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ENHANCING COMPETITIVENESS OF NATIONAL ECONOMIES AND ENTERPRISES

Edited by
Bojan Krstić

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P R E F A C E

Thematic collection of papers of international significance refers to current problems of improving the competitiveness of national economies, which is the subject of the research project No. 179066 entitled "*IMPROVING THE COMPETITIVENESS OF THE PUBLIC AND PRIVATE SECTOR BY NETWORKING COMPETENCES IN THE PROCESS OF EUROPEAN INTEGRATION OF SERBIA*".

The collection of papers represents the result of the researchers, project team members, as well as researchers from the other faculties and countries, which, due to their intellectual efforts, have contributed to lightening complex and multidimensional problems of improving competitiveness of national economies. The collection of papers contains only part of the research results of project team members obtained in the seventh year of its implementation, while the remaining set of their results is presented in similar publications, monographs and journals. Only the papers which, in the opinion of the editor and reviewers, have received the highest marks and have been verified as the original are published in this thematic collection of papers. Papers presented in this publication have opened the relevant theoretical and practical issues and proposed possible solutions. Their implementation could contribute to improving the competitiveness of the public and private sector, and consequently the national competitiveness.

Editor

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TRADE COMPETITIVENESS IN THE GLOBAL WORLD ECONOMY

Sandra Stojadinović Jovanović, Ph.D[1]
Bojan Krstić, Ph.D[2]

The purpose of the paper is to show that our analysis of contemporary trade flows and trade competitiveness is no longer adequate, because contemporary trade takes place both through classic cross-border trade and through foreign direct investments i.e. foreign affiliates' sales. Because of that fact the trade flows as well as the trade competitiveness can no longer be analysed classically, in such a way that the analysis involves only traditional cross-border trade. The paper has been designed in a way of presenting trade flows in the global world economy under the dominant influence of transnational companies whose investment flows created new ways of trading. These new ways of trading have been researched finding their prevailing role in the contemporary ways of trading. As it has been found that flows of foreign direct investments may be identified with trade flows that represent the dominant trade flows, it is necessary to include this kind of trade flows in the analysis of the country's trade competitiveness in order to get its complete and real image. Without including new trade flows in the analysis of the country's trade competitiveness, the creators of economic policies, especially the creators of trade and investment policy and strategy will not have a complete and real picture of trade and thus trade competitiveness of their country, what will negatively affect their decision making. The value of the paper is that it emphasizes the need to expand the analysis of the country's trade and its trade competitiveness by including the new prevailing forms of trade. It reveals the need for the new analysis of trade flows and trade competitiveness in order to get a comprehensive and a real picture of the country's trade competitiveness.
Key words: trade competitiveness, global economy, export, import, foreign direct investment, transnational companies.

JEL classification: F10, F21, F23
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[1] Professor, College for Applied Science Uzice, sandrassj28@gmail.com, Trg Svetog Save 34, 31000 Uzice, Serbia, sandra28@gmail.com
[2] Full Professor, University of Nis, Faculty of Economics, Trg Kralja Aleksandra 11, 18000 Nis, Serbia, bojan.krstic&eknfak.ni.ac.rs

1. Introduction

In times of intensive globalisation of the world economy and rising international business activities through direct investments abroad (foreign direct investments – FDIs) and their key drivers, transnational companies (TNCs), the forms of trade flows and aspects of trade competitiveness have dramatically changed. The new forms of trade flows have changed the picture of trade as well as the picture of trade competitiveness of economies of individual countries. Therefore the paper reveals multidimensional aspects of trade flows and trade competitiveness of national economies and shows how to improve the analysis of trade competitiveness of national economies in conditions of raising international direct investments in the contemporary world economy.

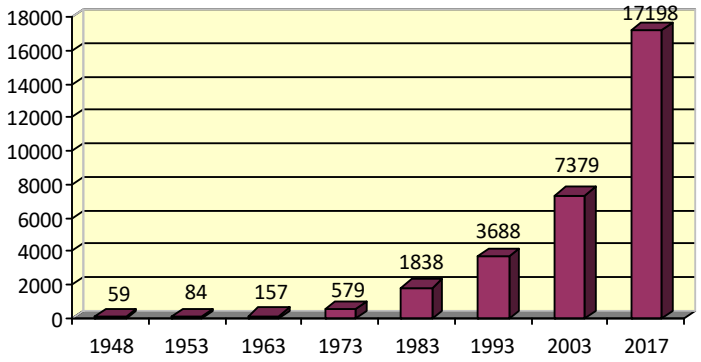
The contemporary world economy is characterized by the process of increasing globalization – "a process by which the world economy is transformed from a set of national and regional markets into a set of markets, which operate without regard to national boundaries" (Hood and Young, 2000, p. 4). Baylis and Smith (2001) point out that "globalization refers to all those processes by which the people of the world are incorporated into a single world society, global society" (p. 15). Globalization includes social, cultural and political processes which are enmeshed in a larger 'global' order. It implies both deep integration and interconnectedness; it involves networks of relationships between a large number of heterogeneous social, cultural, political and economic organizations. Globalization represents a fundamental change in the mode of organization of the world economy (and world politics) that compromises the territorial sovereignty (Kobrin, 2003, p. 193).

The multidisciplinary and multifaceted nature of globalization is obvious from its economic, financial, business, political, technological, environmental, cultural, educational, national and international dimensions. From an economic point of view, globalization refers to the growing dimension of economic interdependence among economies and countries, which in turn has been brought about by the increasing volume and variety of cross-border transactions in goods and services as well as cross-border factor flows. According to the IMF (1997) globalization represents "the growing interdependence of countries world-wide through the increasing volume and variety of cross-border transactions in goods and services and of international capital flows, and also through the more rapid and widespread diffusion of technology" (p. 45).

If we take growing international interconnectedness – increasing flows of trade, investment and communications between nations – to be what most people mean by the term, then 'globalization' has been happening for the last 50 years (Hirst and Thompson, 2003, p. 17). However the globalization processes at the end of the 20th and at the beginning of the 21st century are different. A significant difference is that the method of integration has evolved from trade, i.e. market internationalization into production internationalization through transnational companies' activities. The markets and the production of different countries have become increasingly interdependent through the changes induced by the dynamics of trade and capital flows and transfer of technology – changes whose primary vehicles are transnational companies. Transnational companies are perceived to be a key vector through which globalization has started and continues to evolve. These companies are also a key vector through which contemporary international trade flows are accomplished and increased.

The increase in international trade is one of the most prominent indications of the global economy (Figure 1). International trade has a crucial role in economic development because it connects producers and consumers from different countries into a global economic system.

Figure 1 . Growth of international merchandise trade
(billions of dollars)



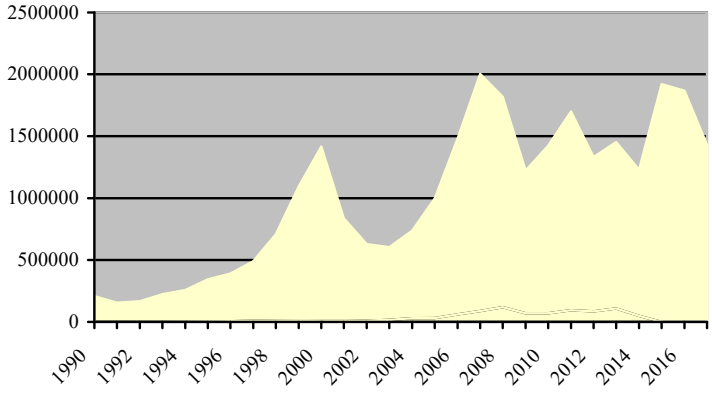
Source: WTO, 2018, p. 122.

The growth of international trade was particularly pronounced in the second half of the 20th century. The most important segment of the

international trade is international merchandise trade, covering about 80% of the total world trade. International merchandise trade has been increasingly growing in the second half of the 20th century. From the 1950s to the early 21st century, the value of international merchandise trade has increased over 100 times. Furthermore, from 1948 to 2003 its value has increased over 125 times and from 1948 to 2017 over 291 times (Figure 1).

The increase of international trade was associated with increasing undertaking of direct investments abroad and opening of foreign affiliates by transnational companies. Global activities and global business operations of transnational companies are the main drivers of international trade growth. Business operations of these companies worldwide through the undertaking of direct investments abroad have changed the ways and channels through which international trade operates. Expansion of foreign direct investments as well as the growth of international trade was also pronounced in the second half of the 20th century and it was particularly high since the 1990-ties (Figure 2).

Figure 2 . Expansion of foreign direct investment flows in the global world economy (millions of dollars)



Source: UNCTAD FDI database.

The number of transnational companies in the world economy has also continuously been growing in the second half of the 20th century, especially since the 1990-ties. At the beginning of the 21st century there were 61,582 transnational companies (UNCTAD, 2004, p. 273), and nowadays their number has amounted to 103,786 transnational companies with 892,114 affiliates around the world (Table 1). There are 73,144 transnational companies in

developed economies with 373,612 affiliates abroad, while in developing economies, there are 30,209 transnational companies with 512,531 affiliates abroad and in economies in transition of South-East Europe (SEE) and Commonwealth of Independent States (CIS) there are 433 transnational companies with 5,971 affiliates abroad.

Table 1. Number of transnational companies and foreign affiliates

	Transnational companies (parent companies)	Foreign affiliates
eveloped economies	73 144	373 612
Developing economies	30 209	512 531
Economies in transition of SEE and CIS	433	5 971
World	103 786	892 114

Source: UNCTAD database

Transnational companies are "enterprises which own or control production or service facilities outside the country in which they are based" (UNCTAD, 2001, p. 275). According to Dunning (1993) transnational company is "an enterprise that is engaged in foreign direct investment and owns or controls value-adding activities in more than one country" (p. 3), while according to Dicken (1999) it is "a firm which has the power to co-ordinate and control operations in more than one country, even if it does not own them (p. 177), or according to Caves (1996) it is "an enterprise that controls and manages production establishments located in at least two countries" (p. 13).

Transnational company is a system which consists of a central (parent) company in the home country and parts (affiliates abroad) in the host countries (foreign affiliates). By undertaking foreign direct investments, transnational companies establish affiliates in foreign (host) countries in which they perform production (international production) and through which they conduct the sale on the local host country's markets and other third country's markets (foreign affiliates' sales).

Until 1990-ties, the sales accomplished by foreign affiliates of transnational companies and classic export (realized across national borders – in case of merchandise trade, i.e. between residents and non-residents – in case of services trade) were almost equal (Table 2). However, the period after the 1990s was the period when the significant changes happened regarding the way the international trade flows performed, caused by transnational companies' operations. The sales of foreign affiliates of transnational

companies increased worldwide from 2.7 trillion USD in 1982 to 6.1 trillion USD in 1990 to an average value of 24.2 trillion USD in 2005-2007 period to 27.5 trillion USD in 2015 and to 30.8 trillion in 2017 (Table 2). At the same time, these sales of foreign affiliates were much higher than the world exports, showing that companies sold more through foreign affiliates than through classic, direct, cross-border export registered by official trade statistics as the world export.

Table 2. Selected indicators of foreign direct investments, foreign affiliates and world exports

Item	Value at current prices (Billions of dollars)				
	1982	1990	2005-2007 (average)	2015	2017
FDI inflows	58	207	1415	1921	1430
Sales of foreign affiliates	2741	6126	24217	27559	30823
World exports of goods and services	2395	4417	14957	20953	22558

Source: UNCTAD, 2008, p. 10; UNCTAD, 2011, p. 24; UNCTAD, 2018, p. 20.

Thus the expansion of transnational companies, foreign affiliates and their sales led to the important tendency in the world trade which started after the 1990s and still continues nowadays – towards the new form of trade flows performed through foreign affiliates which has become more important than the existing, traditional cross-border trade registered and publicly published in official trade statistics figures.

These immense sales by foreign affiliates, however, are not included and not covered by officially published trade figures because existing merchandise and services trade coverage through classic statistical systems includes only traditional trade flows of goods and services (cross-border in case of goods trade and between residents and non-residents in case of services trade). This fact must have our growing attention in the challenge posed by the examination, understanding and analysis of trade competitiveness in the contemporary world economy.

Due to the mutual interaction and intertwining of transnational companies' foreign direct investment flows and trade flows, which has led to the emergence of new forms of trade flows, assessment of the trade competitiveness becomes more difficult, because the trade does not occur only

through the traditional trade flows taking place across national borders but also through new forms.

Therefore the analysis of trade competitiveness based only on traditional trade forms for which the data are given by the official trade statistics is not complete and it is not in line with the contemporary changes in forms and ways of trading. The paper therefore calls attention to the new trade flows which exist in the contemporary world economy and the possible ways and directions in conducting the analysis of trade competitiveness of national economies in the contemporary global world economy.

2. Literature review

There are many papers considering the effects of international business operations through foreign direct investments and activities of transnational companies. A number of these papers are dealing with their effects on trade.

There are a lot of literature about foreign direct investments and motives and determinants of foreign direct investments. A systematic review of the literature on foreign direct investment, its determinants and motives is given by Blonigen (2005), indicating the factors affecting foreign direct investment decisions and locations worldwide. Most of the literature on the foreign direct investment determinants focuses on firm-specific, microeconomic factors. According to Hymer (1976), for example, the production process will need to be organized through subsidiaries in order to capture the rents from firm-specific assets (p. 132). Furthermore, according to Vernon's (1966) product-cycle theory, the firm would decide to invest abroad when trade no longer allows it to capture the rents from its assets (p. 207). The analysis of FDI and trade at the aggregate level is provided through the inclusion of FDI dimension (by Kojima, 1973a) in the flying geese paradigm originally formulated by Akamatsu (Kojima, 1982). The paradigm explains the relocation of industries from one country to another through trade and FDI in response to shifts in competitiveness conditioned mostly by macroeconomic factors. There are also other literature (Kojima, 1973b; Kojima, 1982; Kojima and Ozawa, 1984; Ozawa 1992) focuses on macroeconomic factors and approaches that are more comprehensive. Navaretti and Venables (2006), for example, distinguish three determinants of FDI and foreign production: firm, industry and country determinants, focusing on how their characteristics are important in determining FDI.

Literature on the relationship between foreign direct investments and trade is also extensive. The analysis of foreign direct investments and trade at the aggregate level is provided through the inclusion of foreign direct investment dimension (by Kojima, 1973a) in the flying geese paradigm originally formulated by Akamatsu (Kojima, 1982). The paradigm explains the relocation of industries from one country to another through trade and foreign direct investments in response to shifts in competitiveness conditioned mostly by macroeconomic factors. Regarding the relationship between foreign direct investments and trade, literature gives different results, finding either substitution or complementary relationship.

The traditional theory of the multinational corporation finds substitution of FDI and trade. Markusen (1983) finds that substitution is a general characteristic only of factor proportions models, while Lipsey and Weiss (1984) find that there is not a substitution. Brainard (1997), however, finds the complementarity between trade and affiliate sales. Clausing (2000) also finds complementarity between multinational activity and trade and Head and Ries (2001) find complementarity for the observed sample of firms, except for firms that don't ship intermediates to production abroad. Blonigen (2001), however, finds evidence for both substitution and complementarity between foreign production and exports. Broadman (2005) points out the increasing complementarity between foreign direct investments and trade as a result of growing fragmentation of production combined with the creation of distribution networks spanning across countries. In this way the literature has researched the relationship between foreign direct investments and trade focusing on their substitution and/or complementary relationship.

However the important question is how the relation between foreign direct investments and trade should influence our analysis of country's trade and its trade competitiveness. According to Quinlan (2004), a great deal of global commerce is missing from the reported trade figures because foreign affiliate sales are not included in exports. The firms compete more through foreign direct investments, establishing affiliates in different countries and selling more through their affiliates in international markets than through traditional export. Because of this fact, our trade analysis, based on reported trade figures, is missing important channel of trading. Therefore our analysis of country's trade and its trade competitiveness is incomplete.

For these reasons the paper emphasizes the importance that our analysis of contemporary trade flows and trade competitiveness must be changed, because contemporary trade takes place both through classic cross-border trade and through foreign direct investments as foreign affiliate sales.

Because of that the trade flows as well as trade competitiveness can no longer be analysed classically, in such a way that the analysis involves only cross-border trade.

The specificity of the paper is reflected in the fact that, focusing on the relationship between foreign direct investment flows and trade flows, it points to the need to expand the analysis of the country's trade and its trade competitiveness by including the new prevailing forms of trade. Therefore the value of the paper is consisted in revealing the need for the new analysis of trade flows and trade competitiveness in order to get a comprehensive and real picture of the country's trade competitiveness.

3. Research Methodology and Hypothesis

The nature of research subject determined the application of research methods. The methods of analysis, comparison, deduction and synthesis have been used.

The method of analysis has been used in the observation of available literature, contemporary trade and investment flows and their up-to-date trends and also in the calculation of the shares of relevant indicators of selected groups of countries in the global world indicators. The comparison method has been used regarding the obtained shares of the selected groups of countries in the relevant global indicators in order to determine the current trends and the actual picture of the relation between trade and investment flows. The use of deduction method has led from general to individual level, i.e. from the general picture of trade and investment flows and trade competitiveness of selected groups of countries to the picture of trade competitiveness of individual countries. On the findings obtained by the previous methods the synthesis method has been applied leading to the conclusion.

The paper researches the hypothesis that growing international business operations of transnational companies through direct investments abroad and sales of their foreign affiliates have changed the patterns of trade flows and ways of trading changing the picture of trade and trade competitiveness of all countries: developed, developing and countries in transition.

4. Research Results and Discussion

4.1. Research results for developed countries and discussion

Regarding the trade flows of individual countries, it can be observed that foreign direct investment outflows mean the accomplishment of specific form of export (Stojadinović Jovanović, Jakšić, Todorović, 2015, p. 189). For home countries, outflows of foreign direct investment mean leaving traditional export to other markets through organizing production in the home country and undertaking classic cross-border sale on foreign markets in favour of other, specific form of export. This other form of export happens through the affiliates established as a result of foreign direct investment outflows in foreign countries which undertake production and selling on these and other foreign markets (local market of the host countries and other, third markets). In this way, through affiliates (sales of foreign affiliates) which are the results of foreign direct investment outflows, home country accomplishes a specific form of export – indirect export. Therefore outflows of foreign direct investments, resulting in sales through foreign affiliates, represent the specific form of export.

In 2017, the latest data available year, developed countries had, like in the previous period, much larger share in world FDI outflows (70.5%) than in world merchandise export (53.8%) (Table 3). In 1993 these shares were 87% and 69.8% (Kozomara, 1996, p. 545) and in 2003 93% and 64.5% (Stojadinović Jovanović, 2008, p. 3), respectively. In the period more than a decade ago, these shares were 82.9% and 60.1% (Table 3, data for the 2005) what was also much larger share in world foreign direct investment outflows than in world merchandise export. Therefore, it can be considered that export through foreign direct investments from developed countries was the main form of export for developed countries and it has remained the main form of export.

Regarding import, developed countries had smaller shares in world foreign direct investment inflows (49.8%) than in world merchandise import (57.1%). This means that in 2017 (Table 3), as in the previous period (when these shares were: in 1993 62% and 68.3%, in 2003 65.5% and 69%, and in 2005 59.2% and 65.7%, respectively) developed countries have been using more traditional forms of merchandise import.

Accordingly, it can be concluded that developed countries, in the last decade of the 20th and in the beginning of the 21st century, export more through foreign direct investment outflows than through classic cross-border export, while in import they rely more on traditional import.

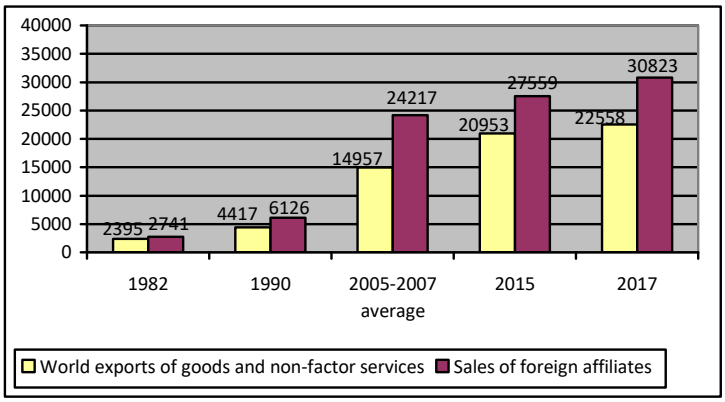
Table 3. Foreign direct investments and trade of developed countries (billions of dollars and percentages)

Year	Developed countries (billions of dollars)		World (2) (billions of dollars)		Share in world (1/2) (%)	
	2005	2017	2005	2017	2005	2017
Merchandise export	6269	9247	10431	17198	60.1	53.8
FDI outflows	646	1009	779	1430	82.9	70.5
Merchandise import	7090	10032	10783	17572	65.7	57.1
FDI inflows	542	712	916	1430	59.2	49.8

Source: Author's calculations based on WTO, 2018, p. 78, Table 5.1. and UNCTAD, 2018, p. 184, Annex table 1.

The new form of export – indirect export through foreign direct investment outflow and foreign affiliates' sales, became particularly important after the 1990s, when it started to represent a dominant form of export, as it has been explained in the previous (Introduction) section (Figure 3). It indicates that firms sell more through foreign affiliates than through classic, direct export, i.e. firms export more through foreign direct investment outflows and foreign affiliates' sales than through traditional, cross-border exportation.

Figure 3. World exports and sales of foreign affiliates (billions of dollars)



Source: based on Table 2, UNCTAD, 2008, p. 10; UNCTAD, 2011, p. 24; UNCTAD, 2018, p. 20.

Trading through foreign affiliates and foreign direct investments has become more important than traditional trading. In this way, the expansion of transnational companies and foreign direct investments lead to the new form of trade flows that is more important than the existing, classic cross-border form of trading.

The remarkable trade through sales of foreign affiliates after the 1990s that are not covered and not included in the official trade figures and therefore neither in the analysis of trade competitiveness of the countries show that the existing analyses of trade competitiveness are not relevant and not in line with the contemporary changes.

The performance of foreign direct investments and the emergence of new trade flows influence and change the trade competitiveness of both countries of foreign direct investment outflows and countries of foreign direct investment inflows.

Actual classic international trade statistics system and also national foreign trade statistics systems include only classic trade flows being performed across national borders. These flows are recorded in the national balance of payments accounts as transactions between residents and non-residents. Therefore, only classic, cross-border traditional form of trade is covered by the existing system of foreign trade statistics and analysis. On the other side, the other new form of trade – indirect trade performed through the affiliates established abroad through foreign direct investments undertaken by transnational companies is not covered by the existing classic trade statistics and analysis. Consequently, the analysis of an individual country's trade and also the trade competitiveness lacks one important trade flow - indirect trade through foreign affiliates. As the analysis has shown, the new form of trade - indirect trade through foreign affiliates became particularly important after the 1990s. Therefore, our insight in trade competitiveness is not complete and it is not in line with contemporary changes in forms and ways of trading goods on international markets.

Because of the fact that official foreign trade statistics comprises only the traditional, direct, cross-border trade and does not comprise indirect trade, the existing coverage and analysis of trade competitiveness of the individual country are inadequate and incomplete.

The fact, that a transnational company (parent enterprise) of a home country performs one part of production and sale through affiliates established by foreign direct investments abroad instead of at home country and thus performs indirect export instead of classic direct export, lead to reduced value of classic, direct export registered by official foreign trade statistics in the trade balance. This creates the impression that the country's export is lower than it really is and that the country's trade competitiveness is also lower than it really is. This actually means that the country's trade picture and trade competitiveness is more favorable than the official data shows.

Furthermore the trend of prevailing the indirect trade in relation to direct trade and the fact that the indirect trade is not captured and registered in trade balances means that important, prevailing flow of trade is missing from the trade balances and official trade figures and thus from our analysis of the trade competitiveness.

4.2. Research results for developing and countries in transition and discussion

Regarding developing countries, it can be found that, in 2017, the latest data available year also, these countries had, like in the previous period, larger share in world FDI inflows (46.9%) than their share in world merchandise import (40.6%) in 2017 (Table 4), which shows that these countries in their import rely more on FDI inflows. This trend was also present in the previous period. In 1993 these shares were 35% and 29.2% (Kozomara, 1996, p. 545), and in 2003 30.7% and 26% (Stojadinović Jovanović, 2008, p. 5), respectively. In the period more than a decade ago, these shares were 36.5% and 31.3% (Table 4, data for the 2005) what was also larger share in world foreign direct investment inflows than in world merchandise import. These are the reasons for concluding that foreign direct investment inflows play the prevailing form of import for developing countries.

Table 4. Foreign direct investments and trade of developing countries (billions of dollars and percentages)

Foreign direct investments and trade	Developing countries (1) (billions of dollars)		World (2) (billions of dollars)		Share in world (1/2) (%)	
	2005	2017	2005	2017	2005	2017
Merchandise export	3764	7433	10431	17198	36.1	43.2
FDI outflows	117	381	779	1430	15.0	26.6
Merchandise import	3375	7138	10783	17572	31.3	40.6
FDI inflows	334	671	916	1430	36.5	46.9

Source: Author's calculations based on WTO, 2018, p. 78, Table 5.1. and UNCTAD, 2018, p. 184, Annex table 1.

Regarding export, there is the opposite situation. The share of developing countries in world FDI outflows (26.6%) was less than their share in world merchandise export (43.2%) in 2017 (Table 4). These shares in 1993 were 13% and 27.4%, in 2003 5,8% and 30%, and in 2005 were 15% and 36.1%, respectively, what was also less share in world foreign direct investment

outflows than in world merchandise export, which means that in export these countries rely more on traditional forms of merchandise export. Accordingly, it can be concluded that developing countries, in the last decade of the 20th and in the beginning of the 21st century, import more through foreign direct investment inflows than through classic import, while in export they rely more on traditional exportation.

As well as for developing economies, for transition economies of Central and East European region, it can be also shown that these countries, as prevailing recipients of foreign direct investment inflows, import more through foreign direct investment inflows than through traditional form of classic, cross-border import (Stojadinović Jovanović, Jakšić, Todorović, 2015, pp. 191-192), while in export they also rely more on traditional exportation.

The findings show that a close mutual intertwinement of foreign direct investment inflows and import has to be taken into account in the analysis of trade and trade competitiveness of these countries. The reason for this is that the countries perform one new international trade flow (indirect import) via foreign direct investment inflows that is by buying from affiliate established as a result of the foreign direct investment inflow onto the these countries' market, than by means of classic import. Therefore, they use indirect import forms, by means of foreign direct investment, more than direct import forms which are realized in the classic manner, by exchange across national borders, and which are registered by official trade statistic figures available to us.

Because of this indirect import, realized through foreign direct investment inflows, that is not covered and registered in trade balances, officially reported trade figures of these countries are not complete. Therefore the picture of their trade competitiveness is also not complete.

