.15	3.80	3.80	0.46	0.22	12.06	-0.60	0.29	1.60	3.1	4.7	42.3	11	3.80
	Firm strategy and creation of competitive advantages	11.Capacity for innovation	4.33	0.14	4.30	4.30	0.45	0.20	10.43	-0.97	-0.20	1.40	3.5	4.9	47.6	11	4.30
		12.Company spending on R&D	3.50	0.13	3.40	4.10	0.42	0.18	12.06	-1.19	0.07	1.30	2.8	4.1	38.5	11	3.50
		13. Extent of staff training	3.97	0.14	4.00	3.50	0.45	0.21	11.41	-1.47	0.12	1.30	3.4	4.7	43.7	11	3.50
		14. Extent of marketing	4.24	0.12	4.30	4.60	0.39	0.16	9.29	3.55	-1.71	1.40	3.2	4.6	46.6	11	3.90
		15. Production process sophistication	4.19	0.16	4.10	4.10	0.51	0.26	12.27	-1.24	0.13	1.60	3.4	5.0	46.1	11	3.80
		16. Degree of customer orientation	4.89	0.09	4.90	4.60	0.27	0.08	5.61	-1.23	0.39	0.80	4.6	5.4	53.8	11	4.60

Časopis za ekonomiju i tržišne komunikacije/ Economy and Market Communication Review
God./Vol. 11 • Br./No. 1 • Banja Luka, Jun/June 2021 • pp. 158-175

167

New entrants		17. Time required to start a business	10.73	2.41	8.00	3.50	7.62	58.11	71.06	2.52	1.53	26.50	3.5	30.0	118.0	11	18.00
		18. Number of procedures required to start a business	4.45	0.58	4.00	4.00	1.83	3.34	41.02	-0.32	0.55	6.00	2.0	8.0	49.0	11	4.00
Related and supporting industries		19. Value chain breadth	3.80	0.08	3.80	3.80	0.26	0.07	6.83	0.02	-0.15	0.90	3.3	4.2	41.8	11	3.80
		20. Availability of latest technologies	5.33	0.12	5.50	5.50	0.37	0.14	6.94	-1.83	-0.54	0.90	4.8	5.7	58.6	11	4.90
		21. State of cluster development	3.52	0.08	3.50	3.50	0.27	0.07	7.55	-0.52	-0.43	0.90	3.0	3.9	38.7	11	3.60
		22. Local supplier quantity	4.40	0.13	4.40	4.40	0.42	0.17	9.50	1.70	-1.09	1.50	3.4	4.9	48.4	11	4.40
		23. Local supplier quality	4.80	0.10	4.90	4.30	0.32	0.10	6.59	-1.20	-0.40	0.90	4.3	5.2	52.8	11	4.60
Demand conditions		24. Buyer sophistication	3.13	0.09	3.20	3.30	0.29	0.08	9.26	-1.25	-0.11	0.90	2.7	3.6	34.4	11	3.30
		25. Domestic market size index	3.85	0.19	3.90	3.20	0.60	0.36	15.62	-0.96	0.10	2.00	2.9	4.9	42.4	11	3.50
		26. Foreign market size index	5.04	0.13	5.10	4.80	0.41	0.17	8.22	-0.83	0.23	1.40	4.4	5.8	55.4	11	4.80

Source: Own computations using data from: WEF, Global Competitiveness Index 2016-2017

Another proof of similarity is the minimal difference between the lowest and the highest score under the indicators shown in the table, taking into account the scope/range of the sample of countries. Under the range indicator, the range of the indicators' values is also small – from 0.8 to 2.0. Two of the total of 26 indicators are an exception - Number of procedures to start a business and Time to start a business (days). Substantial differences between the analysed countries can be observed, as can be seen from the descriptive statistics indicators mentioned above. The time to start a business in Bulgaria is among the serious obstacles for development – 18 days in Bulgaria, at an average for the sample of less than 11 days (10.73) and most frequent 3.50 (mode for the sample). The CEE countries differ the most in the time and number of procedures to start a business, the index for domestic market size, quality of the education system, capacity of the country to retain talent.