The findings indicate that the real, total, import of these countries, that is total purchases from foreign and foreign-controlled companies, is larger than the one presented by official reported trade figures which comprise figures that indicate the value of only classic, cross-border import of the countries.

In addition to the officially registered import flows, the analysis of the country's import should also include import flows realized through foreign direct investment flows, because of the fact that foreign direct investment inflow led to substitution of one part of the import, which indicates that the import, without this foreign direct investment inflow, would be even larger, as well as that by means of this foreign direct investment inflow one part of the import is realized, indirectly. In that way the trade image of these countries, increased by indirect import, would become less favorable. This also reflects on the image of their trade competitiveness.

Generally, the findings for all groups of countries show that because of the fact that increasingly more trade flows are realized through foreign direct investment flows and significant part of the trade is missing from the reported trade figures, official trade data show only one side of the state of trade and trade competitiveness of the countries.

Comprehensive analysis of trade flows and trade competitiveness of the countries must include both: traditional cross-border forms of trade and foreign direct investment as a new, specific form of trade.

This comprehensive trade analysis, including both kind of trade flows, would inevitably lead to a different trade images of the countries that is sometimes less favorable and sometimes more favorable. However, that is the only way that we can get the complete and accurate image of the country's trade as well as the result (surplus or deficit) of that trade and also the complete and accurate image of its trade competitiveness.

5. Conclusion

The research hypothesis that growing international business operations of transnational companies through direct investments abroad and sales of their foreign affiliates have changed the patterns of trade flows changing the picture of trade and trade competitiveness of all countries: developed, developing and countries in transition, has been confirmed.

In times of intensive globalisation of the world economy and rising international business activities of transnational companies through their direct investments abroad, the forms of trade flows and aspects of trade competitiveness have dramatically changed.

Due to the mutual interaction and intertwining of transnational companies' foreign direct investment flows and trade flows, which has led to the emergence of new forms of trade flows, assessment of the trade competitiveness becomes more complex, because the trade does not occur only through the traditional trade flows taking place across national borders but also through new forms. The new forms are realized through foreign direct investment flows, including both inflows and outflows.

Foreign direct investment outflows represent the new form of export for developed countries. In the last decade of the 20th and in the beginning of the 21st century, developed countries export more through foreign direct investment outflows than through classic cross-border export.

However, this indirect export through foreign direct investment outflows and foreign affiliates' sales is not covered by the official trade figures.

This creates the impression that these countries' export is lower than it really is and that these countries' trade competitiveness is also lower than it really is.
This actually means that the official data show the less favorable these countries' trade picture and trade competitiveness than it really is. Because of the new form of export, through foreign direct investment outflows, the trade competitiveness of these countries is higher than the official data shows.

For developing and countries in transition, foreign direct investment inflows represent the form of import. In the last decade of the 20th and in the beginning of the 21st century, these countries import more through foreign direct investment inflows than through classic import.
However, this indirect import, realized through foreign direct investment inflows, is not covered and registered in trade balances. This indicates that the real, total, import of these countries, that is total purchases from foreign and foreign-controlled companies, is larger than the one presented by the official reported trade figures.

This actually means that the official data show the more favorable these countries' trade picture and trade competitiveness than it really is. The trade image of these countries, increased by indirect import, would become less favorable. Because of the new form of import, through FDI inflows, the trade competitiveness of these countries is lower than the official data shows.
Generally, the findings for all groups of countries show that because of the fact that increasingly more trade flows are realized through foreign direct investment flows and significant part of the trade is missing from the reported trade figures, official trade data show only one side of the state of trade and trade competitiveness of the countries.

Therefore the recommendation is that the analysis of trade flows and trade competitiveness of the countries must be comprehensive and all future research of trade competitiveness must include both: traditional cross-border forms of trade and flows of foreign direct investment as a new, specific, form of trade.

In this process, researchers will meet some limitations because there is no available detailed data for foreign affiliates' sales for each individual country so that we can conduct analysis at the level of each individual country. This kind of data collection is in development. Future work on collecting the data of foreign affiliates' activities including their sales at the level of each individual country will enable this analysis too.

The comprehensive trade analysis, including both kind of trade flows, would inevitably lead to a different trade images of the countries that is sometimes less favorable and sometimes more favorable. However, that is the

only way that we can get the complete and accurate image of the country's trade as well as the result (surplus or deficit) of that trade and also the complete and accurate image of its trade competitiveness.

Therefore the paper gives contribution to economic practice as well as to economic theory expanding our understanding, examination, coverage and analysis of trade competitiveness in the contemporary global world economy. The paper is interesting and relevant for local and international researchers. It is particularly interesting and useful for the creators of economic policies and especially the creators of trade and investment policy and strategy in order to have a complete and real picture of trade and thus trade competitiveness of their country to guide them in their decision making.

Policymakers should be aware of different trade impacts that can be expected from different type of foreign investments. Given the specific trade contributions that can be expected from different kind of foreign direct investment flows - foreign direct investment inflows or foreign direct investment outflows, policymakers should consider carefully what role each type can play in the context of trade of their country and trade policy they create.

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THE EFFECTS OF TAX COMPETITION IN THE DOMAIN OF CORPORATE INCOME TAX

Jadranka Đurović Todorović, Ph.D[1]
Milica Ristić, M.Sc [2]
Marina Đorđević, Ph.D[3]

Tax competition, or a strategic game between countries, is definitely a phenomenon that attracts undivided attention of academic circles for many years. However, the globalization of economy over the past few decades has made this phenomenon even more attractive for studying. Particular attention is paid to these problems in underdeveloped and transition economies, primarily because of its effects on the macroeconomic aggregates of these countries.The consequences of tax competition are the transfer of capital and labor from jurisdictions with high tax burden to jurisdictions with lower tax burden. Namely, tax competition should create conditions for attracting capital and investments, through a favorable tax framework. That is why, in most studies, the starting point is the idea that tax competition is a competition among states in attracting capital. Although the largest number of tax impact analysis on the decision to allocate the activities of companies per country is focused on corporate income tax, this study deals in detail with the effects of tax system competitiveness in the domain of corporate income tax. This study deals with the analysis of the countries of the European Union with a reference to Serbia. Cluster analysis was conducted and groups of analyzed countries with similar characteristics were defined. The results of the cluster analysis showed that countries with the highest index of competitiveness have the lowest unemployment rates and the highest share of GDP in world GDP. The effects of tax competition on the corporate income tax rate of the company were analyzed and it was concluded that tax competition contributes to the tendency of lowering the rates of this tax form.
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[1] Full Professor, University of Niš, Faculty of Economics, jadranka.djurovic@eknfak.ni.ac.rs
[2] PhD student at University of Niš, Faculty of Economics, University of Niš, Faculty of Economics, milica42777@gmail.com
[3]Associate Professor, University of Niš, Faculty of Economics, marina.dj@ptt.rs

1. Introduction

A definition that comprehensively determines tax competition has not been adopted yet, but there is a consensus among theorists that tax competition is a competition among states (jurisdictions), which results in a reduction in tax burden. As early as the 12th century, in northern Italy, records were found that showed that people had a tendency to compete in attracting capital using tax instruments, especially tax incentives. Although competition can be seen as an invisible force, which implicitly can contribute to technology advancement and innovation, it is today also imposed as an imperative for the economic growth and development of each country.

In the conditions of globalization, it is possible to talk about economic and tax competition. Although economic competition takes great significance in shaping the economic policies of countries, tax competition has been quite controversial over the past several years. According to Huber & Mintz (2005) tax competition is one of the most important issues for tax authorities in modern economies.

Tax competition is most closely related to the corporate income tax, where this form of tax is also considered one of the most significant tax forms in the tax system of the vast majority of modern states. Corporate income tax has a strong impact on economic growth and development, especially expressed in the domain of regulating the reduction of regional differences. This tax form is used for the realization of numerous fiscal and extra-fiscal targets at the micro and macro level. An additional importance to the study of the tax competition phenomenon in this field are the negative effects that harmful tax competition can initiate.

Accordingly, in spite of the economic growth to which it brings about, tax competition can at the same time create negative, harmful effects that prevent it. Therefore, tax competition in the company's corporate income tax could be accepted as an option in fostering economic growth and development, to the extent to which it may be deemed not to be harmful. The goal of tax competition in the field of corporate income tax is productive behavior and attraction of capital, which is achieved by appropriate tax instruments. Therefore, Keen and Konard (2011) equate tax competition with the wishes and needs of individuals, but also the wishes and needs of companies to earn as much profits as possible on their income. The mechanism of tax competition is due to economy globalization, which affects the fact that an increasing number of enterprises produce, sell and invest in a number of countries (Arsić & Ranđelović, 2017). Consequently, the design of tax policies of

"modern economies" requires the examination of tax policies outside a country. The corporate income tax design of open economy implies all the complications and intricacies that appear in the economy of one country, with the addition of tax problems of other tax systems.

As for the area of the European Union, to date, no significant results have been achieved in the field of harmonization of direct taxes, where corporate income tax is also located. Namely, Member States apply different methods for calculating taxable profits, which differ in many respects (Đurović Todorović, Đorđević, Ristić, 2019, p. 156).

The specificities of national tax systems have set the barriers to the said harmonization process. The level of economic development, as well as political and other factors, made it difficult to establish a single tax system and lead to a fairly pronounced tax competition in the domain of corporate income tax. The highest level of tax competition is reflected in the level of tax rates, which are one of the most important tax instruments of a competitive tax system.

This study subsumes the scientific works that examine tax competition and the effects of tax competition in the domain of corporate income tax. The subject of research is the phenomenon of tax competition in the domain of corporate income tax. The aim of the research is the effects of tax competition in the domain of corporate income tax. The significance of this tax form on the economic growth and development of countries is pointed out based on appropriate statistical methods.

This study analyzes the perspective of countries from the aspect of the global competitiveness index, although economic policy makers pay great attention to it. The countries analyzed are the countries of the European Union and Serbia, which actively participates in the strategic game of the countries of the region in terms of tax competition, and, on the other hand, makes significant efforts to access this unique community. Cluster analysis was conducted and groups of analyzed countries with similar characteristics were defined.

Three variables have been taken into account: competitiveness index, unemployment rate and GDP. The results of the cluster analysis showed that countries with the highest index of competitiveness have the lowest unemployment rates and the highest share of GDP in world GDP. The effects of tax competition on the corporate income tax were analyzed and it was concluded that tax competition contributes to the tendency of lowering the rates of this tax form, which a new issue, the so called "Run to the bottom" phenomenon.

2. Literature review

Taxes play a key role in economic activity incentive and economic growth (Salami et al., 2015, p. 93). For this reason economic literature pays great attention to their significance. Given the existence of tax pluralism, it is not surprising that modern tax systems are very different. They are different in the structure of tax forms that contain, and also according to the share of individual taxes in the total state revenues (Đurović Todorović, Đorđević, Ristić, 2019). On the other hand, globalization and large international mobility of production factors have caused the redistribution of tax burden in the world. The changes affecting fiscal systems have increasingly influenced their tendency to build competitiveness in the global market by tax, financial and other incentives. The formation of the world market, in addition to greater mobility, has led to higher tax competitiveness. At the end of the 20th century, the issue of tax competition became a crucial issue to be taken into consideration when designing or maintaining a country's tax policy. Particular attention is drawn to new problems that arise in a competitive single market, which are a characteristic of the time in which we live. Well-known economist Milton Friedman points out that when a taxpayer invests in a country where tax levies are very favorable or do not exist at all, and the resident country applies the tax credit method, much of the benefits due to low tax burden is removed. All these determinants of tax competitiveness make this phenomenon complex for consideration, requiring a special attention.

The main objective of tax competition is to win free resources in a single market with the help of a large number of tax incentives. Tax competition is a legal-economic phenomenon, which implicitly attempts to attract capital, profit or create an appropriate environment for attracting business activities, using relevant instruments such as tax cuts. Dietsch & Rixen (2009) emphasize that a large number of researchers identified potential inefficiencies that could be caused by tax competition. On the other hand, more and more authors agree that tax competition is a positive determinant of the efficiency of state organs. Namely, all countries are inclined to tax competition, but the nature of their interests differs from one country to another. Although the advantages cannot be the same for both developed and developing countries, the effects of tax competition can be explained in a simple way. In a situation where small countries approach tax cuts, they can attract a large amount of mobile capital (relative to their population / per capita), and in this way tax competition in small countries will have positive repercussions on the well-being of the population. In developed countries, the goal of tax competition takes different

frameworks. If there is a reduction in taxes in a large country, that country will receive a small portion of the capital from abroad that can be measured in comparison with its population. It would be illusory to expect the same effects of tax competition taking into account the number of inhabitants in large countries. Namely, in relation to the number of inhabitants, a big country joining the fiscal policy of tax cuts, receives only a small part of the capital from abroad, in comparison with the number of inhabitants. According to Winner (2005), such a situation does not lead to major changes that would affect the prosperity in this country. According to Wolf (2007) there is empirical evidence that suggests that tax competition undermines the fiscal sovereignty of countries. Although countries have their own legitimate right to determine tax rules, they cannot explicitly achieve their goals. The first sovereignty is a de jure sovereignty, while the other sovereignty is a de facto sovereignty. Developing countries are not able to stop tax losses, like the developed countries, and in such situations they lose both types of fiscal sovereignty (Dietsch & Rixen, 2010). Teather (2005) points to the positive aspects of tax competition and its significance. According to his results, governments are opposed to tax competition not because of the harmful consequences to the population, but because of the possibility of limiting the accumulation of as much public revenue as possible. Reflections on tax competition can also be seen through the effects that it can have on the work of state authorities. Tax competition acts as a control mechanism, which limits the ability to collect taxes, as well as the possibility of inefficient public expenditures. It can be concluded that state authorities are, in some way, restricted to increase tax burden, since any increase in tax burden will result in the removal of the country's capital to another country in a single market that has a more favorable tax treatment of capital.

Although the balance significance of corporate income tax is limited, in contemporary economic literature and tax policy, corporate income tax is one of the most economically important tax forms, due to the significant effects that corporate income tax derives from economic efficiency and economic growth (Arsić & Randjelović, 2017). Corporate income tax does not have a high level of balance significance, such as personal income tax or indirect taxes. However, it has a stabilization and development component. Through this tax form, it is possible to influence the mitigation of cyclical fluctuations in the economy, thus achieving financial and economic stability. On the other hand, corporate income tax has a strong influence on economic growth and development, especially expressed in the domain of regulation and reduction of regional differences (Đurović-Todorović, Đorđević, Ristić, 2019). In the

context of high mobility of capital and / or labor, countries are entering the competition process by adjusting corporate tax rates. Empirical studies that research tax policy in the domain of corporate income tax, show that the evolution of the legal rates of corporate income tax and effective tax rates is governed by tax competition. The Ruding Committee (1992) points to trends in legal rates of corporate income tax concludes that tax competition leads to lower tax rates, as legal tax rates in Europe have fallen, while tax bases in the 1980s have expanded. Many empirical studies have shown that there is a negative effect of the change in the tax on gross domestic product (Furceri & Karras, 2007; Arnold, 2008; Milenković & Kalas, 2017). Lee & Gordon (2005) find that profit tax rates have a negative correlation with economic growth, i.e. that any reduction in the tax rate by 10% affects economic growth by 1-2%. Analyzing the time period from 1998-2010. Veronika & Lenka (2012) also pointed to the negative effect of corporate income tax on long-term economic growth. Mertens & Ravn (2013), point out in their research that corporate profit tax negatively affects economic growth measured by the real gross domestic product per capita. Romer & Romer (2010) emphasize that it is very important to consider the impact of tax changes in corporate income tax on economic activity.

The results of their research highlight the negative effect of tax changes on the real gross domestic product. They explored economic activity and tax changes in the United States, and thus created the basis for further research in other markets. Confrey & Fitzgerald (2011) state that the reduction of tax rates is a very important determinant of corporate income tax. Tax competition has led to a reduction in global tax rates. Reduced tax rates on profits have directly impacted the single market, explicitly, to grow faster. According to the OECD study, the growth of economy by half percent is indicated for any reduction in marginal tax rates by 10 percent (Mitchell, 2009). Based on a study conducted by Padovano & Galli (2001), which examines the link between corporate tax rates and economic growth in twenty-three OECD member countries, in the time range from 1950 to 1980, it was found that high marginal tax rates and progressiveness are negatively correlated with long-term economic growth. In addition, the effects of tax reforms that have triggered low tax rates can be seen on investment. Becker (2009) emphasizes that the importance of corporate income tax together with its effects on investment is very high, without taking into account the economic development of a country. The reduction of the tax rate explicitly results in significant smaller tax revenues, but it also increases the attractiveness of the country from the aspect of investments.

3. Research Methodology and Hypothesis

Tax competition can affect different processes. In the modern integrated economy, competitiveness occupies a central place in economic analyzes and reflections of both developed and developing countries (Đurović-Todorović, Đorđević, 2013).

A large number of factors influence the decision in which country the investor will direct their capital. Decision-making can be influenced by institutions, good infrastructure, skills and qualifications of workers, legal framework, as well as tax policy. Although any person with a surplus of investment funds wants to achieve the highest yields, under modern conditions, their search for higher profits is not limited to state borders. Therefore, the capital flows out of the borders of a country. Freedom of capital movement has determined the entire balance of tax competition effects. Tax competition initiated the emergence of positive, as well as negative effects. Positive effects most commonly stated in empirical research are the following (OECD, 1998):

Table 1. Positive effects of competitive behavior of states in taxation

Expansion of tax bases	Reduction of tax rates
Effective management of collected revenues due to the decline in tax revenues	Adjustment of tax systems
A favorable business environment for investors	Expansion of financial markets

Source: OECD, 1998

Having actualized of the topic, researchers began to analyze the positive effects of tax competition. In fact, this possibility of positive effects dates back to 1980 when Brennan and Buchanan (1980) pointed to it. Since then, positive effects have begun to be the subject of extensive empirical research. The most frequent repercussion of tax competition on tax policy is the lowering of the tax rate primarily aimed at attracting foreign investors. According to most authors, the reduced tax rate can, after a certain period, significantly increase the GDP growth of these countries. Namely, since there is a reduction in tax rates, there is a rise in saving and analogue investments, which ultimately increases economic activity and GDP. The spread of tax bases also has a positive effect on tax policy which tax competition can significantly influence. There is also the development of financial markets, as well as the creation of a favorable business environment for potential investors. All these

effects have an impact on the efficient management of tax revenues, which leads to more rational consumption of total public revenues collected.

Table 2. Overview of basic macroeconomic aggregates and competitiveness of analyzed countries

Country	GDP (% world GDP)	Unemployment rate (%)	Global Competitiveness Index (K)
Belgium	0.42	7.1	77
Bulgaria	0.12	6.2	64
Czech Republic	0.30	2.9	71
Denmark	0.23	5.7	81
Germany	3.28	3.8	83
Estonia	0.03	5.8	71
Ireland	0.28	6.4	76
Greece	0.24	21.5	62
Spain	1.40	17.2	74
France	2.23	9.4	78
Croatia	0.08	11.2	60
Italy	1.82	11.2	71
Cyprus	0.03	11.0	66
Latvia	0.04	8.7	66
Lithuania	0.07	7.1	67
Luxemburg	0.05	5.5	77
Hungary	0.23	4.2	64
Malta	0.02	4.0	69
Netherlands	0.72	4.8	82
Austria	0.35	5.5	76
Poland	0.88	4.9	68
Portugal	0.25	8.9	70
Romania	0.38	4.9	63
Slovenia	0.06	6.6	70
Slovakia	0.14	8.1	67
Finland	0.19	8.6	80
Sweden	0.41	6.7	82
UK	2.29	4.3	82
Serbia	0.08	14.1	61

Source: World Economics Forum (2018), The Global Competitiveness Report. Authors' calculations.

On the other hand, the effects of tax competition may be negative. Early contributions to the theory of tax competition emphasized the possibility that tax competition leads to ineffectively low tax rates and levels of public consumption. This view was articulated by Oates (1972), and empirically proven by Zodrow and Mieszkowski (1986) and Wilson (1986). The confirmation or elucidation of the hypothesis on “the race to the bottom” has increasingly been examined. In theory, tax competition in terms of reducing tax rates in order to attract capital can lead to a stabilization of tax rates at a lower level, without any positive effects on the influx in the group of participating countries in that tax competition, which is a phenomenon called the race to the bottom Arsić & Ranđelović, 2017a, 137). Due to low tax rates, the negative effect of tax competition can be seen in the outflow of capital and labor from a particular country. It is the phenomenon of "tax havens", the countries that apply significantly low tax rates.

Large differences in tax rates, primarily due to tax competition, undoubtedly had repercussions on prosperity and poverty. Namely, tax competition in the case of redistribution of income affects the higher level of well-being. Countries with a high level of capital and labor concentrations also have high tax rates and a higher level of well-being, while developing countries are, on the other hand, conditioned to lower tax rates and thereby negatively affect general well-being.

According to the Competitiveness Report for 2018, and based on the pillars of competitiveness, the overall assessment of the competitiveness of the analyzed countries for 2018 was performed. The results of the Competitiveness Report show that Germany has the highest competitiveness index (K = 83), while the lowest index is reported in Croatia (K = 60). The overall assessment of Serbia's competitiveness is 61. When it comes to the movement of gross domestic product, which is expressed as % of world GDP, the United Kingdom has the largest gross domestic product (2.29% of world GDP). The smallest gross domestic product in 2018 was realized in Estonia and Cyprus (0.03% of world GDP). Table 2 gives an overview of the unemployment rate in the analyzed countries. The lowest unemployment rate in the observed year was recorded in the Czech Republic, while the highest unemployment rate was recorded in Greece. Based on the analysis of statistical data, it can be concluded that countries with high unemployment rates are coherently countries with a low share of GDP in world GDP.

Using appropriate statistical tools, cluster analysis has been carried out and groups of analyzed countries with similar characteristics have been defined. Three variables are taken into account: GDP, unemployment rate and

overall competitiveness score. GDP is expressed as a percentage of GDP in world GDP, while unemployment is expressed in %.

4. Research Results and Discussion

The cluster analysis was run on a sample of 29 countries (EU and Serbia). The analyzed variables are BDP, Unemployment rate and Global Competitiveness Index in 2018. In order to calculate the distance of the data the squared Euclid distance measure was used. We used Ward's method to calculate the similarity of the data.

The analysis produced three clusters, presented graphically by a dendogram (Graph 1). The characteristics and basic descriptive statistics of the three clusters are presented in table 3. The first cluster shows the best competitiveness performance, or the highest global Competitiveness Index. The average unemployment rate in 2018 is 6.164% and the BDP is 0.9500%. This cluster includes 11 countries. The third cluster belongs to countries with the lowest global competitiveness index. The average unemployment rate in 2018 is 15.600% and the BDP is 0.1333%. This cluster includes 3 countries. Based on the analysis of statistical data, it can be concluded that countries with a high index of competitiveness have the highest share of GDP in world GDP and the lowest unemployment rate. The second group of analyzed countries, classified in Cluster 2, includes 15 countries with a medium index of competitiveness, medium GDP, and unemployment rate.

Table 3. Characteristics of the three groups of countries obtained by hierarchical clustering

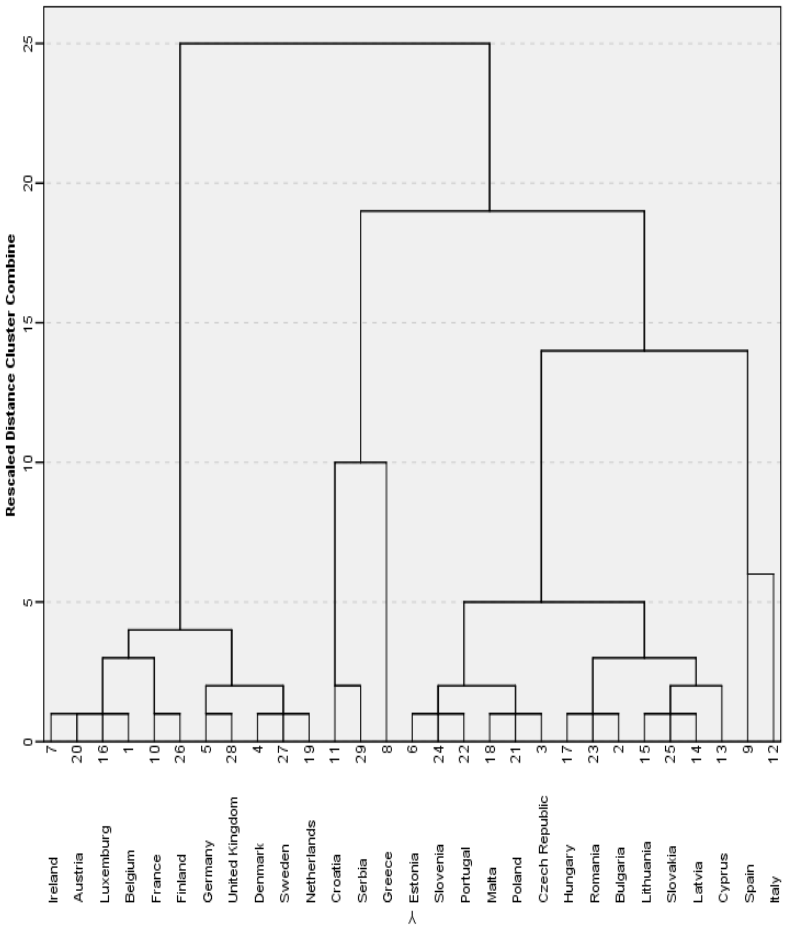
Group	Global Competitiveness index	Unemployment rate (%)	GDP (% world GDP)
Cluster 1 (N=11)	79.45±2.697	6.164±3.8	.9500±1.10468
Cluster 2 (N=15)	68.07±3.150	7.447±3.6559	.3847±.54924
Cluster 3 (N=3)	61.00±1.000	15.600±5.3113	.1333±.09238
Total	71.66±7.113	7.803±4.1706	.5731±.82633

Source: Source: Own calculations using SPSS

The characteristics of the first cluster are: Global Competitiveness Index, low unemployment rate and high level of GDP share in world GDP, compared to the other two clusters. In the EU countries and in Serbia, an empirical insight

proves the assumption is that countries with high unemployment rates are the countries with a low percentage of GDP participation in world GDP, and we have given another common characteristic, a low level of Global Competitiveness Index.

Figure 1. Dendogram using hierarchical clustering with Ward's method and squared Euclidean distance



The most prominent field of corporate income tax analysis in literature is tax competition (Devereux & Loretz, 2012). Tax competition is a "measure" that primarily serves to attract foreign investment and create a favorable

business environment. Therefore, tax competition mainly refers to direct taxes (personal income tax, corporation tax, and property tax), and above all it is related to corporate income tax. Corporate income tax represents one of the economically most important tax forms, due to the significant effects that corporate income tax creates on economic efficiency and economic growth. Also, according to empirical research, the negative impact of corporate income tax on economic growth is stronger than the impact of other tax forms (Arsić & Ranđelović, 2017).

Table 4. Measuring the Correlation of Corporate Income Tax and Gross Domestic Product by EU Member States

Countries	Austria	Belgium	Bulgaria	Croatia	Cyprus
CIT-GDP	0.678 (0.031)	0.425 (0.192)	0.654 (0.029)	0.242 (0.500)	-0.213 (0.555)
Countries	Czechia	Denmark	Estonia	Finland	France
CIT-GDP	0.476 (0.139)	0.641 (0.034)	-0.376 (0.284)	0.604 (0.064)	0.633 (0.050)
Countries	Germany	Greece	Hungary	Italy	Lativia
CIT-GDP	0.554 (0.096)	0.276 (0.440)	-0.200 (0.579)	-0.054 (0.882)	0.049 (0.893)
Countries	Lithuania	Luxembourg	Malta	Netherlands	Poland
CIT-GDP	0.049 (0.893)	-0.257 (0.474)	0.592 (0.071)	0.714 (0.020)	0.570 (0.085)
Countries	Portugal	Romania	Serbia	Slovakia	Slovenia
CIT-GDP	0.398 (0.255)	0.525 (0.119)	0.033 (0.923)	0.282 (0.464)	0.523 (0.121)
Countries	Spain	Sweden	United Kingdom		
CIT-GDP	0.470 (0.170)	0.517 (0.126)	0.105 (0.773)		

Source: Authors' calculation, SPSS output

Based on the results in Table 4, the presence of a positive cause-effect relationship between corporate income tax and gross domestic product can be noticed in 23 analyzed countries. The results of the correlation analysis indicate the strength and direction of the linear relationship between the two variables, corporate income tax and gross domestic product. A strong positivity correlation between these variables can be noticed in certain countries, according to which the coefficient of correlation at the level of significance is 5% ($p < 0.05$). Additionally, in several countries, Pirson's correlation coefficient

indicates a correlation between the mean strength between the loss of business profits and gross domestic product at a level of significance of 10%.

Namely, the basic measure of tax policy is guided by the interests of taxpayers to reduce the tax burden and reduce the tax rate on the profits of legal entities. Are the effects of tax competition visible in the domain of this form of taxation? Do countries with the highest competitiveness index have the lowest corporate income tax rates? Based on the previous analysis, we have proven that developed countries are more competitive than others. Ireland, Austria, Luxembourg, Belgium, France, Finland, Germany, the United Kingdom, Denmark, Sweden and the Netherlands are countries that, according to all pillars of competitiveness, are predominant compared to other analyzed countries. This conclusion implies that the developed countries will dictate the conditions of business in the world market, as well as indications that it is very difficult for developing countries to respond to their competitive behavior.

Empirical studies prove that the evolution of the legal rates of corporate income tax and the effective income tax rates was guided by tax competition (Cozmei, 2014). Some empirical studies confirm that the level of tax rates in one country is determined by the rate and dynamics of tax rates in other countries (Devereux et al, 2008), which indicates the reflection of tax competition.

Table 5 indicates the corporate income tax rates in EU Member States. The first conclusion that can be derived from the table is the absence of harmonization of tax rates, which was largely influenced by tax competition. The importance of studying tax competition in the field of corporate income tax is illustrated by the fact that, despite the process of harmonization of taxation policy initiated in the European Union, there are evident differences between Member States in the rates of defeats on the profit of legal entities. Such differences create major barriers to the free circulation of goods and services. The fact is that very modest steps were made in regulating relations between tax law and EU law in the domain of direct taxes. Article 115 of the Agreement on the Functioning of the European Union basically finds the legal basis for the harmonization of company law, because this article requires harmonization wherever the same is necessary for the internal market to function smoothly (Popović, 2013, page 26). However, the level of harmonization of all direct taxes in the European Union is very low and it is reduced to the removal of obstacles for the smooth functioning of a single market, the affirmation of equal competition between companies from all member states, reduction of opportunities for erosion of tax base and avoiding harmful competition (Arsić, Ranđelović, 2017). The very need for

harmonization of corporate income tax within the limits of this unique market was determined back in 1962 within the framework of the Neumarkt report.

Table 5. Corporate income tax rates in the EU, 2018.

Country	Coprorate income tax rates (in %)
Austria	25
Belgium	29
Bulgaria	10
Croatia	18
Cyprus	12.5
Czech Republic	19
Denmark	22
Estonia	20
Finland	20
France	33.33
Germany	15
Greece	29
Hungary	9
Ireland	12.5
Italy	24
Latvia	20
Lithuania	15
Luxembourg	18
Malta	35
Netherlands	25
Poland	19
Portugal	21
Romania	16
Slovakia	21
Slovenia	19
Spain	25
Sweden	22
U. Kingdom	19
EU 28	*20.47*

Source: Centre for European Economic Research, Intermediary Report 2018, Effective Tax Levels Using the Devereux/Griffith Methodology-Project for the EU Commission TAXUD/2018/DE/307

According to this report, harmonization should include the following harmonization: 1. determining the tax base and defining the rules that need to

be followed when determining it; 2. definition of cooperation between the tax administrations of the member states of the European Union.

In the years that followed, new proposals emerged that implied harmonization of corporate income tax rates in the range of 45% -55%. However, these proposals were not adopted, although Member States did not want to limit their sovereignty in this domain. "A partial success was the initiative of the European Commission, which had three basic components: removing the obstacles for investment flows between Member States, introducing a lower threshold in relation to the tax rate of 30%, and introducing uniform rules for determining the tax base" (Arsić, Ranđelović, 2017c , p. 142).

Corporate income tax is a highly discussed component of developed countries tax systems. Although revenues from this form of tax represent a small share in total tax revenues, this tax is very important for the development of enterprises, taking into account the costs of payment and alignment. Therefore, corporate income tax can have a significant impact on certain corporate decisions.

Although the governments of the analyzed countries are aware of this situation, in the last decades, several corporate tax returns have been implemented in most countries. These corporate income tax reforms were mainly marked by a reduction in the statutory tax rate and a simultaneous increase in the tax base, with the aim of simplifying taxes, maintaining revenues and reducing the gap between the statutory tax rate and the effective tax rate. In this context, the effective tax rate differs from the statutory rate in the fact that it reflects tax incentives and subsidies incorporated into the law.

Nevertheless, some countries, despite the international trend and tax competition, maintained relatively high tax rates (e.g. Malta). Germany, being the country with the highest Global Competitiveness Index, implemented two important reforms of CIT, in 2001 and 2008. Concretely, in the 2000 reform the rate dropped from an average of 51 percent to 38.3 percent, while in 2008 this trend continued with a further reduction in the rate to 30.2 percent. Until 2008, however, Germany had the highest statutory corporate income tax rate in the EU except for the years 2001 and 2002, when Belgium and Italy had the highest rates (Delgado et al., 2018).

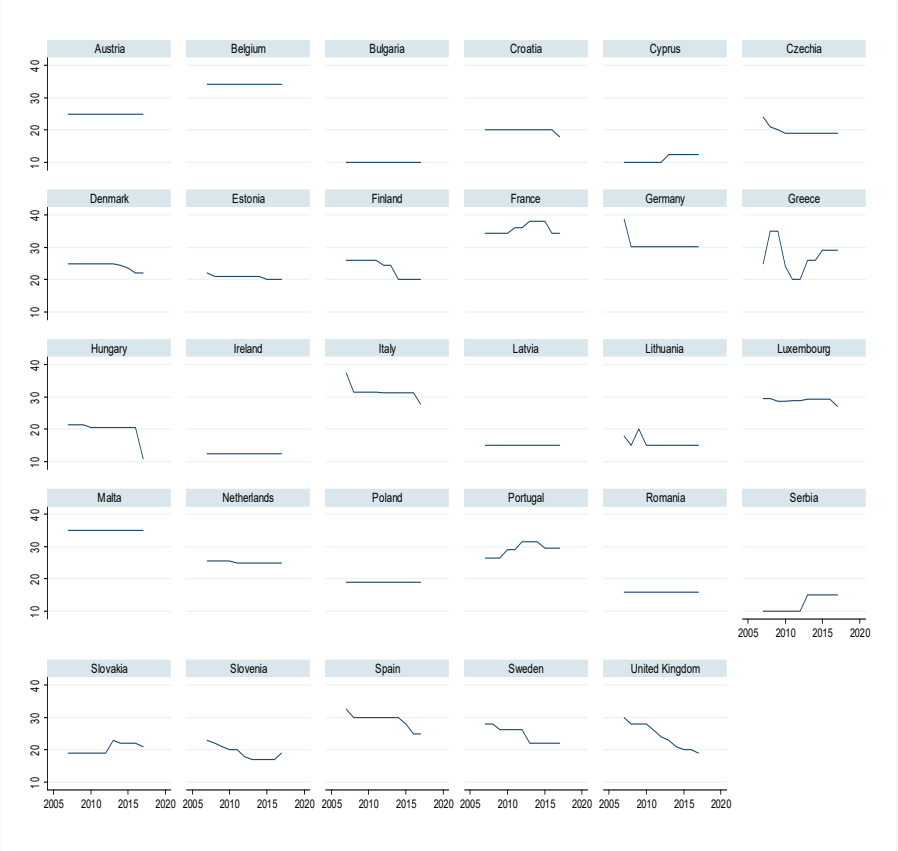
Tax competition undoubtedly leads to lower tax rates, as legal tax rates in the European Union have declined in most countries. In the analyzed year, 2018, the highest profit tax rate was applied in Malta, while the lowest tax rate of this form of tax was applied in Hungary.

Table 6. Overview of the decrease in income tax rates in EU Member States

	2007.	2008.	2009.	2010.	2011.	2012.	2013.	2014.	2015.	2016.	2017.	2018.	**N**	**R**
1.														
2.												-4.0	1	-4.0
3.	-5.0												1	-5.0
4.											-2.0		1	-2.0
5.							2.5						1	2.5
6.		-3.0	-1.0	-1.0									3	-4.0
7.								-0.5		-2.5			2	-3
8.	-1.0	-1.0							-1.0				3	-3.0
9.						-1.5		-4.5					2	-6.0
10.														
11.		-10.0											1	-10.0
12.	-4.0		10.0	-11.0	-4.0		6.0		3				6	0
13.											-10.0		1	-10.0
14.														
15.		-5.5									-3.5		2	-9.0
16.												5.0	1	5.0
17.			5.0	-5.0									2	0
18.			-1.0								-2.0	-1.0	3	-4.0
19.														
20.	-4.1				-0.5								2	-4.6
21.														0
22.								-2.0	-2.0				2	-4.0
23.														
24.							4.0	-1.0			-1.0		3	2
25.	-2.0	-1.0	-1.0	-1.0		-2.0	-1.0				2		7	-6.0
26.	-2.5	-2.5							-2.0	-3.0			4	-10.0
27.			-1.7				-4.3						2	-6.0
28.		-2.0			-2.0	-2.0	-1.0	-2.0	-1.0		-1.0		7	-11.0
29.							5.0						1	5.0

Note: N - broj promena poreske stope; R - ukupno smanjenje poreske stope; 1-Austria; 2-Belgium; 3-Bulgaria; 4-Croatia; 5-Cyprus; 6-Czech Republic; 7-Denmark; 8-Estonia; 9-Finland; 10-France; 11-Germany; 12-Greece; 13-Hungary; 14-Ireland; 15-Italy; 16-Latvia; 17-Lithuania; 18-Luxembourg; 19-Malta; 20-Netherlands; 21-Poland; 22-Portugal; 23-Romania; 24-Slovakia; 25-Slovenia; 26-Spain; 27-Sweeden; 28-United Kingdom; 29-Serbia.

Figure 1. Movement of the corporate income tax rates in the analyzed countries, 2007-2019.



Source: Authors' presentation

Table 6 and Figure 1 show an overview of the reduction in corporate income tax rates in the analyzed countries. The largest number of changes in tax rates, most of the implemented reforms came from Slovenia, while Austria, France, Ireland, Malta and Romania are the countries which did not have a change in tax rates on corporate income tax in the period 2007-2018. The United Kingdom had the largest total reduction in the tax rate of corporate income tax in the period 2007-2018, closely followed by Germany, Hungary and Spain. Based on the analysis, the underlying assumption that tax competition has had repercussions on the movement of tax rates in the

domain of profit tax can in some way be considered plausible, although the countries with the largest number of the tax rate changes are the country belonging to the first and second clusters, with a high Global Competitiveness Index. In the European Union, 17 of the 28 European Union members had a total tax rate reduction in the analyzed period.

When it comes to Serbia, at the beginning of the transition process that began in 2001, Serbia dropped the tax rate from 20% to 14%. The reform that followed before the Great World Economic Crisis, in 2005, was also linked to the change of corporate income tax rate, where this rate was further reduced to 10%. At that time, Serbia had almost the lowest corporate income rate in Central and Eastern Europe. In the analyzed period from 2007-2018 Serbia recorded one change in the tax rate that did not imply continuity in movement, but it was already increased in the framework of fiscal consolidation in 2013 to 15%. The 15% rate is lower than the average corporate income tax rate in Europe (23%) and in the European Union (20.47%), but also in relation to the countries of Central and Eastern Europe (17%).

5. Conclusion

The research of tax competition which, as a global phenomenon in modern countries, creates increasing distinctions in terms of national tax policies, is gaining an additional importance in the European Union market characterized by increasing competition. The subject of this study is an attempt to reflect the effects of tax competitiveness in EU countries, with a special emphasis on the tax competitiveness of Serbia. In addition, special attention is being paid to the tax rates and the tendency of their decline in the conditions of tax competition in the domain of corporate income tax. The reduction of tax rates, as the most significant effect of tax competition in corporate income tax, can have a special significance for the operations of foreign investors, and that is why they are paid special attention.

Nowadays, the general viewpoint is that high taxes hinder economic growth. Analogously, corporate income tax is one of the most significant tax forms that is positively correlated with a positive growth in most countries. Analyzing tax concurrency, we pointed out the positive and negative effects of this phenomenon. Using the appropriate statistical methods, we systematized the countries according to common characteristics and determined the place of Serbia within the framework of tax competitiveness. Serbia belongs to the countries that are classified in the third cluster characterized by the lowest values of the analyzed indicators: GDP and global competitiveness index. The

most significant negative effect of tax competition is the "race to the bottom" and the same can be seen from the analysis of the tax rates of the analyzed countries. The largest number of tax rate changes, i.e., the largest number of implemented reforms came from Slovenia, while Austria, France, Ireland, Malta and Romania are the countries which in the period 2007-2018 did not have tax rate changes on corporate income tax. The United Kingdom had the largest total reduction in the tax rate of corporate income tax in the period 2007-2018, closely followed by Germany, Hungary and Spain. In the European Union, 17 of the 28 European Union members had a total reduction in the tax rate in the analyzed period. Serbia had almost the lowest profit tax rate in Central and Eastern Europe. In the analyzed period from 2007-2018, Serbia recorded one change in the tax rate in 2013. The 15% rate is lower than the average corporate income tax rate in Europe (23%) and in the European Union (20.47%), but also in relation to the countries of Central and Eastern Europe (17%).

Analyzing the ruling views on tax competition, basic findings on tax competition in the domain of corporate income tax of the analyzed countries, we pointed out the importance of further research of this phenomenon. Tax competition in the domain of corporate income tax stimulates the economic development of countries and it could be accepted as an option in incenting economic growth and development, to the extent to which it may be deemed not to be harmful.

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MODELLING AND OPTIMIZATION OF OIL PRICE PLATFORM: EUROPEAN MARKET STRUCTURE

Zorana Kostić, Ph.D[1]
Žarko Rađenović, Ph.D[2]

The era of low oil prices shows that, in addition to technical improvements, companies have to take into account new models for the sustainability of the oil industry. Aligning sustainability and overall business strategies in the oil industry requires a rigorous economic analysis of the price structure. Oil price structure changes is a catalyst for the convergence process in the European Union. The main purpose of this paper is to consider the impact of the oil market liberalization on diesel and gasoline price structure differences among European countries.In order to derive the relevant conclusions, cluster analysis and linear regression modeling are used during the research. The obtained results suggest that the first hypothesis is verified: Tariff is the most important component in the oil price structure (Diesel and Gasoline) in all European Union countries. On the other hand, the second hypothesis (European Union countries can be grouped into one cluster according to the retail price of diesel and gasoline) has not been confirmed since a representative sample of countries is classified into three clusters according to the diesel and gasoline prices in 2019. The practical implication from the research is that current oil market structure could suggest and accelerate challenges in tax policy and tariff setting in the European member states. The novelty factor in the paper is that it gives a review of the empirical literature focusing on the oil price structures and highlights the essential price components and market structure fundamentals. The paper serves as an introduction to this line of research and also addresses methodological framework which can be useful in this field.
Key words: oil market, diesel price structure, gasoline price structure, custer analysis, regression model

JEL classification: C18, D47, Q41
UDC: 339.13:553.982(4)

[1] Research Assistant, University of Niš, Faculty of Science and Mathematics, zoksinis@gmail.com
[2] Research Assistant, University of Niš, Innovation Center, zarkoradjenovic@hotmail.com

1. Introduction

The common European oil market is not yet perfect, but petroleum products can move freely from Member State to Member State. A single market in petroleum products exists due to tariff obstacles to trade in petroleum products were phased out in July 1968. On the external market, the Common Customs Tariff set a zero rate for oil and very low rates for refined products. The latter were further reduced in the framework of the General Agreement on Tariffs and Trade. All the freedoms written into the Treaty of Rome, such as freedom of establishment and the freedom to provide services, are applicable in the oil sector.

In a single market, which is organised in the same manner as a national market, price differences for oil products, should be marginal and temporary, as they should have been corrected by the transfer of products from low-price to high-price regions in a short period of time. This is not yet the case in the internal market of the European Union where the pre-tax price differences for petroleum products are very important. The specificities of the oil market have influence on these price differences and oil products are transferred at prices which do not make allowance the market conditions of the country. Such movements are a consequence of the oligopolistic structure of the oil industry and in particular the sales policy of the large companies which have a near 80% market share. The oil multinational companies trade petroleum products on a large scale at transfer prices, which do not upset the conditions on specific market. The levelling out of petroleum product prices in the internal common market has been regulated in the Member States.

These regulations set the maximum prices at which the main petroleum products can be sold. There is not a simple formula for setting petroleum product prices, and as a consequence, there is considerable variation in maximum price systems. The system which exists in a particular country has influenced the market policy of large oil companies and particularly the production cut in the refineries. Considering the fact that the production cut is relatively flexible, it is in the interests of oil companies to produce larger quantities of the products which they can sell at a high price on any market, while keeping prices within the ceilings stipulated by regulations (Moussis, 2016).

In January 2019 the European Commission published the third report on energy prices and costs in Europe. The report highlights how lower supply costs, together with stable network tariffs, taxes and levies, enabled household electricity prices to fall in 2017 for the first time since 2008. At the same time,

taxes, in particular excise duties on petroleum products, continue to be an important and stable source of revenue for the European Union countries (European Commission, 2019).

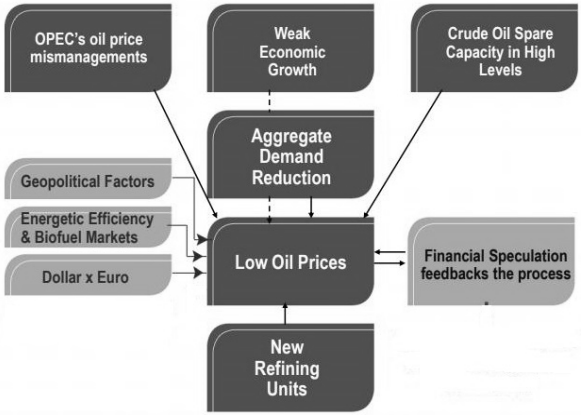
The aim of this paper is to consider the *ex-ante* and *ex-post* analysis of effects of oil market liberalization on oil price structures. The research is based on the Diesel and Gasoline Price Structures in the European countries in 2019. In this context, brief overview of the essential price components and maket structure fundamentals are given. Finally, we conclude the paper with a forward look where the European oil markets are moving to.

2. Literature review

The most widely accepted theoretical approach to oil market focuses on the prevailing oligopolistic structure. The long-term marginal cost is a fraction of the price of oil, even when making considerable allowances for the future values of the resources used up today ("user costs"). To support high price levels, the excess supply is restricted by a cartel. Higher cost producers sell all they can produce, while low-cost producers satisfy the remainder of the demand at current prices and cut back production if needed (Mileva, & Siegfried, 2007, pp. 9).

The Figure 1 provides an overview of the key determinants regarding an oil market structure that brings volatility to the market processes, and intensifies tendencies. In the recent literature, there are different approaches to understand the factors which have influenced on the oil prices.

Figure 1. Determinants Regarding Oil Market Structure

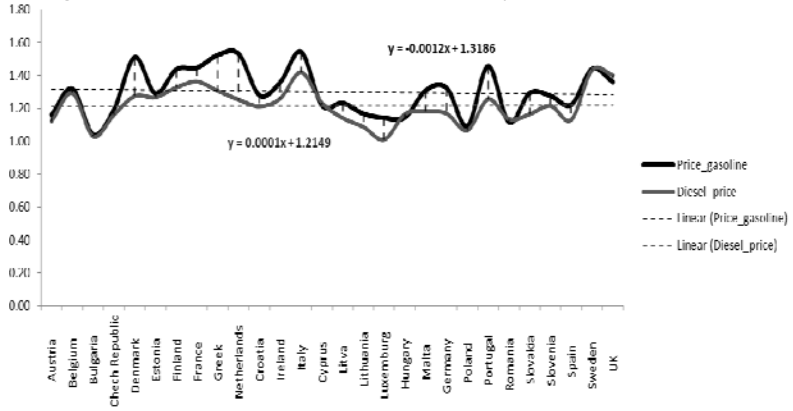


Source: Authors' illustration according to data from the Oxford Institute for Energy Studies

Several authors have established long run co-integrating relationships between crude oil and natural gas prices (Villar, & Joutz, 2006). It is important to point out the role of supply and demand determinants because petroleum products differ in fuel density and accordingly in production, transportation and environmental cost. Recent study shows that crude oil and natural gas prices are cointegrated. Ramberg and Parsons (2010) state that there is an enormous amount of unexplained volatility in natural gas prices at short horizons. Hence, any simple formulaic relationship between the prices will leave a large portion of the natural gas price unexplained. In addition, the cointegrating relationship does not appear to be stable through time. Also, the prices may be tied, but the relationship can shift dramatically over time.

After the liberalisation of the gas industry, trading hubs have emerged in Europe, and these hubs appear to be liquid market places fostering competition. Changes in the concentration on the supply side did not affect the movement in gas prices, and gas prices are predominantly determined by gas market fundamentals. Policies to further integrate gas markets within Europe may extend 'gas-to-gas' competition to a larger region (Hulshof, van der Maat, & Mulder, 2016). Since the gas market has changed significantly in recent years, however, gas-to-gas competition have become the dominant price mechanism. Moreover, recent evidence shows that national gas markets in North-west Europe are increasingly integrated with each other, resulting in a North-west European market covering countries as the United Kingdom, France, The Netherlands, Belgium, Germany, Denmark, Italy and Austria (Petrovich, 2013).

Figure 2. Gasoline and Diesel Prices in European Countries in 2019.



Source: Authors' calculation according to the European Commission and Global Petrol Prices data

Nevertheless, the competiton analysis within the European gas market shows that the dispersion of reserves is concentrated, while the number of suppliers is limited. If companies are able to strengthen their market power, gas prices may reduced consumer welfare. Furthermore, the gas market faces periodical shocks in both supply and demand, which distort the gas prices.

In most European Member Stated gasoline prices are generally higher than diesel prices due to the higher tax element. Only a fraction of the price paid at the pump contributes to the refiners' income, the remainder represents taxes, the purchase of the crude and the distribution and marketing costs.

The fluctuating prices of gasoline and diesel, is the result of more than just production and distribution costs. In fact, excise and value added taxes (VAT) present two main factors which determine prices due to more than half of the fuel's price is tax-based, all of which vary greatly from country to country. Excise taxes tend to be higher for gasoline than for diesel, which consequently has a direct effect on the diesel/gasoline imbalance.

Some studies have focus on the relation between petroleum product prices and oil prices and discuss the evidence on the direction of causality between crude oil prices and petroleum product prices (Ederington, Fernando, Hoelscher, Lee, & Linn, 2018). The relationships between crude oil and refined product prices can be investigated in a multivariate framework. This allows to find that the crude oil price is weakly exogenous and that the spread is constant in some but not all relationships. Moreover, the multivariate analysis shows that the link between crude oil prices and several refined product prices implies market integration for these refined products. Supply driven market integration will change the output mix in response to price changes (Asche, Gjølberg, & Völker, 2003).

Fuel taxes make a significant contribution to national income. "Taxes on fuels contribute on average to some 7% of Member State tax revenue. This significant contribution to Member State revenue has to be put in perspective with the subsidies given to many competing alternatives to oil. This demonstrates that replacing petroleum products by these alternatives would have severe consequences for Member States' income" (Fluels Europe, 2018, pp. 36).

One of the challenges facing the European union member states is to reduce differences between the center and the periphery. The most developed countries play the role of the economic center of gravity. The differences in the integration engineering and the effects of the changes suggest that price convergence process is *conditio sine qua non* Stojanović, Kostić, & Šaranović, 2018).

3. Research Methodology and Hypothesis

Having in mind the context of the research, the basic hypothesis are defined as follows:

H1: Tariff is the most important component in the oil price structure (Diesel and Gasoline) in all European Union countries.

H2: European Union countries can be grouped into one cluster according to the retail price of diesel and gasoline.

Cluster analysis is the name for a set of multivariate techniques whose primary purpose is the grouping of objects based on the properties they possess. Multivariation is the cluster analysis feature which is used to analyze multiple variables simultaneously and together as part of a single unity. Unlike other multivariate statistical techniques, the cluster analysis does not evaluate the variable empirically, but uses those variables that are set by the researcher itself.

The choice of variables is a crucial step and depends on the goals that would be achieved, therefore the choice of variables includes the consideration of researchers on a conceptual and practical basis, given the fact that the variables must be well described for objects clustering and must be relevant to for the analysis goals.

It is important in the analysis to include those variables which are the best in representing the concept of similarity which being investigated. The basic task of the cluster analysis is cluster identification within a population of objects. At the beginning of the analysis, the final number of clusters within the population is not known, nor which object belongs to any cluster. Clusters must be formed in such a way that they contain only objects of similar properties. Cluster analysis methodology includes six steps:

- determining the objectives of the cluster analysis;
- determining the research pattern;
- determination of assumptions;
- forming and estimating the number of clusters;
- interpretation of clusters;
- assessment of cluster analysis and clustering profiling.