Nine of the indicators have values under the average for the sample. The following specifics can be observed among them. Lagging behind in the indicators: quality of the education system, staff training and qualification, domestic market size index (indicators 1, 13 and 25 in Table 1) relative to the average for the sample is not that worrying since their values are equal to or higher than the mode for the studied group of countries.

Most disturbing, generally for the countries covered by the research, is the state regarding the quality of overall infrastructure, extent of marketing, production process sophistication, availability of latest technologies (indicators 7, 14, 15 and 20 in Table 1) since values are below the most frequent for the group (the mode). The main reason this group of indicators to be perceived as an obstacle to future development is the fact that they measure business sophistication, technological readiness and infrastructure, which are significant prerequisites for cluster development and enhancing national competitiveness. In Bulgaria, the state of indicators is also unfavourable.

Under the "state of cluster development" indicator, the countries have a score of between 3.0 and 3.9. The countries with the highest scores of between 3.9 and 3.7 are: Slovakia, the Czech Republic, Estonia and Poland, respectively. Bulgaria ranks fifth with 3.6. Slovenia, Latvia, Hungary, Lithuania, Romania and Croatia come next. The

unsatisfactory development of clusters in the latter countries is also demonstrated by their lagging behind relative to the 138 countries under the business environment indicators of significance for competitiveness, which were discussed above. The situation in Croatia, Romania and Hungary is similar.

The analysis of the results, which show small differences between the scores for the predominant part of the indicators for the whole group of countries studied, as well as values for Bulgaria close to the mean, gives us grounds to believe that the first research hypothesis, in the part concerning similarity, is confirmed.

Detailed analysis by determinants of national advantage (in a comparative context, both with the CEE, member states, and the 138 countries included in the Competitiveness Report 2016-2017), however, shows that the business environment for cluster development and enhancing competitiveness cannot be assessed as favourable. The conclusions which outline the favourable prerequisites and limitations for national competitiveness are the main arguments for this statement.

Factor conditions,represented by indicators supporting the building of sustainable competitive advantages in Bulgaria, are in the process of developing The analyzed indicators lead to the conclusion that Bulgaria is behind compared to the other CEE EU member states, especially in comparison with the countries which have reached stage 3 of competitive development. The results for Bulgaria in the four directions – human capital, scientific institutions-industry collaboration, financial capital and infrastructure – are also not good enough.

Human capital in Bulgaria is not at the level, nor in the role of a competitiveness accelerator. One of the advantages provided by grouping enterprises in cluster organizations is the opportunity for additional staff training. On the other hand, as is the practice in Bulgaria, higher education institutions and scientific research institutes are members of clusters, which is a favorable factor for overcoming the serious problem of discrepancy between the competences of the workforce and the requirements of competitive economy. In this sense, clusters are a way to overcome the obstacles to national competitiveness mentioned.The unsatisfactory score of the quality of scientific research institutions explains why the score for innovations in the country is not so good. Participation in cluster formations gives rise to expectations for improvement of this field, which is of extreme importance for national competitiveness. On the indicators concerning ease of access to loans and infrastructure, we can summarize that there is improvement, but these fields are still acting as a limitation to the development of individual enterprises, cluster organizations, and, respectively, national competitiveness.

The factors related to the firm structure, strategy and rivalryare not sufficiently developed for enhancing national competitiveness and thus turn into a limitation. The analysis of the selected indicators leads to the conclusion that this observation is valid to a greater extent to the business environment and the conditions within it, and to a lesser extent – to the firms and their way of functioning. Positive development can be observed in the number of companieson the market ("extent of market dominance" indicator), companies' capacity for innovations, company spending on R&D. Companies' capacity for innovation, as a prerequisite to enhancing competitiveness, is a very important indication of the transition to the next stage of competitive development (innovation-driven).