Cluster analysis determines similarity measures for all object pairs. In this way, it is possible to compare analyzed objects together. The cluster analysis procedure further assigns similar objects to clusters. After selecting the sample and defining the variables with all the necessary assumptions and with the calculated similarity matrices, the next step in the cluster analysis is the formation of clusters.

The agglomerative hierarchical methods of analysis are based on the assumption that each object is a perfectly homogeneous cluster and at the beginning of the analysis there are as many clusters as the objects (*n*). In the next step, the most similar pair of objects is determined based on the calculated similarity matrix. A cluster is created from a pair of most similar objects, while the total number of clusters decreases by one. This process repeats until all objects are within a single cluster. In the framework of agglomerative methods, the variance method – Ward's method is used as a typical representative of this group of methods.

In the Ward procedure, for each cluster are calculated the average values for all variables (cluster centers), and then for each object is calculated the square of the euclidean distance from the center of the cluster, and then summarized these distances for objects. In this procedure, at each step, these two clusters are joined, which have at least an increase in the total sum of the squares of the distance within the cluster.

It can be said that this method is based on minimizing the loss of information arising from grouping objects into clusters, which is measured by the total sum of the deviation squares of each object from the middle of the cluster to which the object is assigned. This total sum of the squares is known as the sum of the errors squares.

Regardless of whether hierarchical or non-hierarchical methods of analysis are used, the question of the final number of clusters, which is appropriate for the investigated structure, is posed. There is no unidentified rule for this problem, but there are the so-called "stopping rules".

Accordingly, the authors used the statistical program and, based on the experiential method and theoretical solutions, applied the stopping rule in the form of restrictions to a maximum of three clusters. Thereby, in order to determining the number of clusters authors considered the distance from objects which are grouped in clusters. This information is obtained from the agglomeration scheme or from the dendograma that will be shown in this paper.

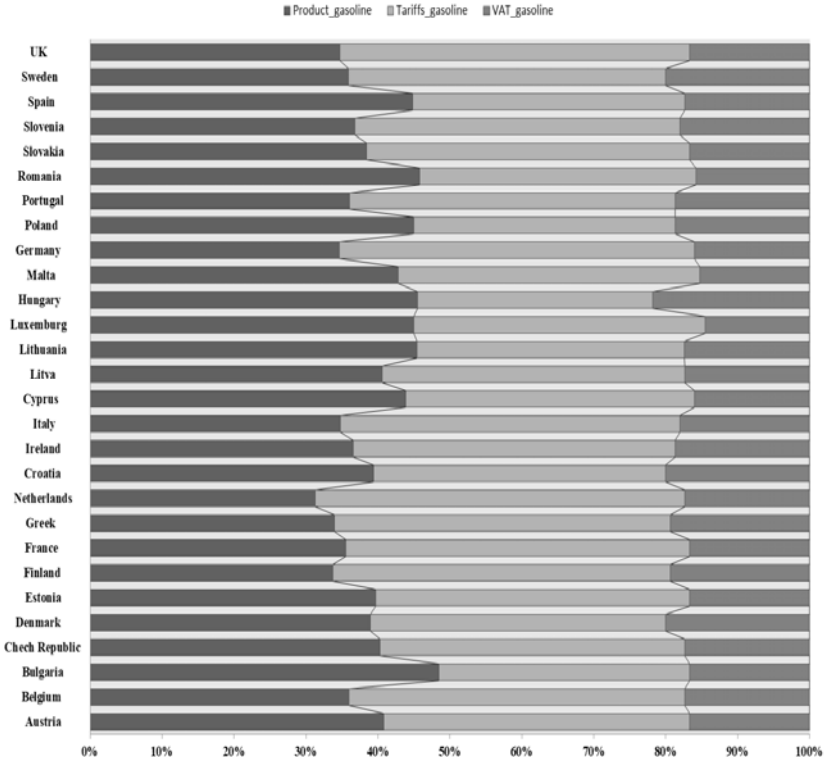
The following data sets are highlighted on the latest data reported by European Commission and Global Petrol Prices for European Union countries. Agglomerative approach - the accumulation approach starts from the bottom to the top, whereby systematically combines objects and groups until all objects are in one group. In order to carry out the cluster analysis, data from 2019 from the European market were used, as shown in Table 1.

Table 1. Diesel and Gasoline Price Structures in the European Countries

No.	Diesel price structure					Gasoline price structure			
	Countries	Price per l	Product costs	Tariffs	VAT	Price per l	Product costs	Tariffs	VAT
1	Austria	1.122	0.525	0.41	0.187	1.16	0.474	0.493	0.194
2	Belgium	1.292	0.502	0.566	0.224	1.32	0.475	0.615	0.229
3	Bulgaria	1.03	0.528	0.33	0.172	1.04	0.505	0.363	0.174
4	Chech Republic	1.16	0.528	0.431	0.201	1.19	0.48	0.505	0.207
5	Denmark	1.274	0.597	0.423	0.255	1.51	0.588	0.62	0.302
6	Estonia	1.267	0.563	0.493	0.211	1.29	0.512	0.563	0.215
7	Finland	1.327	0.61	0.46	0.257	1.44	0.485	0.674	0.278
8	France	1.362	0.526	0.61	0.227	1.45	0.514	0.691	0.241
9	Greece	1.306	0.633	0.421	0.253	1.52	0.518	0.711	0.295
10	Netherlands	1.252	0.537	0.498	0.217	1.53	0.479	0.786	0.266
11	Croatia	1.212	0.558	0.412	0.242	1.28	0.504	0.52	0.256
12	Ireland	1.259	0.525	0.499	0.235	1.36	0.497	0.608	0.254
13	Italy	1.419	0.546	0.617	0.256	1.54	0.537	0.728	0.278
14	Cyprus	1.234	0.576	0.461	0.197	1.22	0.535	0.49	0.195
15	Litvanija	1.141	0.519	0.424	0.198	1.23	0.5	0.518	0.214
16	Lithuania	1.087	0.552	0.347	0.189	1.17	0.53	0.434	0.203
17	Luxemburg	1.01	0.528	0.335	0.147	1.14	0.514	0.462	0.166
18	Hungary	1.165	0.555	0.363	0.248	1.15	0.507	0.364	0.243
19	Malta	1.18	0.528	0.472	0.18	1.31	0.561	0.549	0.2
20	Germany	1.168	0.511	0.47	0.186	1.33	0.459	0.655	0.212
21	Poland	1.067	0.521	0.347	0.2	1.09	0.49	0.396	0.204
22	Portugal	1.255	0.549	0.471	0.235	1.46	0.525	0.659	0.272
23	Romania	1.134	0.559	0.394	0.181	1.12	0.515	0.432	0.178
24	Slovakia	1.164	0.554	0.416	0.194	1.29	0.497	0.58	0.216
25	Slovenia	1.215	0.494	0.502	0.219	1.28	0.47	0.576	0.23
26	Spain	1.13	0.566	0.367	0.196	1.22	0.547	0.461	0.212
27	Sweden	1.433	0.693	0.454	0.287	1.44	0.517	0.635	0.288
28	United Kingdom	1.402	0.507	0.662	0.234	1.36	0.472	0.662	0.227

Source: European Commission and Global Petrol Prices

Figure 3. The Gasoline Price Structure by Countries



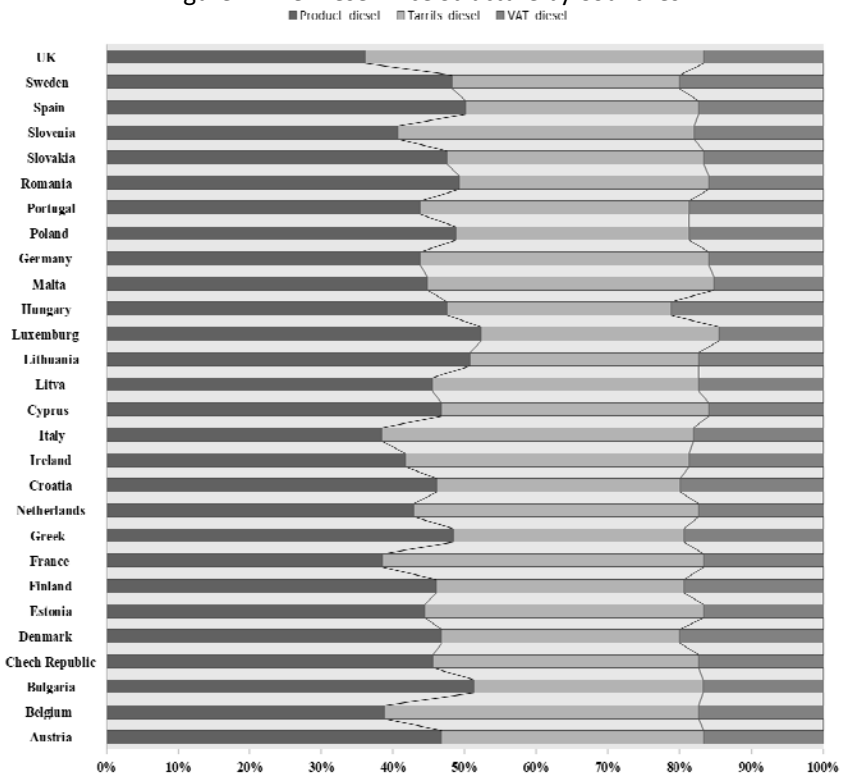
Source: Authors' presentation according to the European Commission and Global Petrol Prices data

The price structure of gasoline from the aforementioned table for analyzed countries (Figure 3) indicates that the largest share in the structure of this fuel have tariffs with slightly more than 45%, while the smallest share has a value added tax with around 15% of the price.

On the other hand, in the structure of the diesel price on the European market, it can be said that the largest share have tariffs as a part of the price from over 45%, while the smallest share has an added value tax with around 15% (Figure 4).

"The price at the pump is driven to a large degree by tariffs and taxes and, on average, over half the cost of fuel at the pump represents taxes. The taxes on gasoline are generally higher than for diesel. This differential tax treatment has driven a demand shift over the past 20 years. Fuels taxes contribute substantially to Member States' revenues" (Fluels Europe, 2018, pp. 37).

Figure 4. The Diesel Price Structure by Countries



Source: Authors' presentation according to the European Commission and Global Petrol Prices data

4. Research results and Discussion

After conducting the cluster analysis using the hierarchical grouping procedure based on the linkage method from the collected data, the agglomeration scheme was first obtained for the structure of the price of gasoline. Namely, in the mentioned agglomeration scheme, important information of countries clustering were obtained according to clusters based on the price structure of gasoline as well as information of the number of clusters were obtained. As it can be seen from the Table 2 in the first column of this table, the steps or stages in the grouping process are shown.

In the second and third columns of the Table 2, the numbers of objects or clusters that are joined in each successive step are given. Thus, the first step shows the countries that are joining: these are countries under serial numbers

12 and 28. In the Coefficients column, the square of the euclidean distance between the countries listed is given. In the next column, Step Cluster First Appears indicate the step in which the cluster is first formed.

Table 2. Agglomeration Scheme for Clusters of the Gasoline Price Structure

Stage	Cluster Combined		Coefficients	Stage Cluster First Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	12	28	.000	0	0	20
2	7	27	.000	0	0	15
3	14	26	.000	0	0	12
4	11	25	.000	0	0	13
5	6	24	.000	0	0	13
6	8	22	.000	0	0	15
7	2	20	.000	0	0	14
8	17	18	.000	0	0	16
9	1	16	.000	0	0	16
10	10	13	.000	0	0	17
11	5	9	.000	0	0	17
12	14	15	.000	3	0	19
13	6	11	.000	5	4	22
14	2	19	.001	7	0	20
15	7	8	.001	2	6	24
16	1	17	.001	9	8	23
17	5	10	.002	11	10	24
18	21	23	.002	0	0	21
19	4	14	.003	0	12	23
20	2	12	.005	14	1	22
21	3	21	.008	0	18	25
22	2	6	.013	20	13	26
23	1	4	.021	16	19	25
24	5	7	.033	17	15	27
25	1	3	.055	23	21	26
26	1	2	.176	25	22	27
27	1	5	.558	26	24	0

Source: Authors' calculation

The last Column Next stage indicates the step in which the other country or cluster merges with the given cluster. From this column it can be seen that in the first place, for instance, we have a label 20, which means that in step 20, the country under the number 12 associates with the country under the serial number 28, and form a cluster. The biggest changes in the agglomeration scheme for the structure of the price of gasoline appear in the last three steps, which implies the number of clusters in which the countries will group together (Table 2).

After the cluster analysis and the data obtained in the agglomeration scheme, based on the largest changes in the coefficient values in the last three steps, the countries are divided into three clusters as can be seen in Table 3. Having in mind that 12 and 28 countries from the above example (Ireland and UK) are in the second cluster.

Table 3. Cluster Analysis for Gasoline Prices

	Cluster 1	Cluster 2	Cluster 3	
Countries	Austria Bulgaria Czech Republic Cyprus Litva Lithuania Luxemburg Hungary Poland Romania Spain	Belgium Estonia Croatia Ireland Malta Germany Slovakia Slovenia UK	Denmark Finland France Greek Netherlands Italy Portugal Sweden	
Number	12	9	8	

Source: Authors' presentation

In the agglomeration scheme that arises as a result of a cluster analysis carried in order of grouping countries according to the structure of the diesel price, there are also three major changes in the coefficients in the last steps of the analysis. Accordingly, the countries are divided into three clusters, but now in a somewhat different order than clusters related to the structure of the price of gasoline (Table 4) For instance, in the first step we can see that the country 18 and country 24 (Hungary and Slovakia) are merging into one cluster (Table 4).

Table 4. Agglomeration Scheme for Clusters of the Diesel Price Structure

Stage	Cluster Combined		Coefficients	Stage Cluster First Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	18	24	.000	0	0	5
2	10	22	.000	0	0	6
3	11	25	.000	0	0	17
4	23	26	.000	0	0	9
5	18	20	.000	1	0	7
6	10	12	.000	2	0	16
7	4	18	.000	0	5	13
8	5	6	.000	0	0	16
9	15	23	.000	0	4	12
10	13	27	.000	0	0	18
11	2	9	.000	0	0	19
12	1	15	.000	0	9	21
13	4	19	.001	7	0	21
14	16	21	.001	0	0	23
15	3	17	.001	0	0	23
16	5	10	.001	8	6	22
17	11	14	.002	3	0	22
18	13	28	.002	10	0	26
19	2	7	.003	11	0	20
20	2	8	.005	19	0	24
21	1	4	.008	12	13	25
22	5	11	.011	16	17	24
23	3	16	.014	15	14	25
24	2	5	.029	20	22	26
25	1	3	.059	21	23	27
26	2	13	.110	24	18	27
27	1	2	.338	25	26	0

Source: Authors' calculation

After the cluster analysis and the data obtained in the agglomeration scheme, based on the largest changes in the coefficient values in the last three steps, the countries are divided into three clusters as can be seen in Table 5. Having in mind that 18 and 24 countries from the above example (Hungary and Slovakia) are in the first cluster.

Table 5. Cluster Analysis for Diesel Prices

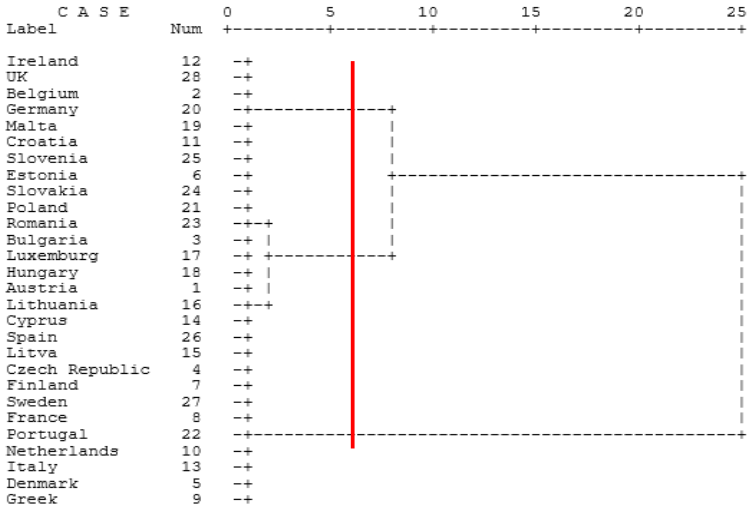
	Cluster 1	Cluster 2	Cluster 3	
Countries	Austria Bulgaria Czech Republic Litva Lithuania Luxemburg Hungary Malta Germany Poland Romania Slovakia Spain	Belgium Denmark Estonia Finland France Greek Netherlands Croatia Ireland Cyprus Portugal Slovenia	Italy Sweden UK	
Number	13	12	3	

Source: Authors' presentation

The dendogram is the result of a cluster analysis in the form of a tree showing objects that are grouped together. On the vertical axis of the dendogram, the country numbers are given. The horizontal axis shows the distance where countries or groups of countries join together. For practical reasons, the distance has been calculated. Vertical lines represent countries that associate. Elements that are more similar to each other combine at a low height, while objects that differ from each other are combined at a higher altitude on the dendrogram.

Therefore, the difference in height shows us how close the elements are to each other. The greater the difference between the heights in which the clusters are combined, the easier it is to see the data structure. In the dendrogram, atypical values (ie, outlier) or data very different from others are seen as an isolated branch. The division of data into a number of groups can be obtained by cutting the dendrogram at the appropriate height. If we draw a vertical line on the dendrogram at a certain height, then we get one possible solution for grouping the elements. The number of vertical lines below and the vertical line indicates the number of clusters, and the elements located at the end of all branches below that vertical line are made up of cluster members. The dendogram for clusters which are made for the gasoline price structure is showed in Figure 5.

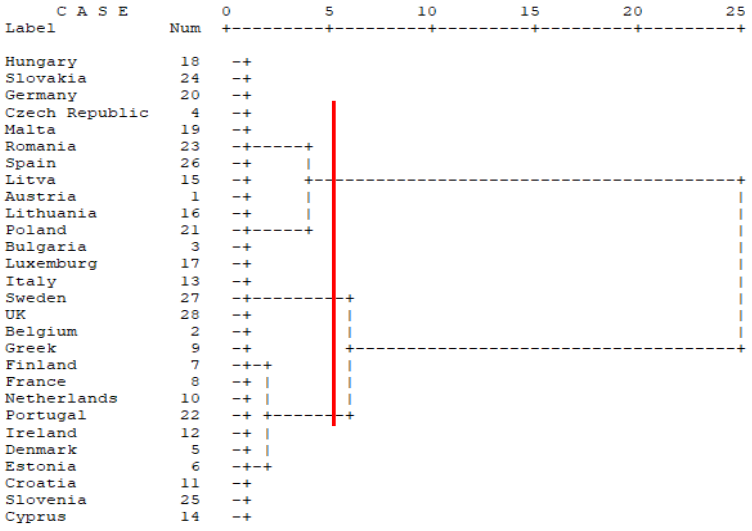
Figure 5. Dendogram for the Gasoline Price Structure



Source: Authors' calculation

Also, the dendogram for clusters which are made for the diesel price structure is showed in Figure 6.

Figure 6 .Dendogram for the Diesel Price Structure



Source: Authors' calculation

4.1 Regression Modelling of Oil Price Structure

In order to determine in detail the strength of the relationship between the elements that make up the structure of the price of gasoline or diesel authors have conducted a multiple linear regression. Briefly, this regression analysis aims to investigate whether independent variables explain a significant part of the variability of the dependent variable. In this case, the authors have the ultimate goal of explaining the impact of the independent variables such as product price, tariffs and VAT on the dependent variable - the price of gasoline / diesel using a regression equation. First of all, it is necessary to determine the validity of the regression model itself and the degree of the mentioned variability. During the implementation of the regression analysis procedure, the authors selected the Enter method for the inclusion of independent variables into the regression model. Namely, this model implies the inclusion of all independent variables in the model at the start of the analysis without any restrictions. Regarding the regression model for the price structure of the gasoline, the coefficient of determination of the regression model is 0.99 (Table 6), which indicates that 99% of the variability of the dependent variable can be explained by the specified independent variables.

Table 6. Regression model summary for the gasoline price structure

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.999[a]	.998	.998	.00639	.998	4548.341	3	24	.000	1.842

Source: Authors' calculation

Based on the realized level of significance in the ANOVA table (Table 7) we conclude that the coefficient of determination is statistically significantly different from zero.

Table 7 ANOVA for the gasoline price structure

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.557	3	.186	4548.341	.000[a]
	Residual	.001	24	.000		
	Total	.558	27			

Source: Authors' calculation

The following table provides regression coefficients for the independent variables and tested the hypothesis that they are different from zero. Considering the values in the column Sig. it is concluded that an alternative hypothesis is accepted that the coefficients are different from zero and can serve as significant predictors of dependent variables in the form of a price structure of fuel. A very important fact is the absence of multicolinearity, with the tolerance level approximately equal to 1, for each independent variable. Standardized regression Beta coefficients in Table 8 for the regression model of the price structure of the gasoline price do not depend on the variable measurement unit, and therefore provide a better insight in comparing the significance of some independent variables in predicting the dependent variable.

Table 8. Regression coefficient for the gasoline price structure

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	.031	.023		1.333	.195	-.017	.078					
	Product_gasoline	.935	.045	.192	20.800	.000	.842	1.027	.176	.973	.178	.858	1.165
	Tariffs_gasoline	.949	.016	.749	58.855	.000	.916	.982	.941	.997	.503	.451	2.217
	VAT_gasoline	1.141	.049	.300	23.230	.000	1.039	1.242	.863	.978	.199	.439	2.278

Source: Authors' calculation

In the regression model of the price structure of gasoline in the European market, the most important in predicting dependent variables are tariffs with a Beta coefficient value of 0.75. The significance of this variable is confirmed by the previously analyzed structure of the price of gasoline in which Tarrifs participates with 45%. The regression equation based on the obtained Beta coefficients for the price of gasoline is as follows:

$$Price_{Gasoline} = 0{,}192 \times Product_{Gasoline} + 0{,}749 \times Tariffs_{Gasoline} + 0{,}300 \times VAT_{Gasoline} \quad (1)$$

Regarding the regression model of the diesel price structure, the coefficient of determination in the regression model is 1.00 (Table 9), which indicates that the 100% variability of the dependent variable can be explained by the specified independent variables.

Table 9. Regression model summary for the diesel price structure

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	1.000	1.000	1.000	.00053	1.000	396962.452	3	24	.000	2.041

Source: Authors' calculation

Based on the realized level of significance in ANOVA table (Table 10) authors conclude that the coefficient of determination is statistically significantly different from zero.

Table 10. ANOVA for the diesel price structure

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.338	3	.113	396962.452	.000[a]
	Residual	.000	24	.000		
	Total	.338	27			

Source: Authors' calculation

Table 11. Regression coefficient for the diesel price structure

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	.001	.002		.707	.486	-.002	.005					
	Product_diesel	1.000	.004	.381	277.833	.000	.993	1.007	.390	1.000	.255	.447	2.237
	Tariffs_diesel	1.001	.002	.762	607.904	.000	.998	1.004	.809	1.000	.557	.534	1.872
	VAT_diesel	.991	.005	.285	191.533	.000	.980	1.002	.826	1.000	.176	.380	2.632

Source: Authors' calculation

Table 11 provides regression coefficients for independent variables within the structure of the price of diesel and the hypothesis is tested that they

are different from zero. Considering the values in the column Sig. (Table 11) it is concluded that an alternative hypothesis is accepted that the coefficients are different from zero and that they can serve as significant predictors of the dependent variable structure of the price of diesel. There is also the absence of ulticollinearity here, with the tolerance level approximately equal or less than 1, for each independent variable.

In the regression model of the diesel price structure tariffs have the highest importance in predicting dependent variables, with the value of 0.76 as an independent variable. The regression equation based on the obtained Beta coefficients for the price of diesel is as follows:

$$Price_{Diesel} = 0{,}881 \times Product_{Diesel} + 0{,}762 \times Tariffs_{Diesel} + 0{,}288 \times VAT_{Diesel} \quad (2)$$

The significance of this variable is confirmed by the previously analyzed structure of the price of diesel in which Tarrifs participates with more than 45%.

5. Conclusion

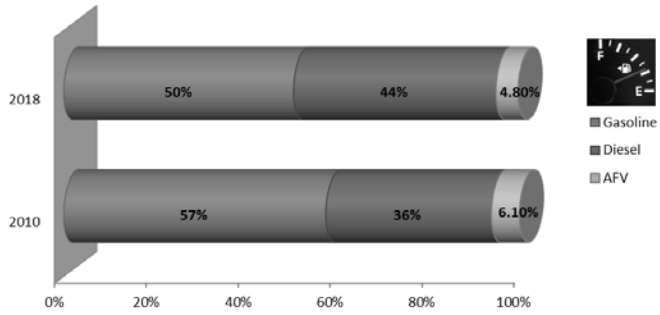
The European oil industry has always been considered dynamic, demanding, and complex. New challenges have emerged, which have required more rigorous economic analysis of price structure, and broader cooperation among producers and consumers. In fact, over the last ten years, there have been significant market volatility, which has influenced the price differences between European Union countries.

After the conducted regression analysis, the authors find out that tariffs have the greatest influence on the determination of the price of gasoline and diesel. Consequently, consumers buy the fuel type on which price determination tariffs have the lesser impact, because every increase in tariffs leads to an increase in fuel prices. If tariffs take significant part in the creation of fuel prices, the fuel price will be higher. Regression equation has found that tariffs of gasoline have less share in the creation of the gasoline price (0.749) compared to tariffs of diesel (0.762). This is in favor of the fact that in 2018 the European market achieved the smallest purchase of diesel-fueled vehicles since 2001 and the purchase of diesel vehicles was reduced by 18%. The highest decrease was recorded in the United Kingdom and the Benelux countries of 22%. Also, the largest number of registered vehicles on the European market in 2018 use gasoline as a driving fuel- 50% of all registered vehicles (Figure 7).

In this way, gasoline vehicles made progress by 7 percentage points in relation to 2017, as well as progress by 12 percentage points over the past 10 years, thus making a significant benefit regarding vehicles using diesel as a fuel.

On the other hand, when talking about vehicles on diesel, 44% of these vehicles were registered in the previous year of the total number of registered vehicles on the European market. According to that, there has been a decline of 8 percentage points and 19 percentage points over the past 10 years when we are talking about buying these vehicles, which implies that 2018 is the peak year for this fuel type. Consequently, there has been an increase in the purchase of gasoline vehicles as much as one million, as well as an increase in the purchase of alternative fueled vehicles for 200,000 new registrations in the previous year. These facts prove the validity of the regression equation and the necessity of the cluster analysis. Also, above mentioned facts confirmed by the first hypothesis of this research paper.

Figure 7. Registered Vehicles Comparison According to Fuel Type on the European market 2010 vs. 2018



Source: Authors' calculation according to www.jato.com

In terms of longer term perspective, the future of the oil market will be characterized by the following trends:

- Total primary energy demand will increase from 274 mboe/d in 2015 to 365 mboe/d in 2040, representing an increase of 91 mboe/d – or average annual growth of 1.2 per cent. Almost 95 per cent of this increase is accounted for by developing countries;
- Oil will retain the highest share in the global energy mix, with nearly 28 per cent in 2040, and will remain a major source to satisfy growing energy demand worldwide in the period to 2040;
- Medium-term global oil demand will grow to reach 104.5 mb/d by 2023 and, in the long-term, is expected to increase by 14.5 mb/d to reach 111.7 mb/d by 2040,
- The largest demand for oil comes from the road transportation sector and the petrochemical sector (World Petroleum Council, 2018, pp. 6). The

prospects for oil prices rising remain weak due to fears of a global economic slowdown, trade war, and concerns reading production cuts.

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LABOUR MARKET EFFICIENCY - CASE OF EU MEMBERS AND CANDIDATE COUNTRIES

Sandra Milanović, M.Sc[1]
Ivana Marjanović, M.Sc [2]

The main purpose of this study is to identify the groups of countries within EU and candidate countries that share a similar level of labour market efficiency. In addition, the differences among identified groups of counties will be tested to determine whether there is a connection between achieved levels of labour market efficiency and employment rates. In order to determine the groups of similar countries within the EU and candidate states, according to the achieved values of labour market efficiency indicators cluster analysis will be applied. The differences among identified groups of countries will be determined using non-parametric Kruskal Wallis test. The results of the analysis reveal that there are statistically significant differences in labour market efficiency values in the last three years of the analysis (2015, 2016 and 2017). The statistically significant differences are identified between candidate countries and countries that founded EU and joined before 2004. Additionally, results of cluster analysis and non-parametric tests indicated that clusters with efficient labour market have high employment rates. The conducted research provides useful guidelines not only for the candidate countries, for which it was revealed to belong to a group of countries with the lowest level of labour market efficiency, but also for member states in terms of identification of best practices, that is, countries to whose model of functioning should they strive to. Economic policy makers can create adequate economic policies in the area of labour market and direct the development of the country's labour market according to the model of the most efficient countries.
Key words: Labour market efficiency, Cluster analysis, Non-parametric test

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[1] Research trainee, Innovation Center of the University of Niš, sandra.milanovich@eknfak.ni.ac.rs, Univerzitetski trg 2, 18000 Niš.
[2] Research trainee, Innovation Center of the University of Niš, ivana.veselinovic@eknfak.ni.ac.rs, Univerzitetski trg 2, 18000 Niš.

1. Introduction

Competitiveness is one of the most widely used terms to describe the level of the economy's ability, "in terms of free market conditions, to produce products and provide services being reviewed by international markets, while maintaining and expanding real incomes and improving living conditions of people in the long run" (Ivanová, Čepel, 2018, p. 56). There are numerous indicators of competitiveness which are measuring economies or businesses in the sense of a progress. In this manner, Gross Domestic Product (GDP) is widely used as indicator of national performance. Except from economic welfare, there is a need for measurement of non-economical progress of any national economy. GDP was changed with a wide variety of broader indicators of one country's progress (Kubiszewski et al., 2013). For this purpose, literature proposes several indicators that introduce a multi-level approach for evaluating prosperity of society such as: Environmental Performance Index (EPI), Environmental Sustainability Index (ESI), Climate Change Performance Index (CCPI), Genuine Progress Indicator (GPI), Happy Planet Index (HPI), Happiness/Life Evaluation Index, OECD Better Life Initiative, Human Development Index (HDI), Index of Sustainable Economic Welfare (ISEW) and Global Competitiveness Index (GCI) etc. (Costanza et al., 2009; Popescu et al., 2017; Günseli, 2018).

Ostoj (2015) assesses the economy's competitiveness by one of the pillars of GCI - Labour Market Efficiency (LME). Vesal et al. (2013) consider that labour market will be efficient if it has an ability to flexibly manage their workforce and quickly hire and fire employees. Accordingly, Mohaghar et al. (2018) perceive efficiency and flexibility of the labour market as critical drivers of work force allocation to the most effective use and for motivation to give a maximum of their efforts to complete work obligations.

The paper's aim is to offer acceptable classification of 28 EU member states and 6 candidate countries in order to create homogeneous groups of countries on the same level of LME as the seventh pillar of GCI. Additionally, created groups should have different levels of employment rates in the line with assessed level of their efficiency of labour market.

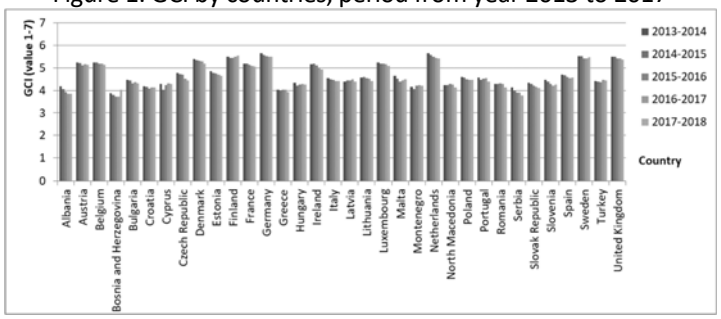
To achieve the proposed objectives the paper is structured as follows: the first section introduces the research topic; after that the second part gives a brief review of literature which deals with concept of competitiveness and efficiency of labour market; the third section describes research methodology through the sample, the variables, the methods used for the empirical investigation and proposes the research hypotheses; the fourth part presents

the obtained results and discussions; the last section summarizes the conclusions.

2. Theoretical background

The Global Competitiveness Index (GCI) measures aspects which are having a major influence on productivity and growth of almost 140 countries throughout 40 years period of time. It puts special emphasize on drivers of economic success: enabling environment, markets, human capital and innovation ecosystem. In addition, all countries are put in one of three stages of development: (1) factor-driven stage, (2) efficiency-driven stage and (3) innovation-driven stage (Porter et al., 2002). Having seen the newest trends in the world economy, the latest year report highlights these features in the context of the Forth Industrial Revolution. This index consists of 114 indicators rated on the scale 1 (the lowest) - 7 (the highest). It is designed to measure global competitiveness divided in groups of 12 pillars: Institutions, Infrastructure, ICT adoption, Macroeconomic stability, Health, Skills, Product market, Labour market, Financial system, Market size, Business dynamism and Innovation capability (Schwab, 2017). The aim of such a complex indicator of a country's competitiveness is "to determine a general classification of countries according to competitiveness, in order to build an overall predictor of productivity" (Popescu, 2017, p. 4). To illustrate the behaviour of GCI, following figure is presented.

Figure 1. GCI by countries, period from year 2013 to 2017



Source: Authors' presentation based on World Economics Forum, reports.weforum.org (23.4.2019.)

Regarding Figure 1, EU member countries and candidate countries alike have experienced decreases in GCI over the last five years. A slowdown in productivity is also seen in this period. One of the stated reasons for this

situation is “long-term deskilling effect among younger workers of countries with a slowdown of productivity, sustained unemployment, inadequate investment caused by high levels of indebtedness and near-zero interest rates encouraging the misallocation of capital” (Schwab, 2017, p.3).

Ostoj (2015) points out that LME, as one of the competitiveness pillars of GCI influences the level of country’s productivity and therefore its competitiveness, as a result “it is worth knowing the specificity and context of this value” (p. 82). LME was launched as a separate pillar in 2007 and there had been few changes in its structure thorough history. Since GCR 2013-2014, there are 10 elements of LME valued on the scale from 1 to 7 and divided in two groups (Table 1). Group A consists of five indicators which are measuring the flexibility of workers or their possibility to change jobs fast and at low costs, and flexibility of wage or its fluctuations without negative social effects. Group B also has five indicators that are assessing factors of workers’ performance and attractiveness of a country for talents.

Table 1. The structure of LME pillar

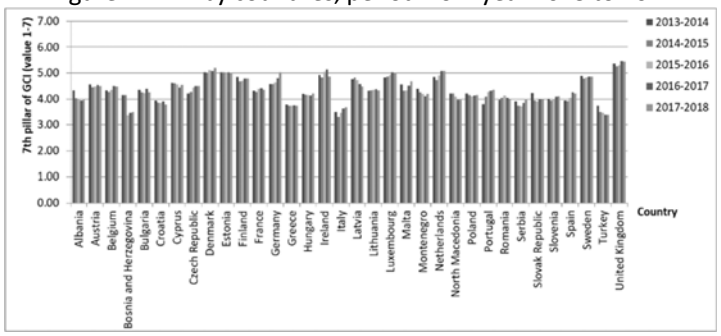
Group	*Indicator*
A. Flexibility	Cooperation in labour-employer relations
	Flexibility of wage determination
	Hiring and firing practices
	Redundancy costs
	Effect of taxation on incentives to work
B. Efficient use of talent	Pay and productivity
	Reliance on professional management½
	Country capacity to retain talent
	Country capacity to attract talent
	Female participation in labour force

½ - value of this factor is entering with half of its value because it already exists in other pillar

Source: Authors’ presentation based on World Economics Forum, reports.weforum.org (19.4.2019.)

Findings of Ostoj (2015) suggest that Scandinavian and British regimes are the most efficient in global competitiveness of labour markets. Southern countries of EU scored the lowest LME, while post-socialist countries reached the average value of LME and in the whole higher values than Southern Europe. The values of five-year trend of LME for 34 European countries are presented in Figure 2.

Figure 2. LME by countries, period from year 2013 to 2017



Source: Authors' presentation based on World Economics Forum, reports.weforum.org (21.4.2019.)

Mohaghar et al. (2018) have compared OECD countries on the basis of their value of each indicator of LME in GCI report 2017-2018. They put emphasize on benchmark countries of every indicator. In positive indexes countries with the highest scores were indicated as benchmarks and opposite. According to this methodology, of EU countries, Denmark, Estonia, Austria, Greece, Germany, the Netherlands and United Kingdom were suitable to be benchmarked for some LME indicators. Contrary to that, Turkey, Finland, France, Slovenia, Luxembourg, Italy, Hungary, Greece had drawn an attention as countries with the lowest scores of some indicators comparing to benchmarked country. Moreover, the authors had found that the most significant indicators of LME for OECD countries are redundancy cost, the effect of taxation on incentives to work and country capacity to attract/retain talent. Lastly, Denmark, Austria and Italy took the first three places for LME.

Literature founded on grouping EU countries in clusters suggests that there are differences between the methodology of GCI reports and the results of their research. Popescu et al. (2017) indicate that even though GCI reports recognizes three stages and two intermediary levels of countries development level, their study of 30 EU countries found that countries in Stage 3: Innovation-driven (according to GCI report) were divided into three clusters in their analysis. Correspondingly, one cluster was made of countries which belong to Stage 3: Innovation-driven, intermediary level Transition from stage 2 to stage 3 or to Stage 2: Efficiency-driven. Additionally, Molendowski and Folfas (2018) analysis discovers statistical differences concerning two clusters of 10 newly joined countries (1) Czech Republic, Estonia and Slovenia, and (2) Bulgaria, Romania, Lithuania, Latvia, Poland, Slovenia, Slovakia and Hungary, based on values of GCI for twelve-year period.

3. Research Methodology and Hypothesis

Data regarding values of LME of 34 countries (28 EU member states and 6 candidate countries) was collected by selecting information from GCI reports. This data is provided by World Economic Forum. Employment rates (% of total population age between 15 and 64) for the sample were gathered through secondary data sources that are national statistics and EUROSTAT. Analysed period of time includes five years, from 2013-2014 until 2017-2018. The collected data were analyzed using the program IBM SPSS, version 23.

In order to assess the labour efficiency of various countries that are subject of the study and to group them on that basis, the two-step analysis will be applied. In the first step, the countries will be clustered into similar groups using cluster analysis, while in the second step, non-parametric test will be used in order to assess the differences among groups.

Cluster analysis represents a statistical technique for determining relatively homogeneous groups of objects. It is used in different branches of science for the categorization or classification of individual units of analysis (objects or subjects) in view of their similarity or diversity according to some of their measured characteristics. Cluster analysis allows identification of the complex relations among variables.

The cluster analysis results in groups of relatively homogeneous objects, where the variability between the objects of the group is minimal, while the variability among the groups is the largest possible

Cluster analysis has certain advantages over other statistical analyses. Namely, in order to perform cluster analysis, it is not necessary to categorize variables in terms of determining dependent and independent variables. It also has advantages over some optimization methods because it does not require the determination of the relative significance of the variables used in the analysis, but all variables are considered to be equally significant.

Additionally, formal requires of normality, homoscedasticity and linearity are not important for cluster analysis. However, two assumptions need to be fulfilled (Poledníková, 2014): representativeness of the sample and multicollinearity among the variables.

In order to perform cluster analysis, it is necessary to follow several steps (Milligan, 1996):

1. Selection of a sample that will undergo cluster analysis – objects (entities);

2. Definition of a set of relevant variables that will represent the characteristics of objects (entities);

3. Standardization of variables;

4. Determination of the similarity/dissimilarity measure;

5. Selection of a clustering method;

6. Identification of the number of clusters;

7. Validation of the obtained results.

Regarding the similarity/distance measure it represents the measurement of the distance of two objects according to some measured characteristic. "Similarity/distance measures map the distance or similarity between the symbolic descriptions of two objects into a single numeric value, which depends on two factors – the properties of the two objects and the measure itself" (Huang, 2008, p. 51). Similarity measures show the closeness between the two objects, while distance measures show their distance between the two objects. The distance measurements of close, related objects, are small, while similarity measures are large. These concepts are particularly important in cluster analysis since clustering is based on them.

There are a number of different similarity/distance measurements between objects. The choice of measure is conditioned by the importance of some data characteristics in a specific situation in which objects are clustered. Some of the most used metrics stated in the literature are (Shirkhorshidi et al., 2015):

- The Euclidean distance between two objects is calculated as the square root of the sum of squared differences between corresponding values according to the formula:

$$Distance\ (X,Y) = \sqrt{\sum (X_i - Y_i)^2} \quad (1)$$

- The Squared Euclidean distance of two objects is defined as the sum of squared differences between corresponding values:

$$Distance\ (X,Y) = \sum (X_i - Y_i)^2 \quad (2)$$

Euclidean distances and Squared Euclidean Distances represent an often used metrics, because they allocate gradually greater weight on objects that are further apart (Mooi, Sarstedt, 2011).

- The Cosine represents a metric of similarity and is calculated as the cosine of the vector for two variables

$$Similarity\ (X,Y) = \frac{\sum X_i Y_i}{\sqrt{\sum {X_i}^2 \sum {Y_i}^2}} \quad (3)$$

- Pearson measure represents the Pearson correlation coefficient between two objects and it is used as a similarity metric.

- Manhattan distance or City block distance represents the difference between two objects expressed as the sum of absolute value of differences

between corresponding values. One of the advantages of this metric is that is less sensitive to the outliers than the Euclidean and squared Euclidean metrics.

$$Distance\ (X,Y) = \sum|X_i - Y_i| \quad (4)$$

- Chebyshev distance represents the distance between the two objects expressed as the maximum of absolute differences between the corresponding values:

$$Distance\ (X,Y) = max|X_i - Y_i| \quad (5)$$

- Minkowski distance represents a generalization of the Euclidean and Manhattan distances (Han et al. 2011) and is determined using the relation:

$$Distance\ (X,Y) = \sqrt[p]{\sum|X_i - Y_i|^p} \quad (6)$$

Within the cluster analysis, there are many different algorithms that generally respond to the same problems. It should be kept in mind that, regardless of the manner in which the cluster analysis is performed, the result of the cluster analysis is always the classification of objects in some groups, which, depending on the used technique, can lead to different solutions.

Clustering algorithms are classified in hierarchic methods and non-hierarchic methods (Grabmeier, Rudolph, 2002).

The hierarchical method builds the clusters step by step. There are two categories of hierarchical methods: agglomerative and divisive methods.

Agglomerative methods in the first step treat each object as a separate cluster. Then the two closest objects (with the highest similarity or with the lowest dissimilarity) are merged into a new group or cluster. After that, in the third step, the similarity (or the dissimilarity) of the formed cluster with the rest of the objects is determined, and the next two groups/objects with the highest similarity are merged together (Álvarez de Toledo et al., 2013). At each subsequent step, some objects are merged into new clusters or existing clusters are interconnected. Close groups are gradually merged until eventually all units can be found in one group. The result of the hierarchical clustering is a dendrogram or tree diagram.

On the other hand, division methods conduct the process of clustering in the opposite direction. Starting from one group which contain all objects, according to a certain criterion, the group is divided into smaller groups, until there are as many groups as there are individual objects. However, the divisional hierarchical method is applied far less than agglomeration.

Since the hierarchical method, in the end, results in merger of all groups into one (or, in the opposite case, in the division of the initial unique group into entities) it is necessary to determine the optimal number of groups. In essence, the grouping should be discontinued just before very distant groups merge, or,

in the opposite case, before the division into groups that are not significantly distant.

The hierarchical methods have one specificity: after the merger of two groups, there is no more possibility of their separation, and similarly, after the separation of the two groups they can no longer be part of the same cluster (Caruso et al., 2017).

The second group of methods, non-hierarchical or partition clustering methods, start from a predetermined number of clusters that the researcher itself defines based on experience, earlier analyses or statistical software recommendations. It allows moving of objects from previously formed groups. Moving objects will occur if it is suggested by the chosen optimality criterion. The process of non-hierarchical grouping begins with the initial division of the set of objects into the selected number of groups. There are two ways to objects sorting. The first is to temporarily, in random ways, determine the objects that represent the clustering points (initial centroid), and placement of other objects into the appropriate cluster based on their distance from clustering points. After that, the distance between each object and each group (initial centroid) is determined. Objects are located in the groups that are closest to them in order for groups to be as homogeneous as possible. After joining objects to a group, the centre of the group from which the object has "gone" and the group to which the object "has joined" is recalculated based on the average objects' value. In other words, for each object, its distance from the centroid of a group is calculated and the redistribution of objects between groups is performed. The object moves from one group to another if it is closer to the newly calculated point of the grouping. The process takes place iteratively, up to achieving stability for a predetermined number of groups. This procedure is repeated several times. Another way of clustering is that the sorting takes place on the basis of an a priori given criterion. The most popular non-hierarchical method is the k-mean method.

The main question in the application of the selected clustering method is the measurement of the distance, especially in the situation when there are several groups created, and it is necessary to determine the distance between those groups. Therefore, a proper clustering algorithm has to be applied in order to determine when the two groups are similar enough so they can be linked together. There is a number of clustering algorithm that are categorized into two groups (Murtagh, Contreras, 2011):

1. The first group consists of linkage methods:

- Single linkage (nearest neighbour) represents the method for determination of the distance between two groups based on the distance of the two closest objects in the different groups.
- Complete linkage (furthest neighbour) determines the distance between the two groups based on the distance between the two outermost members.
- Average linkage methods
    - Unweighted pair-group method using arithmetic averages (UPGMA (Sneath, Sokal, 1973)) determines the distance between the two groups as the average distance between all pairs of objects in the two different groups.
    - Weighted pair-group average (WPGMA (Sneath, Sokal, 1973)). The only difference with the previous UPGMA method is in the fact that the dimension of the group (the number of objects) is used as a weight.

2. The second group of methods allows determination of the cluster's center (as an average or a weighted average of the cluster objects):

- Ward's method (Ward, 1963) is based on the analysis of variance approach. The essence of the method is in the following procedure. For each cluster, arithmetic means for each variable are calculated. Then, for each object, the squared Euclidean distance is calculated to the arithmetic mean of the cluster. These distances are summed up for all cluster members. The clusters with the smallest total sum of these deviations are merged. Most of the researchers find this method to be efficient, though, it creates smaller size clusters.
- Unweighted pair-group centroid method using the centroid average (UPGMC (Sneath, Sokal, 1973)) determines the distance between two groups as the difference between centroids, where, centroid represents the point towards which all objects of the group are tending.
- Weighted pair-group method using the centroid average (median) (WPGMC (Sneath, Sokal, 1973)) differs from the previous method in the fact that it considers differences in group dimensions.

Bearing in mind the widespread application of the hierarchical agglomeration method, the same will be used in the cluster analysis of a selected group of countries. In particular, Ward's method for clustering and squared Euclidian distance will be applied.

In order to test the differences among identified groups of countries, in the second step, the Kruskal Wallis test will be applied.

The Kruskal Wallis (KW) test represents the non-parametric substitute for the One Way ANOVA test and an extension of the Mann-Whitney U test.

The advantage of this non-parametric test is that it does not require that the data have some specific distribution (like the assumption of normality). The KW test can be used to determine if there are statistically significant differences in medians between two or more groups.

More precisely, the null hypothesis of KW test is stochastic homogeneity, while stochastic heterogeneity is the alternative hypothesis (Vargha & Delaney, 1998). Ruxton and Beauchamp (2008) describe the stochastic heterogeneity as "a tendency for observations from at least one group to be larger (or smaller) than observations selected from the aggregate across all groups" (p.1083). Generally, this means that there is a difference in a median or a mean of at least one group, hence, the hypothesis of KW test can be defined as:

H0: There is no difference in population medians.

H1: At least one of the population medians differ.

The results of KW test will indicate whether there is a statistically significant difference among groups, but they won't identify the groups that differ.

By applying stated methodology, the analysis will confirm or reject the following research hypotheses:

H1: There are statistically significant differences in the level of LME among EU member states and candidate countries.

H2: It is possible to create homogenous groups of countries according to the level of LME.

H3: Clusters with high level of LME have high employment rates.

4. Research Results and Discussion

In order to test the proposed hypothesis, we applied previously presented methodology. The component of GCI, the value of LME for every state is observed for five-year period of time or from 2013-2014 to 2017-2018, respectively.

It must be said that data for North Macedonia are supposed to be the same for 2017-2018 as in the previous GCI report because there are not available data for that time period. Firstly, 34 analyzed countries were divided into 3 artificial groups. One group (G_1) included first countries which were members of the EU before the largest enlargement in 2004 and those are: Belgium, Germany, Italy, Luxembourg, France, the Netherlands, Denmark, Ireland, United Kingdom, Greece, Portugal, Spain, Austria, Finland and Sweden. The second group (G_2) was made of states that entered in the EU after 2004:

Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Slovak Republic, Slovenia, Czech Republic, Bulgaria, Romania and Croatia. Third and the last group, (G_3) were countries candidates Serbia, Turkey, North Macedonia, Albania, Montenegro and potential candidate Bosnia and Herzegovina.

Table 2. Descriptive statistics of LME values for three groups of EU countries, period 2013-2017

Cluster		*N*	*Mean*	*SD*	*SE*	*95% Confidence Interval for Mean*		*Min.*	*Max.*
						Lower Bound	*Upper Bound*		
2013-2014	K_1	10	4.498	0.545	0.141	4.196	4.800	3.48	5.35
	K_2	9	4.336	0.327	0.091	4.138	4.533	3.94	5.03
	K_3	6	4.120	0.103	0.253	3.854	4.386	3.74	4.39
	K_4	9	4.369	0.440	0.076	4.221	4.517	3.48	5.35
	Σ	34	4.449	0.525	0.135	4.159	4.740	3.29	5.26
2014-2015	K_1	10	4.284	0.348	0.096	4.074	4.494	3.86	5.03
	K_2	9	3.973	0.307	0.125	3.651	4.295	3.48	4.24
	K_3	6	4.302	0.452	0.078	4.150	4.454	3.29	5.26
	K_4	9	4.544	0.519	0.134	4.257	4.832	3.46	5.31
	Σ	34	4.288	0.329	0.091	4.089	4.486	3.83	5.00
2015-2016	K_1	10	3.794	0.338	0.138	3.438	4.149	3.36	4.18
	K_2	9	4.314	0.495	0.848	4.147	4.480	3.36	5.31
	K_3	6	4.638	0.512	0.132	4.355	4.922	3.64	5.46
	K_4	9	4.314	0.313	0.087	4.124	4.503	3.89	5.03
	Σ	34	3.781	0.289	0.118	3.478	4.084	3.39	4.10
2016-2017	K_1	10	4.363	0.506	0.087	4.193	4.533	3.39	5.46
	K_2	9	4.635	0.515	0.133	4.350	4.921	3.67	5.44
	K_3	6	4.305	0.333	0.092	4.104	4.506	3.77	5.02
	K_4	9	3.825	0.310	0.127	3.499	4.151	3.39	4.18
	Σ	34	4.366	0.505	0.087	4.196	4.536	3.39	5.44
2017-2018	K_1	10	4.498	0.545	0.141	4.196	4.800	3.48	5.35
	K_2	9	4.336	0.327	0.091	4.138	4.533	3.94	5.03
	K_3	6	4.120	0.103	0.253	3.854	4.386	3.74	4.39
	K_4	9	4.369	0.440	0.076	4.221	4.517	3.48	5.35
	Σ	34	4.449	0.525	0.135	4.159	4.740	3.29	5.26

Source: Authors' calculations.

According to previous table of descriptive statistics, group G_1 showed the highest mean values of LME and as expected, the group G_3 has the smallest. LME is rising in value after 2014—2015 in all three groups. The group of candidate countries has a standard deviation of mean value every year very similar to group of EU countries joined in 2004 and later, so differences between states joined after 2004 and candidate countries are not notable. Also, this value is higher than for the group of countries joined before 2004

meaning that the G_1 group records bigger differences in LME among countries than in other groups.

The first hypothesis, defined that there are statistically significant differences in the level of LME among EU member states and candidate countries in the period 2013-2017, non-parametric tests were performed. These tests were conducted because of the small sample size and not equal number of countries in obtained three groups. Therefore, Independent-Samples Kruskal-Wallis 1-way ANOVA Test was applied for researching differences between groups.

Table 3 presents statistically significant differences among three groups.

Table 3. Independent-Samples KW Test

Null hypothesis (H0): The distribution of 7th pillar: Labour market efficiency values is the same across categories	*Independent-Samples KW Test*	
	Sig.	*Decision*
2013-2014	.177	Retain the H0
2014-2015	.066	Retain the H0
2015-2016	.005*	Reject the H0
2016-2017	.002*	Reject the H0
2017-2018	.002*	Reject the H0

* Asymptotic significances are displayed. The significance level is 0.05.

Source: Authors' calculations.

Value of the seventh component of GCI, LME, does not statistically differ among identified three groups of states in the first two observed years. This means that distribution of 7th pillar value is the same across categories of countries. On the other hand, LME statistically differ among three groups of states in 2015-2016, 2016-2017 and 2017-2018 (Sig. <0.05). It can be concluded that hypothesis H1 is partially confirmed.

Conducting post-hoc test, pairwise multi-comparison of means was used for determining which groups of countries differ between themselves in each observed year. A cut-off point of $p \leq 0.05$ was set for determining the significance of the findings. Table 4 presents obtained data of pairwise comparisons of groups.