The limitations found in this determinant predominate:

- nature and intensity of competition, and the type of created competitive advantages depend on different, both external and internal factors. The analysis of different aspects of competition (Intensity of local competition, Nature of competitive advantage)and the results of the comparative analysis do not provide grounds for claiming that the business environment is an incentive for quick and positive changes. The competitive advantage of Bulgarian companies on international markets (a score of 3.2 in the 2016-2017 Report and positions – 87 out of 138, and 9 within the group of compared CEE countries) is based on lower-rank factors, i.e. advantages with a lower degree of complexity and specialization, which does not guarantee the establishment of a sustainable competitive advantage. Price competition seems to be the main competitive strategy for a number of Bulgarian companies, and for some – the only possible one. The latter can also explain the stage of Bulgaria's competitive development – stage 2, characteristic of economies whose development depends on efficiency-driven factors. The insufficiently intensive competition in Bulgaria is also an obstacle to enhancing national competitiveness. In this sense, the emergence and, more importantly, the development of working clusters would compensate the unsatisfactory score under this factor;

- factors which could facilitate the enhancement of competitive advantage, such as staff training (Balgaria ranks 102 among the 138 countries); marketing for product diversification (112 among the 138 countries); meeting customer requirements ("extent of customer orientation" – position 73 among the 138 countries) are at a very low level of development and a major concern for Bulgaria. Joint cluster initiatives in the field of training, marketing, product exportcould facilitate improving results in this area;

- results on the "production process sophistication" indicator inspire a positive attitude and expectations of changes towards technological renovation and development, as well as a change in the nature of the competitive advantage of Bulgarian companies on international markets. Bulgaria has improved its position in the past 5 years and has ranked 68th among the 13 countries in 2016-2017, but it is still behind in comparison with the CEE countries.

Demand conditionsdo not foster national competitiveness. This can be seen from Bulgaria's rankings among the 138 countries, as well as among the CEE, EU member states, in relation to the indicators measuring this determinant.Customer sophistication is an indicator that directly characterizes the "Demand Conditions" determinant and Bulgaria ranks 82nd among the 138 countries, which shows that customers are not very demanding. At this stage, customers can hardly be a driving force for substantial changes in the other determinants and hence – for national competitiveness.

The domestic market size index (an average of 3.6 for the past 5 years, which ranks Bulgaria 71st among the 138 countries and 7th in the Group) shows that the domestic market is not very significant. To some extent, the foreign market can be viewed as a prerequisite for enhancing competitiveness. The foreign market size index shows better results for Bulgaria – position 56 among the 138 and position 8 in the group. However, the fact is that to a large extent the goods with which Bulgaria participates on the international markets have low added value, which makes this advantage less significant.Both directionscan be assessed as representing limitations.

The results of the analysis of indicators characterizing the Related Supporting Industriesdeterminant show a low level of development compared to the other countries and act as limitations for national competitiveness. In relation to the availability of latest technologies, measured by the level of technological development indicator, Bulgaria (ranking 63 among all countries presented in the Global Competitiveness Index) lags behind the CEE countries as well, which determines its stage 2 of competitive development. The situation with local suppliers quantity and quality is similar. The only exception is the value chain breadth indicator, which represents to what extent companies cover separate stages or most of the stages in the value chain (Bulgaria ranks 4th in the studied group of CEE countries, with a score for this indicator, identical to that of Poland, Estonia, Latvia and Slovenia (3.8) is the only one.The comparison with CEE countries and the higher position Bulgaria holds should not be misinterpreted, since clusters in these countries are in their initial stages of development. In Bulgaria, in some of the clusters, the established structure, in terms of participants, representatives of different interrelated activities, is good, but applied researchand analyses (Slavova, Bankova, & Ivanov, 2018)put forward arguments for many unused opportunities for interaction and collaboration between them.

Consequently, based on these conclusions, we can state that the first hypothesis, in the part "the business environment in Bulgaria fosters cluster development and enhancement of competitiveness", is not confirmed.