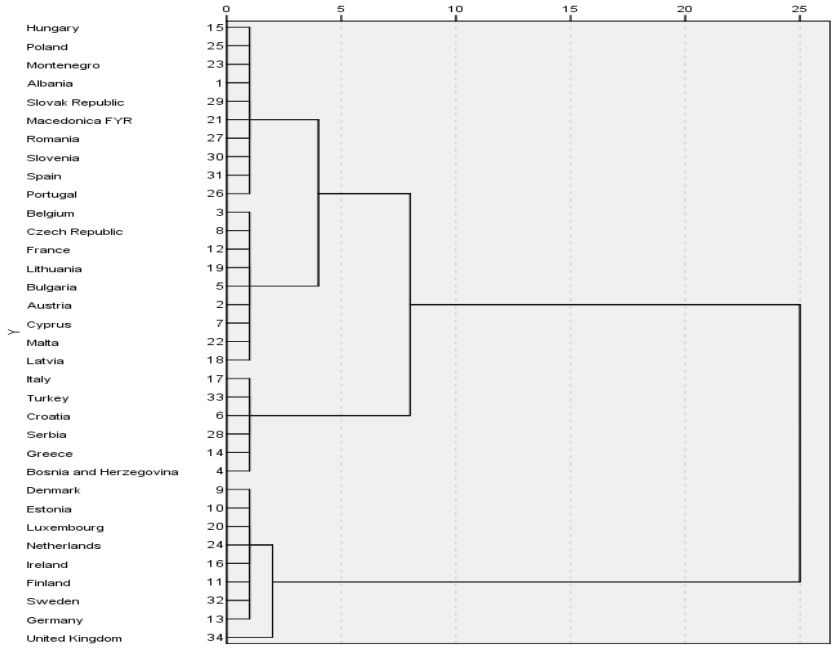
The analysis shows that there are only significant differences between candidate countries and countries members of the EU, which were its founders and which joined the EU before 2004. Furthermore, no significant differences were found between candidate countries and member states joined in big enlargement in 2004 and later nor between two groups of EU member states.

Table 4. Pairwise Comparisons of groups of countries

Group 1 → Group 2	*Year*	*Test Statistics*	*Std. Error*	*Std. Test Statistics*	*Sig.*	*Adj. Sig.*
Candidates → Members before 2004	2015-2016	15.500	4.810	3.222	.001	.004*
	2016-2017	16.967	4.810	3.527	.000	.001*
	2017-2018	16.567	4.810	3.444	.001	.002*

Each row tests the null hypothesis that the group 1 and group 2 distributions are the same.
*Asymptotic significances (2-sided tests) are displayed. The significance level is .05.
Source: Authors' calculation

Figure 3. Dendogram Using Ward Linkage (Rescaled Distance Cluster Combine), LMEvalues in 2013-2017



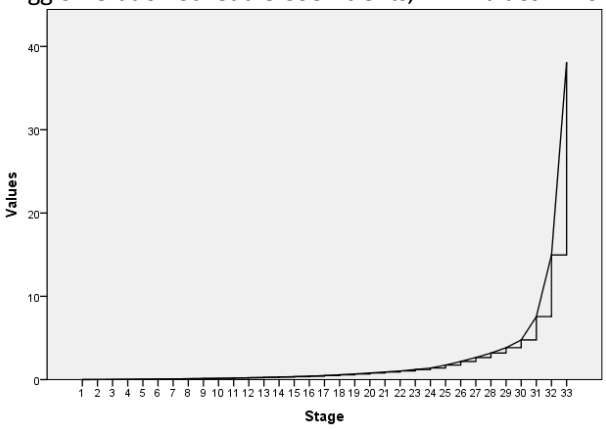
Source: Authors' calculations.

Owing to only partially confirmed previous hypothesis and for testing second hypothesis stated as there are statistically significant differences in the level of LME among identified clusters, we propose conduction of cluster analysis on the basis of 34 countries to identify which of them comply and make homogeneous clusters based on values of LME for period 2013-2017.

Therefore, next figure (Figure 3) presents dendrogram obtained by using the Hierarchical Cluster analysis, especially Ward's method for clustering and squared Euclidian distance. The figure implies that there should be two to four possible clusters. According to dendrogram and the visual look to gaps between proposed clusters, optimal number of clusters should be four.

This solution needs to be validated through another figure which is a graphical display of Agglomeration Schedule Coefficients (Figure 4). Plot of Agglomeration Schedule Coefficients shows how many clusters are adequate to include in our research by presenting an increase in the coefficients after each stage. Figure 4 shows that after stage 30 there is a large increase in the coefficients or the step of elbow according to the plot. This result was also chosen because homogeneous and distinct clusters are created, they are heterogeneous between each other and all cases (34 states) were classified into these clusters.

Figure 4. Agglomeration Schedule Coefficients, LME values in 2013-2017



Source: Authors' calculations.

Additionally, presented figure shows which clusters relate to each other the most. Cluster K_1 with three candidate states and seven members of EU relates better to cluster K_2 of nine member states and cluster K_3 with three candidate states and three member states relates. Cluster K_4 does not relate much to other clusters because this cluster complies of the richest countries and first members of the EU. Following table depicts the structure of every cluster acquired by cluster analysis.

Table 5. The structure of the clusters determined by values of LME in 2013-2017

Clusters	*Countries included in cluster*
K_1	Albania, Hungary, North Macedonia, Montenegro, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain
K_2	Austria, Belgium, Bulgaria, Cyprus, Czech Republic, France, Latvia, Lithuania, Malta
K_3	Bosnia and Herzegovina, Croatia, Greece, Italy, Serbia, Turkey
K_4	Denmark, Estonia, Finland, Germany, Ireland, Luxembourg, the Netherlands, Sweden, United Kingdom

Source: Authors'

Table 6 presents an overview of descriptive statistics for all four clusters. The highest mean values of the LME for all five years were found in the K_4 cluster and it distinguishes from others in its mean values.

Table 6. Descriptive statistics for clusters, LME values in 2013-2017

Cluster		*N*	*Mean*	*SD*	*SE*	*95% Confidence Interval for Mean*		*Min.*	*Max.*
						Lower Bound	*Upper Bound*		
2013-2014	K_1	10	4.124	0.192	0.061	3.987	4.261	3.79	4.39
	K_2	9	4.447	0.185	0.062	4.305	4.589	4.20	4.76
	K_3	6	3.829	0.226	0.092	3.591	4.066	3.48	4.15
	K_4	9	4.925	0.210	0.070	4.764	5.086	4.57	5.35
	Σ	34	4.369	0.440	0.061	4.221	4.517	3.48	5.35
2014-2015	K_1	10	4.071	0.119	0.038	3.986	4.156	3.92	4.24
	K_2	9	4.396	0.198	0.066	4.244	4.549	4.24	4.82
	K_3	6	3.709	0.301	0.123	3.394	4.025	3.29	4.15
	K_4	9	4.860	0.206	0.069	4.701	5.018	4.57	5.26
	Σ	34	4.302	0.452	0.078	4.150	4.454	3.29	5.26
2015-2016	K_1	10	4.083	0.109	0.035	4.005	4.161	3.90	4.27
	K_2	9	4.425	0.142	0.047	4.316	4.534	4.23	4.72
	K_3	6	3.593	0.194	0.079	3.390	3.797	3.36	3.83
	K_4	9	4.938	0.208	0.069	4.779	5.098	4.64	5.31
	Σ	34	4.314	0.495	0.085	4.147	4.480	3.36	5.31
2016-2017	K_1	10	4.090	0.121	0.038	4.003	4.177	3.93	4.31
	K_2	9	4.471	0.067	0.022	4.419	4.523	4.37	4.57
	K_3	6	3.663	0.205	0.084	3.447	3.878	3.39	3.89
	K_4	9	5.025	0.206	0.069	4.867	5.184	4.78	5.46
	Σ	34	4.363	0.506	0.087	4.193	4.533	3.39	5.46
2017-2018	K_1	10	4.109	0.132	0.042	4.015	4.203	3.96	4.35
	K_2	9	4.452	0.125	0.042	4.355	4.548	4.25	4.68
	K_3	6	3.669	0.204	0.083	3.454	3.883	3.39	3.96
	K_4	9	5.031	0.196	0.065	4.881	5.182	4.78	5.44
	Σ	34	4.366	0.505	0.087	4.196	4.536	3.39	5.44

Source: Authors' calculations.

This cluster complies of the first and the richest members of EU. On the other hand, cluster K_4 relates more to the cluster K_2 by mean values than to the other two clusters. Furthermore, there are noticeable similarities between the means of clusters K_1, K_2 and K_3 in every year, meaning that candidate countries and EU member states are on the comparable level of labour market efficiency, but in the same time far away from efficiency of labour market of countries in the cluster K_4. Values of standard deviations are lower than in previous analysis of artificially made groups from 34 countries. This means that the clusters are well structured and their efficiency of labour market is on the comparable level. Accordingly, the second hypothesis is confirmed.

By applying cluster analysis, we got four similar groups of countries based on their five-year values of the LME. Next table gives an overview of descriptive statistics of employment rates (% of total population age from 15 to 64 years) of observed countries and clusters that they make.

Table 7. Descriptive statistics for clusters' employment rate (% of total population age from 15 to 64 years), year 2018

Cluster		*N*	*Mean*	*SD*	*SE*	*95% Confidence Interval for Mean*		*Min.*	*Max.*
						Lower Bound	*Upper Bound*		
2018	K_1	10	64.690	6.576	2.079	59.986	69.394	51.70	71.10
	K_2	9	69.956	3.564	1.188	67.216	72.695	64.50	74.80
	K_3	6	53.033	10.104	4.125	42.430	63.636	33.40	60.60
	K_4	9	73.700	3.687	1.229	70.866	76.534	67.10	77.50
	Σ	34	66.412	9.219	1.581	63.313	69.511	33.40	77.50

Source: Authors' calculations based ec.europa.eu/eurostat, www.instat.gov.al and ERP BiH 2019-2021 (26.4.2019.).

According to Table 7, cluster K_4 has the highest mean value of employment rate and its standard deviation is one of the lowest compared to other clusters values. As previously stated, this cluster is made of developed countries with low unemployment rates and consequently high employment rates of their population. Two countries which are appearing in this cluster, Sweden and the Netherlands have the highest employment rates, 77.5% and 77.2% respectively. Clusters K_2 and K_1 are next in the series, but cluster K_1 records high standard deviation indicating notable differences between its participants. Lastly, cluster K_3 characteristics are the lowest mean employment rate (53.03%), the highest standard deviation (SD=10.10), the minimum value is 33.40% and maximum 60.60%. It can be concluded that this cluster has negative indicators of labour market in terms of employment rates and likewise

in terms of values of GCI component – LME. Based on all of the above, the third hypothesis - clusters with high level of LME have high employment rates – is confirmed. Further analysis of the distribution of employment rate by KW test showed that this distribution is not the same across categories of four clusters (Sig. = 0.000). Post-hoc test is presented in following table 8.

Table 8. Pairwise Comparisons of groups of countries by employment rate, year 2018

Group 1 → Group 2	*Test Statistics*	*Std. Error*	*Std. Test Statistics*	*Sig.*	*Adj. Sig.*
$K_3 \rightarrow K_1$	8.500	5.142	1.653	.098	.590
$K_3 \rightarrow K_2$	15.667	5.248	2.985	.003	.017*
$K_3 \rightarrow K_4$	-22.111	5.248	-4.214	.000	.000*
$K_1 \rightarrow K_2$	-7.167	4.575	-1.567	.117	.703
$K_1 \rightarrow K_4$	-13.611	4.575	-2.975	.003	.018*
$K_2 \rightarrow K_4$	-6.444	4.694	-1.373	.170	1.000

Each row tests the null hypothesis that the group 1 and group 2 distributions are the same.
*Asymptotic significances (2-sided tests) are displayed. The significance level is .05.
Source: Authors' calculation

Pairwise comparison identified statistically significant differences in employment rates between clusters K3 and K2, K3 and K4 and K1 and K4. These findings are in the line with differences in values of LME indicating that if countries are grouped by differences in the efficiency of their labour markets, differences in their employment rates will also be notable.

The findings of our study are in the line with results of Ostoj (2015). She is uttering that Scandinavian and British countries have the most efficient labour markets. Our analysis clustered these countries in one cluster that is reaching the highest mean values of LME. Even though she states that Southern countries of EU score lower values of LME than post-socialist countries, cluster analysis separated them into two different groups.

Furthermore, the results of our study are partially contrary to the results of the study conducted by Mohaghar et al. (2018). The authors had found that the most efficient labour market is market of Denmark, followed by Austria and Italy. According to our results, Denmark is in a cluster with Scandinavian countries, but Austria is in separate cluster and Italy is grouped with transitional countries. These differences could be explained because we have observed five-year period of data, while Mohaghar et al. (2018) base their research on the last values of LME in 2017.

As Popescu et al. (2017) point out that grouping countries by GCI had given different results in their research than official division of World Economic Forum, the results that we obtained also revealed mixed clusters of countries in different stages of development by World Economic Forum classification (i.e. K_4 cluster's members are states in stage 3: Innovation-driven countries, but K_3 is made of two countries in stage 2: Efficiency-driven, two countries in Transition from stage 2 to stage 3 and two stage 3: Innovation-driven countries).

Chocholatá and Furková (2018) "detect statistically significant clusters of regions with high employment rates situated especially in the central, northern and north-western part of the EU while the clusters with low values were located especially in Greece, Spain, Italy, Portugal, Bulgaria, Romania and some French regions" (p. 206). The results of the study that we conducted are similar to these results. We have found that clusters with high LME have also high employment rates and that is the case of central, northern and north-western countries of the EU. In addition, the rest of EU member states have lower employment rates and statistically different to other clusters. Similarly to this, Pagliacci (2014) denoted Germany, the Netherlands, United Kingdom and Sweden as best performing countries and Mediterranean (Southern Spain, Southern Italy and Greece) and Eastern Europe (Bulgaria, Romania and Hungary) as worst performing regions in the context of employment rates.

The findings in our research, that are supported by the literature, suggest that there are statistically different clusters of countries in terms of LME and that counties which are scoring high values of LME have in a same time high values of employment rates.

5. Conclusion

This paper discussed the role of Labour Market Efficiency (seventh pillar of GCI) in grouping countries on the basis of their five-year (from 2013 to 2017) values of this indicator. In order to investigate differences between the 28 countries of the EU and 6 candidate countries grouped in three groups based on time of joining the EU, we have applied non-parametric analysis Kruskal-Wallis 1-way ANOVA Test and after that post-hoc pairwise comparison. These tests showed statistically significant differences in LME values for three years, 2015, 2016 and 2017 respectively. Later, pairwise comparison identified statistically significant differences only between candidate countries and countries that founded the EU and joined before 2004.

Furthermore, it is important to mention that with the purpose to create homogeneous groups of countries with similar values of LME, hierarchical method of cluster analysis using Ward's method was applied. By doing this, four clusters were made. The clusters were built of countries in different stage of development according to the World Economic Forum methodology. Lastly, we compared clusters employment rates and identified that clusters with efficient labour market have high employment rates of their total population aged 15-64.

Since the results showed which countries are similar to each other in the context of efficiency of the labour market, creators of economic policies could analyse and compare their country level of LME and define measures of convergence to those that are leading in efficiency and flexibility of the labour market.

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IMPROVING OPPORTUNITIES FOR ECONOMIC DEVELOPMENT IN PROTECTED AREAS IN BULGARIA THROUGH SUSTAINABLE TOURISM

Mariya Stankova, Ph.D.[1]
Rayna Pashova, M.Sc. [2]

This study aims to present the main characterological features of sustainable tourism development and, in compliance with the regime of the protected areas in Bulgaria and their management plans, to identify and propose recommendations to improve economic development opportunities by developing sustainable tourism practices. The research focus is on the analysis of management plans of the natural and national parks in Bulgaria and the planned activities leading to an economic increase in the adjacent territories. Methodologically, a review of the legal framework and specialized publications on the subject is carried out, as well as methods of monitoring, expert evaluation, synthesis and SWOT analysis are used. It has been established that in all the management plans to tourism is given a special place. From the analyzes it is apparent that all studied areas have exceptional tourist potential. Unfortunately, there is still a lack of adequate state and regional policy to these territories. However, there are various opportunities related to economic benefits for the local population through the development of sustainable tourism.Practical implication – As a result, the study contributes with concrete opportunities for economic development in the protected areas concerned. It also identifies the need to apply innovative governance models to ensure its sustainability. The originality of this study stems from the achievement of certain scientific results concerning the prospects for sustainability of economic development in/for the protected areas in Bulgaria by enriching the existing knowledge in this field, focusing on its tourism potential.
Key words: protected areas, tourism, economic values, sustainability

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[1] South-West University "NeofitRilski", Faculty of Economics, Department "Tourism", mzlstan@yahoo.com, 60 Ivan Mihailov str., 2700 Blagoevgrad, Bulgaria
[2] South-West University "NeofitRilski", Faculty of Economics, Department "Tourism", renypashova@yahoo.com, 60 Ivan Mihailov str., 2700 Blagoevgrad, Bulgaria

1. Introduction

The traditional approach to growth based on the use of natural resources, without considering their limitations, is now producing its results, leading to a global "resource crisis", a threat of shortages and rising prices for basic goods and services. Undoubtedly, human activity in the course of the evolution of civilizations has transformed the planet and caused mass extinction of species. That is why, at this moment, virgin nature is among the rarest values in the world. Placing it in the focus of attention, politicians, economists, scientists, specialists and eco-activists are trying to develop and apply political, economic and socio-cultural models in which a sustainable approach is set, and wealth can be created without harming the environment.

One of the fastest growing sectors of the economy - tourism - has a decisive role in improving opportunities for economic development in a global and regional perspective. The modern aspect of tourism, as a social phenomenon, covers not only the free movement of people, but also the use of leisure time, it can be the primary means to connect with nature. Therefore, it is completely possible to achieve sustainable development, considering its dependence on the services provided by healthy ecosystems and biodiversity.

Tourism is of major economic importance (Bachvarov & Tonchev, 1996), generating revenues that stimulate several complementary sectors such as trade, transport, advertising, and production related to tourist location. Amid a decelerating global economy, the tourism industry continues to have a steady pace of growth. The travel and tourism sector is now one of the world's largest industries, estimated to generate almost 3.2 % of total GDP; meaning that the direct contribution of travel and tourism to GDP was USD 2,570.1bn in 2017 (Travel & Tourism Economic impact Report 2018). According to the World Travel & Tourism Council (WTTC), the forecast is to rise by 4.0 % in 2018, and to rise by 3.8 %, from 2018-2028, to USD 3,890.0bn (3.6 % of total GDP) in 2028.

Bulgaria, as a tourist destination actively involved in the international tourist market, has a wealth and variety in its natural environment and cultural heritage. They are an excellent prerequisite for developing and practicing tourism in all its sustainable forms in the territories with a corresponding protection regime. The system of protected areas in Bulgaria, covering just over 5% of the total area of the country, is the basis for the development not only of ecological tourism (also called natural or green tourism), but also of sustainable forms of tourism (Kirilov, 2018). A total of 1021 protected areas have been declared in the country, including: 55 reserves, 3 national parks, 348 natural landmarks, 35 protected reserves, 11 nature parks and 569 protected areas

(Register of Protected Areas and Protected Zones in Bulgaria, EEA, 2019). The total number of protected plants and protected species is 1057 (NSI, 2017). Two of the natural sites (Pirin National Park and Srebarna Nature Reserve) are included in the UNESCO World Heritage List (UNESCO, 2019). In Bulgaria in November 2017, four Bulgarian biosphere parks were announced, meeting the modern requirements of the UNESCO Man and the Biosphere Programme - Central Balkan, Red Wall, Srebarna and Uzunbujak (Kirilov, 2018).

Additionally, Bulgaria ranks third in the EU as a share of protected areas of the European ecological network Natura 2000 (34%), preceded by Slovenia (38%) and Croatia (37%), followed by Slovakia (30%) and Cyprus (29%) while the EU average is 18%. The marked trails in the mountains have a total length of over 37,000 km.

International tourist routes pass through the territory of the country, such as: Kom-Emine (its route coincides with the final section of the European tourist route E3), the European tourist route E-4 (Vitosha - Verila - Rila - Pirin) and the European tourist route E-8 – Rodope Mountains). In general, the country has a relatively good network of mountain trails, built and maintained park infrastructure for tourism and recreation, interpretive routes, as well as accommodation in guest houses and tourist facilities, consistent to the specifics of the regions. The available bed base for the development of eco-tourism is very heterogeneous in quality and affordability and is spread almost all over the country. Some of the tourist sites are certified with regional brands (Management Plan of Strandja NP, 2005). Local communities are highly motivated to work together and enrich the tourist services in the protected areas. In support of ecological tourism, scientific and applied activities are carried out in the protected areas through various programmes and projects for long-term protection. This includes protection and restoration of populations, monitoring of biological species, and development of the network of protected territories. (National Strategy for sustainable tourism, 2017).

At the same time, to date, although plans for management of protected areas are available in Bulgaria and an adequate management model for the development of sustainable tourism has been developed, (Kirilov, 2018; Stankova, 2015) it has not yet been successfully implemented in the protected areas. This is the main prerequisite for the present paper to set its objective by presenting the main characterological features of sustainable development and sustainable tourism under the system of protected areas in Bulgaria and their management plans, to identify and propose recommendations to improve opportunities for economic development in them through the development of sustainable tourism practices.

2. Theoretical backgrounds

Legal regulations directly concerned with environmental protection, sustainable development and sustainable tourism are included in legislation in many countries worldwide, such as the US, Canada, Mexico, Australia, New Zealand, Japan, India, Thailand, Belize, Costa Rica, Ecuador , Peru, Namibia, Great Britain, Germany, France, Spain, Portugal, Italy, Netherlands, Czech Republic, Slovenia, Russia, Estonia, Romania, and Bulgaria.

International legislation in this area includes a set of documents, such as: conventions (some of which are the Convention on International Trade in Endangered Species of Wild Fauna and Flora from 1973, the Convention on Biological Diversity from 1992, the Convention on Wetlands of International Importance, in particular as habitats for water birds since 1982, the Convention on the World Cultural and Natural Heritage from 1972, the Convention on the Conservation of European Wildlife and Natural Habitats from 1979, the Convention on the Conservation of European Wildlife and Natural Habitats migratory species of wild animals from 1979, the 1992 Framework Convention on Climate Change, the 1989 Convention against Desertification, the European Landscape Convention of 2000, the Convention for the Safeguarding of the Intangible Cultural Heritage of October 2003, the Convention for the Protection of the Architectural Heritage of Europe, 1985, and the European Convention for the Protection of the Archaeological Heritage of 1992), directives (Council Directive 92/43/ EEC of 21 May 1992 on the Conservation of Natural Habitats and of wild fauna and flora, Directive 79/409 / EEC of 2 April 1999 on the conservation of wild birds, Council Directive 91/271 / EEC of 21 May 1991 on urban waste-water treatment, Directive 2009/125 / EC on ecodesign aimed at reducing environmental impact of products, including energy consumption of 21 October 2009, etc.), agreements (International Tropical Timber Agreement, Europe's Bats Conservation Agreement), declarations (Manila Declaration on World Tourism on 10 October 1980, Rio de Janeiro Declaration on Environment and Development 1992, the Berlin Declaration on Biodiversity and Sustainable Tourism of 8 March 1997, the Québec Declaration on Ecotourism of 22 May 2002), laws (The US Endangered Species Act 1973, The Clean Air Act (United States), The US Clean Water Act, Canadian Environmental Protection Act 1999, Payments for ecosystem services Act in Costa Rica, The Indian Forest Rights Act of 1 January 2009 etc.), strategies (Global Strategy for Biological Diversity of 1992, Pan-European Strategy Biodiversity and Landscape Planning from 1995, Thematic Strategy on the Sustainable Use of Natural Resources of the European Union of 2005, Thematic Strategy on Prevention and Recycling of

Waste of the European Union of 2005, Sustainable Development Strategy of the European Union, updated in 2006, Thematic Strategy for Soil Protection of the European Union 2006, Lisbon Strategy for Economic Growth and Employment, Paris Agreement of 2015, etc.) (Kirilov, 2014).

The National Strategy for Ecologically Sustainable Development, published by the Australian Government in December 1992, is a striking example of global practice on issues of sustainable development and environmental protection. The document was developed through a broad public consultation process, seminars in all states and territories, and discussions with industry representatives, nature conservation authorities and individual public groups. The Australian Nature Conservation Foundation and the WWF have been the leading organizations in support of this pioneering approach. Countries such as Canada, Denmark, Sweden, South Africa, the Netherlands and the United States have explored the feasibility of the Australian experience in their national environmental policy (Kirilov, 2011).

Another positive example of commitment is the implementation of the Convention on Biological Diversity which, with the help of the Global Environment Fund, implements a strategy aimed at improving the monitoring of biodiversity, promoting ecotourism and protecting the wildlife. In 1995, Russia signed a federal law regulating a new category of regional parks and a new (updated) Wildlife Conservation Act.

One of the most important international documents directly concerned with sustainable tourism, and in particular ecological tourism in individual countries, is the Québec Ecotourism Declaration of 22 May 2002 (the so-called Québec Declaration). The document was adopted within the framework of the International Year of Ecotourism announced by the United Nations under the auspices of the United Nations Environment Programme and the World Tourism Organization held in Quebec, Canada, from 19 to 22 May 2002, hosted by the Tourism Québec and the Canadian Tourism Committee (Kirilov, 2011).

The review of the legal framework in Bulgaria shows that the development of sustainable tourism is covered by many national strategies or national plans in the field of tourism, environment, biodiversity, sustainable development, forestry and agriculture, entrepreneurship development, regional development, health care, national law and several international conventions in different fields to which Bulgaria is a party. All these normative documents are a good prerequisite and an opportunity for ecotourism development, given its interdisciplinary and cross-sectoral character. Since 2009, a strategic framework for sustainable development has been developed

in the country, implemented in a series of National Strategies (Mateev & Kirilov, 2017).

In their entirety, these normative and strategic documents are an attempt to overcome the global challenge of balancing biodiversity conservation and biodiversity on the one hand, and the numerous tourists wishing to visit pristine natural and national parks. In fact, the greater is the biodiversity, the more tourists will visit one protected area. In their study, Chung, Dietz & Liu (2018) discuss the impact of biodiversity on tourism in 929 protected areas. They found that any 1% increase in biodiversity was associated with an increase in tourism by 0.87%. The presented results also show that nature-based tourism is more common in protected areas with greater biodiversity, which are older, larger, more accessible to visitors from urban areas and at a higher altitude. According to the authors, population density around protected areas and national income levels are also major socio-economic factors related to tourism in the countryside. In addition, protected areas managed primarily for biodiversity conservation have almost 35% more visitors than those managed as mixed-use areas. These results show the importance of biodiversity for nature-based tourism, assuming that this interrelation can be changed by different management strategies used in protected area management. (Chung et al., 2018).

Tourism and the protection of wildlife have a fragile relationship. Undoubtedly, badly managed tourism can negatively affect wildlife. This happens through habitat loss, pollution and poaching. However, well-managed tourism can make a huge contribution to nature conservation by providing species protection and significant economic and employment opportunities. Given that, the tourism industry can play a crucial role in protecting wildlife and the planet.

In order to "work" for environmental protection, sustainable tourism should be carefully planned and managed before and during development and in parallel with the implementation of each individual tourist programme. For example, Krüger (2005), who researches sustainable ecotourism projects, claims that their important effect is the increase in revenue for local communities, which subsequently leads to changes in the land use model. The ultimate positive effect, leading to sustainability, is the change in attitudes of local communities to the protected area near them, which on one side can reduce poaching, logging and other abuses of nature, and on the other side can create significant revenue at a regional or national scale, resulting in a change of priorities at different administration levels. (Krüger, 2005).

3. Research Methodology and Hypothesis

Protected areas have enormous tourist potential. They combine exceptionally rich biodiversity, beautiful landscapes and cultural heritage, making them a preferred destination for tourism worldwide.

The present study, in view of the objective to highlight the contribution of protected areas in the sustainable economic development of the regions, is focused on the analysis of management plans of natural and national parks in the Bulgaria and their planned activities that lead to increased economic activity in adjacent areas and that accompany sustainable tourism development. For the purposes of the research, a complex approach based on quantitative and qualitative methods is applied. In particular, a review of the legal framework and specialized publications on the topic is realized, as well as handling methods of monitoring, expert evaluation, synthesis and SWOT analysis. The subject of the research is primarily the categories of national and nature parks. The limitation is whether these two categories of protected areas have established documentation available - well-developed and well-established management plans, as well as well-structured and working administrations to provide the necessary primary information on the issues being developed.

4. Research Results and Discussion

4.1. Prerequisites for economic development of protected area through tourism in Bulgaria

Local people and local communities often have high interest in the potential for tourism development due to the creation of protected areas. Studies are available that clearly outline the benefits for the community. For example, Bennett, Lemelin, & Ellis (2010) present 11 interconnected categories, grouped as follows: aesthetic, economic, labor, cultural, social, political, educational, infrastructural, environmental, health and spiritual.

It is also a fact that due to the rapid growth in the number of protected areas in the second half of the twentieth century, contact of local communities with them has increased. Sometimes this growth may be in conflict with the needs of local communities and efforts to tackle poverty and increase economic development. Hence, many protected areas already have management regimes that engage local communities and consciously strive to balance conservation with local livelihoods. In addition, it can be noted that

protected areas play a role in reducing poverty and promoting economic development in the adjacent communities (Watson, Dudley, Segan, & Hockings, 2014)

Bulgaria, as a country actively developing tourism, is highly interested in the preservation and protection of the resource potential. The country is blessed with rich biodiversity and large natural areas, thanks to its geographic and climatic conditions. Despite strictly limited human and financial resources, Bulgaria has taken some impressive steps since 1989.

Protected areas in Bulgaria have been extended to cover 4.5 % of the land, with representative samples of all ecosystems included (OECD, 1996). Species recovery plans have been prepared; the number of species and their populations have been maintained or increased. Restoration of a few important wetlands has started under the National Plan for the Protection of the Most Important Wetlands in Bulgaria 2013 - 2022 (2013). The National Biological Diversity Conservation Strategy has been adopted.

However, nature protection in Bulgaria has a long history. The first few legal acts – the ones on forests, on hunting and on fishing – including elements of conservation were adopted in the first years of the 20th century. The Act on Preservation of the Native Nature was enacted in 1936, and for many years it remained an effective normative act, dealing with protected areas. This law determined the categories of protected areas, the issues of their management and control, allowing at the same time public participation into these processes. It also considered management plans for protected areas. In 1960 The Decree for the Protection of the Native Nature was adopted, which further elaborated the regimes of the different protected areas. The first Act having clearer orientation to the requirements of the international legal norms was the Nature Protection Act, adopted in 1967. It envisaged measures not only for the preservation, but also for the reasonable use of the natural resources.

Nowadays, in Bulgaria the declaring and management of protected areas is regulated by The Protected Areas Act (1998). Another specialized nature conservation law is the Biological Diversity Act, adopted in 2002. The law regulates the protection of habitats, of species, of plants and animals and their biotopes, the elaboration of action plans, as well as the hunting, the gathering and the trade in them. It introduces into national practice the requirements of the Habitats and the Birds Directives, focused on preservation of habitats types and biotopes of plant and animal species. The Biological Diversity Act envisages the establishment of a National Ecological Network, consisting of three elements – protected zones, protected areas and buffer zones. A solid basis for development of sustainable tourism in Bulgaria is

represented by the existing system of protected areas, proclaimed by the Protected Areas Act (1998) and protected sites under NATURA 2000 (Georgiev, 2010).

4.2 The example of Bulgaria

Protected areas in Bulgaria (under the Protected Areas Act, 1998) include five of the six categories of the International Union for the Protection of Nature (IUCN) protected areas - national parks, natural landmarks, maintained reserves, nature parks and protected areas (with the exception of natural (strict) reserves) they are a prerequisite for developing a variety of sustainable tourism practices based on rich biodiversity and unique sites of inanimate nature. In this aspect of interest is the question of management of protected areas and related economic development opportunities that should be subject to continuous improvement.

In order to clarify the content of the categories of protected areas used in Bulgaria, the comparative analysis in Table 1 shows the most commonly used IUCN categorization and the categorization according to the Bulgarian Protected Areas Act.

Table 1. Comparative analysis of categorization schemes in Bulgaria and according to IUCN

IUCN	Bulgaria
Ia Strict Nature Reserve: Category Ia are strictly protected areas set aside to protect biodiversity and also possibly geological/geomorphical features, where human visitation, use and impacts are strictly controlled and limited to ensure protection of the conservation values. Such protected areas can serve as indispensable reference areas for scientific research and monitoring	Strict Nature Reserve: These reserves are designated samples of natural ecosystems, including the characteristic and / or remarkable wild plant and animal species and their habitats. The reserves are managed to preserve their natural character, genetic resources, natural habitats and populations of protected rare, endemic and relict species. They are managed for the purpose of development of a network of ecosystems and threatened habitats representative of Bulgaria and Europe.
Ib Wilderness Area: Category Ib protected areas are usually large unmodified or slightly modified areas, retaining their natural character and influence without permanent or significant human habitation, which are protected and	

managed so as to preserve their natural condition.	
II National Park: Category II protected areas are large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible, spiritual, scientific, educational, recreational, and visitor opportunities.	National Parks: Areas which have no nucleated and dispersed settlements falling within the boundaries thereof and which host natural ecosystems of high diversity of plant and animal species and habitats, with typical and remarkable landscapes and non-living natural features, shall be designated national parks. National parks shall be managed for the purpose of maintenance of the diversity of the ecosystems and protection of wildlife; conservation and maintenance of the biological diversity within the ecosystems; provision of opportunities for pursuit of scientific research, education and recreation; creation of prerequisites for development of tourism, environmentally sound livelihood for the local community and other activities
III Natural Monument or Feature: Category III protected areas are set aside to protect a specific natural monument, which can be a landform, sea mount, submarine cavern, geological feature such as a cave or even a living feature such as an ancient grove. They are generally quite small protected areas and often have high visitor value.	Natural Monuments Typical or remarkable non-living natural features, such as rock forms, rock exposures of scientific value, earth pyramids, caves, potholes, waterfalls, fossil beds, mineral occurrences, sand dunes and others of outstanding value because of the inherent rarity, representative or aesthetic qualities thereof or of scientific or cultural significance, shall be designated natural monuments.
IV Habitat/Species Management Area: Category IV protected areas aim to protect particular species or habitats and management reflects this priority. Many Category IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats, but this is not a requirement of the category.	Managed Nature Reserves Ecosystems hosting rare and/or endangered wild plant and animal species and the habitats thereof shall be designated managed nature reserves. Managed nature reserves shall be managed for the purpose of maintenance of the natural character thereof; scientific research and education and/or eco-monitoring; restoration of populations of plant and animal species and/or habitat conditions thereof; conservation of genetic resources;
V Protected Landscape/ Seascape: A protected area where the interaction of people and nature over time has produced an area of distinct character with significant, ecological, biological, cultural and scenic value: and where safeguarding the integrity of this	Natural Parks Areas hosting various ecosystems with diverse plant and animal species and the habitats thereof, with typical and remarkable landscapes and non-living natural features, shall be designated natural parks. Natural parks shall be managed for the

interaction is vital to protecting and sustaining the area and its associated nature conservation and other values.	purpose of maintenance of the diversity of ecosystems and conservation of biological diversity therein; provision of opportunities for pursuit of scientific research, education, and recreation; sustainable use of renewable natural resources while preserving traditional forms of livelihood, and ensuring conditions for the development of tourism.
VI Protected area with sustainable use of natural resources: Category VI protected areas conserve ecosystems and habitats together with associated cultural values and traditional natural resource management systems. They are generally large, with most of the area in a natural condition, where a proportion is under sustainable natural resource management and where low-level non-industrial use of natural resources compatible with nature conservation is seen as one of the main aims of the area	Protected Sites The following shall be designated protected sites: areas with typical or remarkable landscapes, including such resulting from the harmonious interaction between people and nature; habitats of endangered, rare or vulnerable plant and animal species and communities.

Source: Own development, R. Pashova 2019 on the information included in the Protected Areas Act (1998) and Guidelines for Protected Areas Management Categories (2008)

The category system contains a "linear" gradation of the main management objectives, from strict protection regime (category I) to active habitat management (category IV) and landscape conservation (category V). In fact, management objectives in a particular protected area are often more complicated. Therefore, insertion of all individual protected areas into a linear classification cannot be achieved without some inevitable distortion that involves ignoring some features and exaggeration of the importance of others (Guidelines for Protected Areas Management Categories, 2008).

The numbering of the categories does not reflect their importance: all categories are necessary for conservation and sustainable development. It is inherent in the system that categories reflect a different degree of human intervention. Categories I to III mainly concern the conservation of natural areas where direct human impact and anthropogenesis of the environment have been limited; categories IV, V and VI refer to considerably greater intervention and anthropogenization.

In Bulgarian legislation, the national park category corresponds to IUCN category II and nature parks correspond to category V. The only exception is the Rila Monastery Nature Park, which also has IUCN category II (Protected

Area Act, updates from 2015).

Tourism as a topic in Bulgarian Nature and National Park Management Plans could be well discovered through an overview of the existing management plans and their integration of tourism-related topics (Table 2).

Table 2. Analysis of elements of tourist orientation in Protected Areas prepared on the basis of a study on the Management Plans of this areas in Bulgaria

Park (year of acceptance of management plan)	**Tourism focus in table of content**	**Tourism development goals**	**Tourism products and packages mentioned**	**Monitoring of tourism flows**
Rila Monastery Nature Park (2010)	management of tourism, tourism zone	tourism as number one revenue generator		X
Vitosha Nature Park (2005 and new but not approved)	tourism, recreation, sports, services, tourism zone	looking at the tourist product as a business model	X	X
Vrachanski Balkan (2011)	tourism, recreation, sports, services	development of ecological tourism, Support the development of recreation, sports and tourism	-	X
Persina Nature Park (2016)	tourism, recreation, sports, services	development of ecological sustainable tourism	Develop-ment of information, interpretative packages for children and adults	X
Strandzha Nature Park (from 2005, not approved)	tourism and recreation, spezialized zone for tourism, development of sustainable tourism	development of sustainable tourism, assistance to local and foreign tour operators for the creation of specialized tourist products	-	X
Belasitsa Nature Park (2016)	tourism, sports, recreation, offered services,	creating conditions for the development of	-	X

	tourist sites and recreational resources in the adjacent territories, which can be used by visitors to the park	sustainable tourism		
Bulgarka Nature Park (2016, not approved)	tourism, recreation, sports, services	development of tourism infrastructure and services, reduce rubbish in the park	-	-
Zlatni Pyasatsi Nature Park (2011)	tourism, recreation, sports, services	-	-	X
Rusenski Lom Nature Park (2005)	tourism, recreation, sports, services	development of tourism business plan, contact with tourism companies	preparation of tourism programmes, development of tourism packages	X
Shumensko Plato Nature Park (2011)	tourism, recreation, sports, services	development of sustainable tourism in and around the park, ecotourism	making unique tourism product of the region, development of regional tourism products	X
Rila National Park (2001 and new but not approved)	tourism and visitor profile, recreation and tourism, tourism management, tourism, recreation, sports, services	tourism development, aesthetic enjoyment, spiritual enrichment and contact with wildlife;	-	X
Central Balkan National Park (old and new from 2016)	tourism and visitor profile, park landscapes, viewpoints and scenic qualities, recreation and tourism, managing	tourism development, aesthetic enjoyment, spiritual enrichment and contact with	-	X

	tourists, zone tourism, tourism, recreation, sports and services, managing visitors	wildlife; developing a Guide for Nature Friendly Behavior of Tourists		
Pirin National Park (2004 and new but not yet approved)	tourism, recreation, sport, services	improve conditions for tourism and infrastructure, environmental friendly summer and winter tourism	-	X

Source: Personal study, R. Pashova, 2019

From the analysis done so far it is obvious that the management plans of all national and nature parks place tourism in the focus of their management, functioning and development. This is confirmed by the Structural Manuals of the Directorates of the national and nature parks, which state that the activity of those directorates is to secure the preservation and maintenance of ecosystem diversity and the species of flora and fauna, the provision of prerequisites for the development of tourism and environment-friendly livelihood of the local population, as well as the implementation of scientific, educational and recreational actions.

All management plans of the national and nature parks in Bulgaria put tourism in a special place. Their thorough review and analysis allow for identification of both the resources that the precise protected area has and the opportunities for tourism development, together with potential sources of economic activities and income for the local population. Information derived from them serves the purposes of analysis and the identification of strengths and weaknesses, threats and opportunities for development of the protected areas.

The SWOT analysis (Table 3) shows that all Bulgarian protected areas have exceptional tourist potential, including very well-preserved nature, enormous biodiversity, various opportunities for recreation and sports, rich cultural and historical heritage, accessibility, a wide network of maintained walking trails, as well as thematic and interpretative paths. All this provides opportunities for all-year tourist programmes combining recreation and tourism together with balneology, thallaso therapy, climatic healing and others.

Table 3. SWOT analysis of the development of tourism in Bulgarian protected areas of the category of national and nature park

Strengths	Weaknesses
- Favourable geographical location, climate and relief which provide access to natural and anthropogenic resources; - Unique nature – rich biodiversity, preserved habitats, emotionally acting landscapes; - Rich cultural and historical heritage with local, national and global importance; - Secured accessibility to and from the various entry points – asphalt roads, railways; - Constructed recreational buildings, attractive to tourists from both the country and abroad; - Existing various forms of tourism and conditions for practicing various types of sports; - Overall state policy for environment protection and sustainable tourism development – Environment Protection Act, Protected Areas Act, National Strategy for Sustainable Tourism, etc.; - Administrative and organizational provision of the nature and national parks – Directorates of parks, management plans; - Economic benefits for the protected area and the adjacent territories: timber resources, fishing and hunting (in certain parts), production of ecological farming and animal breeding with options for processing sites; non-timber resources: collecting mushrooms, herbs, forest fruits and others; - Grazing of domestic animals and hay stacking; - Income from various services supply; - Sale of souvenirs, tourist maps and other publications.	- Existing infrastructure is old and does not meet modern requirements and conditions; - Lack of information about the economic input of this sector; - Lack of unified methodology for visitor monitoring in protected areas and their impact; - Lack of unified methodology for calculating the carrying capacity of protected areas; - Weaknesses in the mechanisms for limiting negative impacts; - Insufficiencies in personnel and administrative capacity in park directorates; - Lack of clear legal regulations for the development of economic activities on behalf of nature parks directorates; - lack of communication between the protected areas and the Ministry of Tourism; - Lack of clarity about the status of interpretative guides and tourist guides (rangers) from the park directorates, from the point of view of the Ministry of Tourism's requirements for certification; - Insufficient services for visitors (lack of road signs, information and maps in foreign languages, etc.); - Insufficient public-private partnerships for development and management of protected areas; - Insufficient involvement and support on the part of the local population; - Insufficient stimuli for small business development; - Insufficient experience of business; - Low quality of services in small settlements due to a lack of necessary qualification and suitable education; - Insufficient promotion of protected areas in the country as tourist destinations; - Insufficiently developed tourist products (undeveloped market niches, low level of acquiring foreign experience and ideas).
Opportunities	Threats
- There is high unused potential for the development of scientific and cognitive tourism, for which here is a set of prerequisites – unique biodiversity, existing specialized expositions, thematic and interpretative trails; - Opportunity for organizing seminars, green schools, sport schools and others in the countryside; - Opportunities to raise income in the sphere of	- Drastic decrease in biodiversity as a result of unregulated tourist flows; - Raising risks of fires, pollution, etc.; - Over-construction.

services – hotel and restaurant management, guiding, transportation, training in winter sports; - Utilization of resources from restituted lands and forests by private owners; - Opportunities to stimulate local community development; - Development of nature-friendly tourism in and around protected areas gives an opportunity to decrease levels of unemployment in settlements with no industrial development and no production resources; - Opportunities for offering an ecological production through traditional livestock breeding and agriculture; - Opportunities for building a national identity of the country through tourism development in protected areas which would contribute to the improvement of Bulgaria's marketing as a tourist destination; - Opportunities for building unique tourist products and development of new markets at the national and global level.	

Source: Personal study, R. Pashova, 2019

Unfortunately, there is still no adequate state and regional policy for protected areas which often become victims of economic interests. Nonetheless, a set of opportunities has been identified for improving economic development in protected areas through the stimulation of sustainable tourism related to economic benefits for both the protected area and the local population. It should be specified though that there are differences in the abilities of the two categories of protected areas – national and nature parks – to incur income, and these are based on legislative frameworks and the regulations of the managing ministries.

In specific terms, the following options for national parks to generate income from managing the territory can be identified:

a) Income from fees for timber, collection of herbs, mushrooms and forest fruits, grazing and hay-making;

b) Income from administrative and penalty procedures.

Unlike the limitations deriving from the category of national park and the higher level of protection, nature parks have multiple options to raise income, namely: sale of information materials, renting sites (e.g. the eco-stationary in Vitosha), collecting tax for various services – administrative, tourist, guiding, organization of seminars, trainings, practices, etc. There are also opportunities to introduce entrance fees for the protected territory.

In order to illustrate the options for generating economic income of a protected area, here is one example from the Management Plan of Rila

Monastery Nature Park, presenting in table format the financial dimensions of some of the most popular activities and services related to tourism in Rila Monastery Nature Park. The calculations made (Table 4) are based on information obtained from the managers of tourist sites, information from a visitor poll about the structure and volume of expenditure made for the current visit. Extrapolation of revenue has been done for a flow of 400,000 people, which is more a conservative means of assessment. The latter includes sites on the territory of the park, settlement of Rila Monastery and the territory along the valley of the Rilska River in the close vicinity of the nature park.

Table 4. Total annual turnover from some basic tourism-related activities and services

Revenue	**Total annual turnover (BGN)**	**Estimation criteria**
Sale of religious items	150 000	400,000 visitors annually, of whom 60,000
Parking fees	108 000	(15%) buy religious items @ 2.50 BGN a piece
Revenue from restaurants	764 000	100 paid parking spaces x 90 days average occupancy in the summer season @ 6 BGN per
Revenue from hotels	139 000	day = 54,000 BGN + another 54,000 BGN for the rest of the year
Camping fees	Included in the Hotels Section	The total turnover* of top 10 establishments
Accommodation and food at chalets	20 000	
Museum fees	30 000	The total turnover* of top 10 hotels/ accommodation facilities
Concession fees	200 000	
Sale of gifts and souvenirs	200 000	Declared turnover
Revenue from student practicums and educational activities	67 800	20,000 visitors (5% of all coming to RMNP) report visiting at least one museum @ 1 BGN = 20,000 BGN + 50,000 students @ 0.20 BGN = 10,000 BGN
TOTAL	1 678 800	As per the official bids for the top 15 establishments

Source: registered revenue, Data from the MP of Rila Monastery NP

Research on the willingness of people to pay for a product or service in Bulgaria have been mostly related to socio-economic studies for acquiring the value of offered municipal or state services in the eyes of consumers. This technique has been used while preparing the management plan in order to define what sum would visitors pay if there was a fee for entering the Rila Monastery Nature Park. Assessment here is also conservative and does not include visiting groups of pupils to the Monastery for instance. It should be noted that foreigners think that the price for visiting the Nature Park can be approx. 5 BGN per person. Bulgarians are inclined to pay an average of 1 BGN of entrance fee per person. The two groups unite around the value of 2 BGN if a unified pricing policy is to be applied for Bulgarians and foreigners.

Opportunities for economic benefits for the local population are related mostly to the sphere of tourist services and the supply of varied and quality additional offers, alternative forms of tourism, sale of souvenirs and information materials, offering guides, etc.; and with agriculture and the supply of organic production through the development of traditional livestock breeding and ecological farming. Opportunities can be also found in the sphere of production, mostly timber and wood-processing, gathering, processing and sale of forest products with a relative degree of sustainability.

As a whole, tourism development has a wide effect on the development of the protected territory itself. A conclusion may be made that, apart from economic effects, the development of tourism, which is sustainable has a social and cultural impact and is a prerequisite for acquiring non-financial benefits for the local population. Those benefits arise from the overall promotion of the destination through the organization of festivals (Chestnut Festival in Belasitsa NP, Festival of the Pontic Rhododendron in Strandja NP and others); the organization of art forums (Lomea in Rusenski Lom NP); the handling of educational campaigns in all protected areas (Forester for a Day, National Day of Parks in Bulgaria, Environment Day), etc. All this leads to improving the quality of life of the local population and raising the competitiveness of regions close to the protected areas.

Among existing opportunities, one can list the development of public-private partnerships and establishment of cooperation among the various factors of government who will support long-term involvement in nature protection and the development of sustainable forms of tourist use on behalf of both local communities, tourists and the tourist business. Another interesting approach to stimulate development is work with volunteers. This can provide a significant resource for the managers of protected areas, securing activities such as maintenance of sites and patrols for fighting

poachers. Well-planned volunteer efforts may be harmonized with professional activities for nature protection on the one hand, and the development of nature-friendly uses and tourism on the other. Last but not least, attention should be paid to the opportunity for development of innovations as a result of established partnerships between the directorates of protected areas and academic communities. It is precisely the scientists and researchers who can overcome gaps in research, monitoring and planning in a mutually beneficial way, and civil science can not only provide information to the managers but also show the trends and road to sustainable development in the conditions of conserving protected areas and achieving maximal economic benefits.

5. Conclusion

In conclusion, it should be noted that although there are insufficient funds assigned at government level in Bulgaria for the subsistence of protected areas, opportunities for economic development still exist. A set of such can be identified, related mostly to the potential for sustainable tourism developed in protected areas. The most important thing, however, is that it is necessary to identify innovative models for securing success in the management, functioning and development of protected areas, at the same time stimulating stakeholders to undertake collective responsibility for those areas, to identify themselves and get involved in their development. It is also important to enhance opportunities for attracting unconventional sources of funding (charity donations and payment mechanisms for ecosystem services such as REDD+), as well as a variety of partnerships and forming of socio-cultural groups among local communities and other stakeholders. The latter have not been addressed in the current study but, since they carry the potential of being extremely important future alternative sources of funding and development motors, they would require special attention. Together with mechanisms such as compensations and swap debt for nature by the corporate sector, these options need to be assessed carefully and planned strategically. In that sense, they are a future field of research studies and reports.

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NATIONAL COMPETITIVENESS AND GOODS MARKET EFFICIENCY IN SERBIA AND NEIGHBORING COUNTRIES

Milica Jovanović[1]
Milica Đokić[2]

The paper analyzes the efficiency of the goods market in Serbia as a determinant of national competitiveness. The purpose of this paper is to present a comparative analysis of the goods market efficiency in Serbia and neighboring countries based on the methodology of the World Economic Forum, that is, the sixth pillar of competitiveness. This pillar of competitiveness relies on 16 indicators that indicate the level of efficiency of the goods market in one country. These indicators significantly contribute to the assessment and ranking of the country in terms of national competitiveness.The results of this research can be useful to economic policy makers, with the aim of formulating actions and strategies for improving the efficiency of the goods market. The conclusions of the paper should show the key causes of our country's current position in this aspect and help define future policies to meliorate the individual indicators on which this pillar of competitiveness is based. The originality of this paper is based on a comparative analysis of Serbia and the surrounding countries, pointing to the key limiting factors and key problems of the Serbian goods market, as well as the disadvantages facing the countries in the region. Practical implications of the research include identifying the causes of Serbia's unfavorable position from the aspect of the sixth pillar of competitiveness and pointing to the possibility of improving the position of Serbia in this area of global competitiveness.
Key words: competitiveness, efficiency, goods market, Serbia, neighboring countries

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1. Introduction

[1] Research Assistant, University of Niš, Innovation Center, jovanovicmilicaa90@gmail.com
[2] Research Assistant, University of Niš, Innovation Center, milica91nis@hotmail.com

In present-day, globalised economy, there is a large amount of factors which influence the competitiveness of national economies. Competitiveness has become a dominant economic theme, having in mind that it serves as a synonym for productivity. For one country to be more competitive than the others, means that the increase of the living standard should be based on the increase of productivity and not on the instruments which have short-term effects on it.

The key factor of development in contemporary economy flows is the need to realize the business activities on the international market. Thus, the development of competitive abilities is necessary for business entities, industries, and the national economy as well. Accordingly, we can differentiate between micro and macro competitiveness, which are closely related. The driving force of such flows is the globalization process which has led to the creation of the term global competitiveness. Globalization has eliminated numerous barriers within the complex processes of business creation, and the presence of more sophisticated technologies has essentially transformed the concepts of time and distance. Great technological changes create the material basis for complete globalization of the world economy. Instead of countries' national competitiveness, the competitive fight of business entities on the global market is getting stronger which in turn creates the global competitiveness. Its creators are the transnational companies which are in conjunction with the state apparatus.

World Economic Forum - WEF is, along with the World Bank, the most important institution which deals with the assessment and analysis of competitiveness. The first rank list of countries by competitiveness was published by the World Economic Forum in 1979. During its existence of multiple decades, WEF has created numerous indexes which are used to measure and compare the competitiveness of national economies. Today, the Global Competitive Index - GCI is used.