The business environment in Bulgaria and cluster development

Cluster development in Bulgaria started with some delay compared to the other European countries. The starting point was the middle of 2000s. Two waves of the setting up of clusters can be recognized in Bulgaria. The first wave refers to the period2004 – 2007 when the growth of clusters was largely enhanced at the beginning by a PHARE project that aimed at introducing an appropriate cluster approach and model. The second wave covers the period 2012-2015. The main reason for the second wave is funding from the Operational program "Development of the Competitiveness of the Bulgarian Economy" 2007-2013 and the Operational program "Innovations and Competitiveness" 2014-2020. After these financial interventions the result is more than 200 clusters[3]. The importance of industrial clusters for the regional development is proved on a global level. But it is not so obvious in Bulgaria, because of the state of clusters. Only small number of them are functioning clusters and the predominant number are latent clusters(Slavova, Bankova, & Ivanov, 2018). Most of the functioning clusters are still at the initial stage of development, even those that were established during the first wave.

The indicator used to measure cluster development is "state of cluster development" (Global Competitiveness Report of the World Economic Forum). The indicator refers to the distribution, extent of development and depth of the clusters. Among the selected countries, Bulgaria ranks 5th under the state and development of clusters indicator. Among the 138 economies studied, Bulgaria ranks 78th. The countries with the highest scores among those studied here are: Slovakia, the Czech Republic, Estonia and Poland. They all rank below the top 50 in the WEF ratings. The average indicator for Bulgaria in the past five years is 3.3, and in 2016 it was 3.6.

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[3]   Bulgarian Association of Business Clusters, http://www.abclusters.org/about_us.html

Časopis za ekonomiju i tržišne komunikacije/ Economy and Market Communication Review
God./Vol. 11 • Br./No. 1 • Banja Luka, Jun/June 2021 • pp. 158-175

171

Table 2. Results of correlation analysis and correlation matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1 State of cluster development	1																									
2 Quality of the education system	-0.53	1																								
3 Country capacity to retain talent	0.90	-0.76	1																							
4 Pay and productivity	0.07	-0.19	-0.05	1																						
5 University-industry collaboration in R&D	0.75	-0.13	0.73	-0.35	1																					
6 Quality of scientific research institutions	0.67	-0.07	0.61	-0.66	0.87	1																				
7 Ease of access to loans	0.89	-0.23	0.79	-0.07	0.94	0.77	1																			
8 Quality of overall infrastructure	0.25	0.27	0.27	-0.85	0.75	0.87	0.52	1																		
9 Intensity of local competition	-0.67	0.82	-0.65	-0.38	-0.04	-0.08	-0.28	0.40	1																	
10 Nature of competitive advantage	0.94	-0.70	0.89	0.35	0.56	0.38	0.76	-0.06	-0.80	1																
11 Extent of market dominance	0.76	-0.34	0.82	-0.51	0.94	0.92	0.86	0.76	-0.19	0.57	1															
12 Capacity for innovation	0.56	-0.16	0.63	-0.75	0.86	0.95	0.69	0.90	0.01	0.30	0.95	1														
13 Company spending on R&D	0.72	-0.32	0.79	-0.59	0.91	0.94	0.80	0.80	-0.18	0.51	0.99	0.97	1													
14 Extent of staff training	0.49	-0.37	0.70	-0.69	0.78	0.81	0.59	0.78	-0.04	0.32	0.92	0.94	0.94	1												
15 Extent of marketing	0.00	0.51	-0.01	-0.83	0.59	0.71	0.34	0.96	0.64	-0.31	0.56	0.74	0.59	0.61	1											
16 Production process sophistication	0.27	0.07	0.41	-0.76	0.80	0.79	0.56	0.94	0.38	0.03	0.82	0.90	0.83	0.89	0.87	1										
17 Degree of customer orientation	-0.87	0.82	-0.90	0.00	-0.47	-0.52	-0.59	-0.07	0.88	-0.87	-0.64	-0.47	-0.63	-0.50	0.22	-0.11	1									
18 Time required to start a business	0.21	0.05	0.34	-0.93	0.67	0.83	0.41	0.95	0.30	-0.06	0.77	0.93	0.82	0.89	0.88	0.94	-0.17	1								
19 Number of procedures required to start a business	-0.20	0.22	0.03	-0.87	0.41	0.49	0.08	0.82	0.62	-0.41	0.48	0.68	0.53	0.72	0.84	0.87	0.22	0.88	1							
20 Value chain breadth	0.60	-0.45	0.78	-0.66	0.79	0.86	0.64	0.74	-0.19	0.43	0.94	0.95	0.96	0.98	0.53	0.82	-0.63	0.85	0.61	1						
21 Availability of latest technologies	0.75	-0.37	0.83	-0.53	0.92	0.92	0.82	0.75	-0.22	0.57	1.00	0.95	1.00	0.93	0.54	0.81	-0.66	0.79	0.48	0.96	1					
22 Local supplier quantity	0.63	0.00	0.53	0.22	0.79	0.42	0.86	0.32	0.00	0.59	0.57	0.37	0.48	0.31	0.23	0.42	-0.21	0.13	0.00	0.29	0.51	1				
23 Local supplier quality	0.51	0.22	0.43	-0.58	0.92	0.90	0.79	0.92	0.26	0.23	0.84	0.84	0.84	0.72	0.84	0.87	-0.19	0.80	0.58	0.70	0.81	0.65	1			
24 Buyer sophistication	0.72	-0.80	0.91	-0.34	0.60	0.64	0.56	0.36	-0.59	0.67	0.81	0.72	0.82	0.82	0.09	0.48	-0.88	0.53	0.24	0.89	0.84	0.19	0.37	1		
25 Domestic market size index	-0.10	-0.60	0.03	0.72	-0.61	-0.74	-0.43	-0.92	-0.57	0.23	-0.53	-0.69	-0.56	-0.48	-0.96	-0.76	-0.19	-0.77	-0.67	-0.44	-0.51	-0.32	-0.88	0.00	1	
26 Foreign market size index	-0.25	0.80	-0.40	-0.71	0.25	0.47	0.05	0.75	0.72	-0.56	0.18	0.42	0.23	0.20	0.88	0.53	0.47	0.61	0.61	0.14	0.16	0.00	0.61	-0.30	-0.92	1

Source: Computations (based on data from WEF, Global Competitiveness Index (2012/13 – 2016/17)

Correlation analysis[4] was applied in order to show whether there are arguments for confirming or rejecting the second research hypothesis. The data used was data for Bulgaria over a five-year period (2012-2016) from the Global Competitiveness Reports of the World Economic Forum. Coefficients of variance, which show the connection between "state of cluster development" and the other analysed indicators, were computed. A t-test for significance of the correlation coefficients was performed, and only the indicators with significant coefficients of correlation were analysed and presented here. The results, ordered by strength and direction of the connection, are shown in the correlation matrix below.

Factors which facilitate sustainable competitive advantages – technological development, attitude of the companies to the customers (extent of customer orientation), retaining talent in the country, customer sophistication, company spending on R&D, university-industry collaboration in the field of the study, extent of market dominance, ease of access to loans, nature of the competitive advantage – show a high and very high positive relationship with cluster development. The connection with related and supporting indicators is significant and positive – interaction with scientific research institutes, suppliers, including their qualitative characteristics. For the three indicators, the results for the past five years for Bulgaria are not satisfactory. An exception to this is the assessment of the quality of local suppliers, where the country ranks 46th in the latest report, which is its highest position so far. The state of cluster development and intensity of local competition show a significant but inverse relationship. In Bulgaria, companies even though being a member of a cluster, they do not fully realize their advantages in terms of competition and joint efforts. The reason is that clusters in Bulgaria are still in a process of building efficient internal interactions between their members(Slavova, Bankova, & Ivanov, 2018; Bankova, 2015:114-123).

To conclude, the correlation coefficients of more than two-thirds of the indicators (19 out of 29) show a significant high and very high strength of the relationship, which confirms the second research hypothesis for existence of interaction between the business environment and state of cluster development in Bulgaria.

Cluster development in Bulgaria and the business environment as a prerequisite for enhancing national competitiveness

The business environment and cluster development in given economy have a defining role for the development, maintenance and enhancement of national competitiveness and this has been proven repeatedly in theory and in practice. The importance of their interaction stems from the fact that clusters facilitate the construction and development of a competitive business environment, on the one hand, and that dynamic environment acts a driver for cluster growth and innovations, on the other (Solvell, Lindqvist, & Ketels, 2003).

The analysis using the four determinants under the Diamond Model (factor conditions; firm strategy, structure and rivalry; demand conditions, related supporting industries) showed a predominance of the limitations and obstacles for cluster development and enhancement of national competitiveness. Under the indicators, which have a high degree of correlation dependence (technological development; company

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4   Excel 2016 was used: Data analysis, t-Test: Two-Sample Assuming Equal Variances.

Časopis za ekonomiju i tržišne komunikacije/ Economy and Market Communication Review
God./Vol. 11 • Br./No. 1 • Banja Luka, Jun/June 2021 • pp. 158-175

173

spending on R&D; university-industry collaboration in the field of the study; customer sophistication, etc.) and have been established as decisive for enhancing competitiveness, Bulgaria is significantly behind not only relative to the CEE member states, but also in comparison with the 138 countries included in the Global Competitiveness Report 2016-2017.

On the other hand, cluster development is in its initial stage and regardless of the high number of registered clusters in Bulgaria, the number of functioning clusters is small and latent clusters predominate(Bankova, 2015:114-123). In addition, the insufficiently good state of cluster development (relative to the 138 countries, Global Competitiveness Report 2016-2017) gives us grounds to believe that the clusters do not act as a driver for the development of a competitive business environment.

In conclusion, we can summarize that the development of the business environment and cluster development in Bulgaria, as well as their interaction at this stage, are not a prerequisite for enhancing national competitiveness. Consequently, hypothesis 3, which is conclusive for the overall study, is not confirmed.

CONCLUSION

The survey was conducted on countries that meet the following criteria: (1) Central and Eastern European countries; (2) former socialist countries; (3) EU Member States. Ten countries meet these criteria: Hungary, the Czech Republic, Slovakia, Romania, Slovenia, Croatia, Poland, Estonia, Lithuania and Latvia. The reason for the choice is that clusters in Bulgaria as well as in the mentioned countries appear at a later stage. For most of the analyzed indicators, the results of Bulgaria are similar to those in other surveyed countries. The results show the dominance of constraints and obstacles to improving national competitiveness. The state of the business environment, the level of cluster development and their interaction are not very favorable for more intensive competitive development of the Bulgarian economy. CEE countries differ the most in the time and number of procedures for starting a business, the index of the size of the domestic market, the quality of the education system, the country's ability to retain talent. In Bulgaria, although companies are cluster members, they do not fully realize their competitive advantages and joint efforts. The reason is that clusters in Bulgaria are still in the process of building effective internal interactions between their members. In developed economies, an innovative "push and pull" model is applied, a way that means - technological pressure and market pull (Caraiannis, Wang, 2012: 281). In order to follow this innovation-driven model, Bulgaria needs improvements both in the business environment and in the internal environment of clusters and companies. More attention is needed to facilitate and intensify the processes for generating and putting knowledge and innovation into practice, as well as to support further factor sophistication. For further improvement in Bulgaria, deeper research is needed to show which policies the countries have achieved their rankings, as well as what are the good and bad experiences, in order for Bulgarian clusters to be one of the pillars of national competitiveness.

174

Hristo Katrandjiev, et al.
DO CLUSTERS AND BUSINESS ENVIRONMENT FOSTER NATIONAL COMPETITIVENESS IN BULGARIA? A COMPARATIVE STUDY WITH EU COUNTRIES

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Časopis za ekonomiju i tržišne komunikacije/ Economy and Market Communication Review
God./Vol. 11 • Br./No. 1 • Banja Luka, Jun/June 2021 • pp. 158-175

175

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