Depending on the level of the analysis, competitiveness can be measured by various methodologies and approaches. Despite the rebuttals which were directed towards the competitiveness analysis of the World Economic Forum, it can be said with certainty that its compositional indexes are nowadays the most used indexes of competitiveness, having in mind that they include more than 110 factors of competitiveness, and GCI represents the most comprehensive method of analysis when this question in concerned.

The goods market efficiency is the sixth pillar within the Global Competitive Index. The main goal of this paper is to point out to Serbia's position, and to compare it to the neighboring countries, from the aspect of the

goods market efficiency. By analyzing the key problems and restrictions of the goods market efficiency in Serbia, some possible methods for overcoming the deficiencies which Serbia is facing will be indicated. The results of this analysis can help the creators of economic policies in defining strategies and initiatives for solving the problem of Serbia's low positioning in this area.

2. Theoretical backgrounds

2.1. Competitiveness in conditions of the global economy

Global economic reality and trends which have been present in the past years affirm that economic relationships and development processes are becoming ever more prone to internationalization. They are connecting even more and more, mutually conditioning each other and leading to even greater interdependence of larger industries, trade and industrial organizations, national economy and even broader regional communities. Thanks to such changes, the stage was taken by the intensive globalization processes of the world economy, which final product is the global economy system and creating of the impeccably dynamical and flexible world economic order (Leković, 1999, p. 127). There are different measures of the internationalization: 1) sales on foreign markets, as a percentage of the total sales of an enterprise; 2) assets abroad, as a percentage of the total assets of an enterprise; 3) branches outside the home country, as a percentage of the total branches of an enterprise; 4) physical dispersion of the international operations, and; 5) international experience of the top management (Milisavljević, 2015, p. 360).

The key holders of the globalization processes of world economy are transnational corporations and developed countries. Globalization has allowed transnational corporations to organize their production at locations with the best conditions from the labor force perspective, available resources, etc., while they realize their products sales on the markets with high and dynamical demand. Such process has allowed the production using cheap raw materials imported from abroad, the increase in sales on the foreign markets through international branches and rationalization of the production via translocation to countries in which the production costs are lower. In other words, the integration of the markets, national economies and technologies occurs.

With the process of international trade liberation, with the development of technology, the means of transport and mass-communication means, in the period after the World War II, the globalization of world economy and world trade emerged. The world is integrated on the economic

basis (Stojadinović-Jovanović, 2008, p. 74). The global market and the global business strategy is being discussed. Resources are mobilized and production is done around the world, and products are sold on the global market.

The globalization process has enforced new demands of the world market in which, in the merciless competitive surroundings, the winners are those who increase their productivity, efficiency and competitiveness. Numerous researches have shown the important connection of competitiveness, export and the dynamics of the economic growth with returning influence onto employment, alleviating poverty, social cohesion and the increase of life standard (Veselinović, Mićić, 2011, p. 19). In the conditions of the globalization and dynamical business connections, the home market stops being the benchmark of business efficiency. Stronger than ever global competition with global products, global consumers and intensive technological changes on one side, and the ever more explicit shortening of the product's life cycle, on the other, have imposed the question of finding the appropriate business model for the modern international market, both in strategic and operational context.

On the global market, the needs of the consumers are similar but within every country there are even more segments with different preferences. However, national borders are not important as segment boundaries. Namely, in some cases, the global markets are just like regional markets (the EU, for example). On the global market, differences in customers' lifestyle, taste and behavior are diminishing. Consumers cross the borders in order to shop and the barriers between are ever decreasing (Milisavljević, 2015, p. 355). The parallel unfolding regionalization, liberalization and deregulation processes are the most important contemporary economic trends, which have shaped the global market (Grubor, 2011, p. 652). The global consumers are looking for a product that fulfills their needs the best for the appropriate price, completely independent of the product's origin. The important characteristic of the globalization process is the convergence of consumers' needs and demands. Global consumers have homogenous needs and they are looking for the products in the wide selection of countries and markets. Marketing is what enables the homogeneity of the global demand. For the achievement of global goals, the important part is played by global marketing. It needs to integrate all activities on the target markets and it allows goals of the enterprises to accomplish simultaneously within the boundaries of foreign markets and between them. Global marketing is possible only if the world needs and world sources are homogenous.

2.2. Determinants of the global and national competitiveness

Another product of the process of globalization is the term called global competitiveness. Competitiveness represents the ability of the long-term survival in the conditions directed by market economy, in other words, the ability of the country to achieve success on the world market, which means the highly productive economy and a better life standard of the residents. In other words, competitiveness is defined by ensuring the stability and sustainability of growth and development (Cvjetićanin, 2003, p. 88). The term competitiveness, above anything else, refers to the economy, which is continuously recording the high growth rates of production.

It is important to make a difference between micro and macro competitiveness. While micro competitiveness refers to the competitiveness of separate economic subjects, macro competitiveness is dealing with the competitiveness of the economy as a whole. Those two aspects are closely connected because the most important factor of the economy is exactly the competitiveness of the enterprises, having in mind that enterprises are the key holders of the business in the market.

Global competitiveness is considered to be the ability of the country to support, by economic, national and social actions, the successful performance and survival of their own firms on the global market and in such a way that the result of the interactional performance of firms and government is the ability to change the terms of competitiveness on the global level (Kozomara, 1994, p. 50). National competitiveness of countries, is being replaced by the global competitiveness, with transnational companies as the key holders, which represent the creators of global competitiveness. They are dictating the new conditions and new rule sets of the competitiveness on the global market. However, such companies are also the key holders of the innovations, research-development activities and new technologies. Today, the key factor of international competitiveness is the superiority of companies' non-material resources and competencies.

The key trends that shape and change the global competitive environment are: increased speed of knowledge creation and dissemination, trade liberalization, globalization and physical disintegration of production, special importance attributed to value chains, more significant role of the multinational corporations in production and distribution, changed elements of the competitiveness (Manić, 2008, p. 22). Competitiveness is the synonym for productivity and it can be increased by the rational use of resources, use of new knowledge, being more economical in the business, using modern

technologies, development of infrastructure and telecommunication. Strengthening productivity and competitiveness has to be among the major goals of economic policy. If the country is not competitive, the national economy is suffering and barriers for getting on the international markets arisse. In contemporary globalized economy, there is a large number of factors which explain the competitiveness of national economies.

2.3. Goods market efficiency as a factor of national competitiveness

Goods market efficiency is the sixth pillar of competitiveness within the Global Competitiveness Index. Countries with efficient goods markets are well-positioned to create the appropriate combination of products and services consisted with supply and demand conditions, which in turn guarantees the most efficient trade. Healthy competition, both domestic and foreign, encourage market efficiency, as well as business productivity, ensuring that firms produce goods for which there is a demand on the market. As a result, such efficient enterprises advance further. Market efficiency also depends on the conditions of the demand such as the customer orientation and buyer sophistication. For some cultural or historic reasons, customers in some countries can be more demanding than those in the others. This can create an important competitive advantage, due to the fact that it forces companies to be more innovative and more customer oriented, which in turn enforces discipline required for achieving market efficiency.

More demanding consumers contribute to the improvement of business competitiveness due to the fact that they stimulate innovativeness of the enterprises and their market orientation (customer orientation, competitiveness orientation, interfunctional coordination, long-term profit orientation) (Stanković, Đukić, 2011, p. 270). Economies that are highly rated on this aspect offer products and services which are adapted to the needs and demands of the market.

The sixth pillar of competitiveness - goods market efficiency - represents 17% of the total score of efficiency enhancing factors. Inside the pillar itself, factors which are related to competitiveness contribute up to 67% of the score and they include factors related to competitiveness on domestic market (the intensity of the local competitiveness, market domination, efficiency of the anti-monopoly policies, level and effects of tax regulations, tax rates, number of procedures required to start a new business and time spent for such endeavor, expenses and policies in the agricultural sector) and on foreign market (trade and customs barriers and tariffs, the extent of foreign

ownership, attractiveness for investments, etc). Quality of demand conditions - the level of customer orientation and buyers sophistication – add up to 33% of the score.

When the goods market functions efficiently, every factor of production is directed towards the most productive use. This means that enterprises produce goods and services corresponding to the customers' wishes and they sell them for the lowest possible price. However, the lack of competitiveness and the distortion of the fiscal policy and regulations can lower the goods market efficiency. Fiscal policy can be used to favorize certain sectors, based on selective policies, and bend interfere with decisions, which often has negative effects on total productivity.

Opening of the national market, in most cases, leads to least productive firms leaving the market and the most productive ones getting rewarded. This way, by removing the barriers for entering and leaving the market, the total productivity increases[3]. Also, this enables reallocation of resources to development sectors and capital investments into new technologies which in turn lead to the productivity growth. Legal and regulatory environment can directly influence enterprises to enter or leave the market. An efficient framework for providing solutions to the problem of bankruptcy is also an important factor.

In order to acquire and use knowledge about the market and from the market, market orientation of the enterprise is a prerequisite. Many studies in the area of marketing have proved the multiple positive impact of market orientation on the performance of the enterprise, such as innovation, profitability and competitiveness (Stanković, Đukić, Popović, 2014, p. 271). However, it seems that within domestic enterprises, the significance of the marketing concept and marketing development for business, and thereby, for national competitiveness, has not been understood yet.

3. Research methodology

The analysis of the market efficiency in Serbia and comparative analysis with the neighboring countries is based on the World Economic Forum methodology, or in other words, on the sixth pillar of the Global Competitiveness Index. Also, the influence of the goods market efficiency indicators on the national competitiveness is based on the annual reports of the WEF.

[3] Entry barriers include issuing permits, public monopolies, administrative prices.

3.1. Methodology of the World Economic Forum

During the last few decades, World Economic Forum has created multiple indexes for measuring and comparing the competitiveness of national economies. With the help of leading world economists, two indexes of competitiveness were constructed at first: the Competitiveness Growth Index and Business Competitiveness Index. The former was introduced in the year of 2000 and its goal was to show competitiveness on the macro level based on the theoretical researches. The latter dates from 1998 and it was used to evaluate micro economic competitiveness of national economies. It was defined by M. Clein and later upgraded by M. Porter. Due to its multiple flaws, the Competitiveness Growth Index was replaced with the Global Competitiveness Index, which was constructed under the leadership of the one of the leading economists in the world, professor Xavier Sala-i-Martin. The goal was to include more indicators and, by doing so, to more precisely assess the competitiveness between countries. It was based on the assumption that in today's globalized economy, there is a large number of factors which explain the competitiveness of national economies.

The methodology of the World Economic Forum has been traditionally used for evaluating the countries' competitiveness, in order to estimate the influence of certain factors on national competitiveness and the positioning of certain economy. For analysis and evaluation of business competitiveness, management can use different methods and techniques of strategic and competitive analysis (Stanković, Đukić, 2009).

The World Economic Forum's GCI measures the quality and competitiveness of the business environment in more than 140 countries worldwide. GCI is obtained by analyzing more than 110 indicators, based on the results of the managers opinion survey in the countries in which the research was conducted and on the reports of other international organizations such as the World Bank. The factors of competitiveness which are included in this index are split into 12 categories or "12 pillars of competitiveness" in order to aggregate the factors to a certain extent.

Primary data are acquired via the standardized surveys which are carried out on the yearly basis in the countries involved in the research, and they are answered by the enterprises' top managers which form the representative sample. Such data is also called the "soft data". The number of enterprises which form the sample vary from one country to the other and it depends, first and foremost, from the country's size. Every year, one half of the sample is gathered from the enterprises which had been included in the

previous year, while the other half is gathered randomly from the defined sample framework. For calculating the competitiveness indicators such as: tax levels, inflation rate, budget deficit, the number of telephone lines, etc. data from internationally-comparable bases are used (IMF, World Bank, World Trade Organization, United Nations, and other). Such data is called "hard data". For the calculation of the competitiveness indicators in the current year, secondary data from the year before is most commonly used, having in mind that in the moment of the competitiveness report preparation, the data for current year is usually unavailable. In such regard, the representative of the current competitiveness is the data gathered via surveys.

GCI consists of five types of data. Most variables are valuated in the range from 1-7 (82 from 111). The remaining ones are represented by using different methods of scaling, including the ones which are set within the range from 1-10 (2 variables) and the ones set from 1-100 (1 variable). Besides that, 15 variables are given in the absolute value (for example, the number of days for starting a new business) and 11 variables are represented as the fraction (for example, inflation as yearly percentage) (Zubović, Bradić-Martinović, 2014, p. 758).

3.2. The structure of Global Competitiveness Index

The Global Competitiveness Index is a useful multidimensional indicator which connects the critical factors; the so-called "pillars of competitiveness" (12 pillars) which are grouped into three groups: a) Basic factors (institutions, infrastructure, macroeconomic stability, health and primary education), b) Efficiency factors (high education and training, goods market efficiency, work market efficiency, the degree of financial market development, technological capability, market size), and, c) Innovative factors (sophistication of business and innovation) (Stanković, Đukić, Popović, 2014, p. 273).

The Global Competitiveness Index (GCI) focuses on identifying factors that encourage or prevent entrepreneurship, economic growth and economic development of a certain country (Grgurević, 2013, p. 152). It deals with the measurement of the average of several microeconomic and macroeconomic components, which are separately valued on the scale from 1 to 7 (1 - worst grade; 7 - best grade). All measured indicators are grouped into 12 pillars and they reflect different aspects of complex economic reality.

Although all aforementioned pillars are important, to a certain extent, for all economies, GCI highlights that they will have a different importance for

different economies. In terms with a well-known theory of economy about the development phases, the authors assume that in the first development phase, the economy is led by the basic factors and that the countries are competing on the basis of non-qualified labor force and natural resources (Perez-Moreno, Rodriguez, Luque, 2016, p. 399). Competitiveness in this stage of development depends on the following: do public and private institutions function properly (1st pillar), the development of the infrastructure (2nd pillar), stable macroeconomic environment (3rd pillar), healthy workforce with primary education as the minimal requirement (4th pillar). When a country becomes more competitive (with a higher level of productivity and wages) then it is considered to be placed into the efficiency-led development stage. In that moment, the competitiveness depends on higher education and training (5th pillar), goods market efficiency and labor market (6th and 7th pillars), the developed financial market (8th pillar), the ability to use existing technologies (9th pillar), and a large domestic or foreign market (10th pillar). Finally, when the country moves into the innovation-driven development phase, companies are competing by producing new and different products using the sophisticated production processes (11th pillar) and innovating new ones (12th pillar).

Table 1. Weightings for formulating the Global Competitiveness Index

	Factor-driven economy	Efficiency-driven economy	Innovation-driven economy
Basic requirements	60%	40%	20%
Efficiency enhancers	35%	50%	50%
Innovation and sophistication factors	5%	10%	30%

http://www.sef.rs/uporedna_ekonomija/metodologija-svetskog-ekonomskog-foruma.html

Having in mind the phase in which the economy of a certain country is located, factors that are split into 3 groups, get different weightings during the calculation of the Global Competitiveness Index (Table 1).

The significance of certain groups of pillars of competitiveness for an individual country depends on the level of development of such country. The level of GDP per capita is used as criterion to group countries according to the level of development. The division was done on three basic and two transitive phases of economic development. Depending on the stage in which the country is, the weightings that are attributed to the groups of pillars forming the values of GCI will also depend.

The first pillar – institutions. Institutional ambient is determined via the legal and administrative framework within which the individuals, enterprises and government, via mutual interaction, generate income and secure the economic prosperity (Račić, Pavlović, 2011). The institutions represent the "rules of the game within a society", formalized or informal forms of behavior, that structure all social interactions and have a strong influence on the segments of the economic process; they govern the actors' motivation, determine property relationships, influence the market efficiency, speed of the technological changes, innovative dynamic, etc. (Stefanović, 2009). Regulated institutional ambient implies ensuring the protection of all types of property which is the basic prerequisite for attracting foreign investors. Besides that, it is very important to ensure the optimal level of regulation, preventing corruption, ensure the institutional support for the development of the market freedoms, political independence of the judiciary and create an institutional ambient which enables fair business.

The second pillar (infrastructure) is important for the efficient functioning of the economy. A well-developed infrastructure reduces the costs of integration of the national market with other regions and countries. Quality transport infrastructure enables the timely placement of goods and services, as well as the efficient transport of workers. Well-developed energetic infrastructure is of crucial importance as well, which enables the avoiding of shortages and interruptions during the distribution, while well-developed infrastructure of telecommunication enables fast and free information flow, contributes to the total economic efficiency because it enables quality decision-making based on such information.

The third pillar - macroeconomic environment. For the development of the competitiveness, the stability of macroeconomic environment is of key importance. In other words, it is of key importance to enable the high as possible economic growth, decrease unemployment, enable price stability (low inflation) and avoid deficits. All of these macroeconomic policy objectives are in mutual relations which depend on the aggregate demand and changes in the economy cycle. For example, in the expansive phase of the business cycle, it comes to rapid decrease of unemployment, as well as to increase of aggregate demand, which encourages import (due to the decrease of the gap between real and potential output). Inflation lowers competitiveness of domestic products, which decreases export, while simultaneously, due to the increase of demand, the import is increasing, which, in the end, leads to the deficit (Savković, 2006, p. 152).

The fourth pillar is related to health and primary education. Investing and ensuring the quality of health protection also contributes to the decrease of costs during business, via decreasing the absence of sick workers and increasing the level of efficiency of their work. On the other side, education is an important prerequisite of social and economic growth, because only educated labor force can adapt to advanced processes of production and technologies.

In the conditions of globalization of capital markets, goods and services, knowledge interposed as the key generic factor of market value of successful companies. Thereby, as a consequence of ever more complex demands which are brought by businesses on the global level, "knowledge management" emerges as the imperative of their successful market positioning in the long-term (Ljopur, Peković, 2013, p. 66). The fifth pillar, or high education, is an important prerequisite of advancement in conditions of the global economy and a changing surroundings. This implies constant professional training or, in other words, constant upgrade of skills and knowledge when staff is concerned.

The sixth pillar - goods market efficiency. Under goods market efficiency we imply the possibility and capability of production of a wide range of products and services in given supply and demand relationships. The efficiency of this market segment depends on the conditions of the demand, which are determined by consumer orientation and their sophistication which corresponds to the purchasing power (Račić, Pavlović, 2011). In terms of globalization and creating the global market, there is a surplus of supply when compared with demand, which is favorable from the aspect of the consumer. Therefore, there is a demand that producers be more focused on the consumers and that they adjust their offer to the need of the consumers. On the decrease of goods market efficiency several factors can have an effect, such as the restrictive or discriminatory ruleset for foreign people property or foreign direct investment, which further leads to the decrease of competitiveness.

Labor market efficiency as the seventh pillar of this index implies that efficiency and flexibility of this market are very important for the competitiveness of every economy. This means that employees are distributed in accordance with their skills, knowledge and capabilities, via which they give their full contribution while working on their positions and it also means that there is a certain flexibility when distribution of workers from one economy activity to the other is concerned.

The eighth pillar or the sophistication of the financial market is very important because it enables efficient focus of financial resources towards the best alternatives. It implies stable banking sector and developed methods of financing or, in other words, the existence of the deep secondary market with a wide spectrum of financial instruments.

The ninth pillar refers to technological equipment, having in mind that in conditions of globalization, technologies become a key factor of preserving the competitive advantage. The state must provide conditions for the efficient use and adoption of new technologies. Less developed countries enable that via foreign direct investment while developed countries invest in research and development and set technological standards.

The tenth pillar or market size refers to the fact that countries with big markets can use the effects of the economies of scale. In the globalization era, international markets replace the national ones more and more, which is, above everything else, a common characteristic within small countries.

The eleventh pillar - business sophistication. The productivity of a certain country depends on the productivity of the companies which function within it. Business sophistication of the country implies the quality of total business relationships, as well as the "ingenuity" of the enterprise which is expressed via strategies and operational practices. Due to this reason it is imperative that every enterprise continuously improve their operational efficiency, following the role model of the best global practice. When strategic approach is concerned, it is desirable to implement strategies of differentiation, which imply the development of innovation. Resorting to alternative strategies which are focused on leadership in expenses, is leading the market actors into something called the "price war", which often results with the decrease in the quality of the product. Also, networking the enterprises (incubators, clusters, strategic alliances) represents an unavoidable link in competitiveness development, due to the synergic effects which are possible to realize in many segments of business (increase of bargaining power, conquest of new markets, acquiring new knowledge, et cetera) (Račić, Pavlović, 2011). The indicator which refers to the development and use of marketing is one of the indicators within this pillar.

The capability of the enterprise to use innovation to create new chances in a competitively and technologically ever more intensive environment is, even more and more, the factor of success. This ability can be seen primarily in the proactive methods of thinking and working and strategic flexibility as the key competence of a modern enterprise. The strategic flexibility alone is possible to increase if the strategies are the result of innovative reactions and

creating a bigger difference in relation to competitors (Stanković, Đukić, Mladenović, Popović, 2011, p. 559). The twelfth pillar of the Global Competitive Index is precisely concerned with innovations. In contrast with the countries in development, which can upgrade their productivity by adapting to the already existing technologies, enterprises from well-developed countries need to develop their own products and processes in order to maintain their competitive advantage. This demands an environment which supports the development of innovation, that is, the investments in research and development, achieving the cooperation between universities and economy and also protecting the intellectual property.

Global Competitive Index as a complex index is formed as the weightings sum average of values for each of the aforementioned pillars, until each one of them does not, on its own, represent a composite index which is formed as the weightings sum average of indicators whose values are acquired from two types of sources - primary and secondary.

The aforementioned and analyzed pillars are grouped into three continents which represent the key for different methods of running the economy: factor-driven economy, efficiency-driven economy and innovation-driven economy.

3.3. Flaws of Global Competitiveness Index as the informational basis for research

Methodology of the World Economic Forum includes multiple factors which are key for economic growth and development - institutions, macroeconomic factors, infrastructure, education, technology. This way it contributes to the understanding of key factors which determine the economic growth and helps explain why some of the countries are more successful than the others. Although its most important feature is to analyze the issue of competitiveness, consisting of more than 110 factors of competitiveness, there are some noticeable flaws.

The data which are used in the research are gathered via two methods - direct measurements (quantifiable data), which are acquired from relevant statistics and international institutions and surveys, where the data is gathered by surveying the representatives of the economic community, in other words, their evaluation of subjective occurrences. The index is consists of 56% of the indicators gathered by the survey about expectations of managers, and the rest is statistical economic data. This means that this research is based in majority

on the data acquired in different surveys, which to a certain extent subjectivizes the evaluation marks and it can affect the result of the research.

There are multiple other flaws as well. There are many questions for which quantifiable data is available, but they are not used; instead of them, the World Economic Forum chooses to rely on qualitative answers. Another thing, the survey questions are formulated in a similar manner, often not very precise and somewhat confusing. Third, it seems that the surveyed people are not using the same standards when providing answers, which leads to ranking which is opposing the quantitative indicators. In support of that, there are some leaps on the leaderboard in comparison with the previous year, especially when structural factors are concerned, where there is no possible reason for such leaps, which indicates the subjectivity during the answering (Lall, 2001, p. 28). These facts point out to the problems to which it comes due to relying of this methodology on answers which are acquired by surveying.

That which can also go against the competitiveness analysis of the World Economic Forum is that certain factors which can influence the competitiveness of certain countries are nowhere to be found in this methodology. In the first row here it is implied to the socio-psychological (economic) factors of competitiveness; but to some other as well - participating in integration, proximity of the economic centers, other macroeconomic factors (unit labor costs, exchange rate, etc.).

It is considered that countries function by following the relatively similar principle as the enterprises do - they are fighting for markets and resources, measure competitiveness by observing the relative market participation, innovations and growth, using strategies of competitiveness to increase their market standings. However, such broadened idea about competitiveness makes sense only for specific actions and markets. For example, it makes sense to say that the United States of America has become less competitive in television making and more competitive in computer making. But is it reasonable to say that the United States of America is becoming more or less competitive as an economy (Lall, 2001, p. 4). In other words, it makes more sense to conclude that a country is less competitive in a certain activity, but more in another different activity, but claiming that it has become more or less competitive as an economy is not a right thing to do, which also points out to a flaw made by the methodology of the World Economic Forum. The similar conclusion was made by Krugman as well, by saying that the term is used in vain when the example of national economies is concerned, because such obsession with the competitiveness is in the same time both dangerous and wrong. He dealt with two key questions: Is there a valid economic definition for

national competitiveness and, if it exists, would there be a good enough reason for a strategy of competitiveness to exist (Krugman, 1994, p. 44).

On the most basic level the index has a lot of flaws, starting from the assumption that the majority of the market is efficient (which excludes an important set of questions from the analysis, especially in non-developed countries), over the definition of competitiveness via per capita income (which it is transposed onto growth analysis and productivity) all until the negation of the key problems of sustainable growth (Manić, 2008, p. 35).

Despite the aforementioned flaws, the Global Competitiveness Index enables a universal analysis of the competitiveness because it also includes a lot of factors and it enables the comparison of competitiveness within certain countries which are included into the report of the World Economic Forum about global competitiveness, due to which we will use it for the analysis.

3.4. The new Global Competitiveness Index 4.0.

In order to incorporate the latest technological developments, to eliminate some of the weaknesses and to adapt the GCI to the world economic trends, World Economic Forum introduced the new GCI 4.0. in 2018. The idea was to point out the significance of human capital, innovation, resilience and agility, as factors of economic success in the 4th Industrial Revolution (4IR). Although it emphasizes the use of technology for further progress, it is stated that ''economies need to be holistic in their approach to competitiveness rather than focusing on a particular factor alone'', since ''strong performance in one pillar cannot make up for a weak performance in another'' (WEF, 2018, p. vii).

The new GCI framework includes 12 pillars, as the previous one, but some of their names, structures, positions and calculation methodologies have been changed. They are now grouped into four categories:

- Enabling Environment: 1. Institutions, 2. Infrastructure, 3. ICT adoption and 4. Macroeconomic stability;
- Human Capital: 5. Health and 6. Skills;
- Markets: 7. Product market, 8. Labour market, 9. Financial system and 10. Market size;
- Innovation Ecosystem: 11. Business dynamism and 12. Innovation capability.

Although placed into these four categories, none of them is considered priority for the overall index value, since each of the pillars has the same share in the final score. This way, huge difference in the calculation method has been

made. The former methodology, which included grouping economies into development stages and, based on that, weighting certain pillars more than the others, is no longer used. Now, the final index score is the average of the 12 pillar scores, therefore the significance of each competitiveness factor for the overall result is about 8.3% (1/12).

Pillars and overall GCI score are expressed on a 0 to 100 scale, where 0 presents the lowest and 100 the maximum score. Instead of former 114 indicators, for calculating the new GCI 98 indicators have been used, out of which 64 are completely new. Many of the old indicators which had been estimated based on the ''soft'' data, collected through Executive Opinion Survey, have been replaced with more objective ones. Hence, the impact of personal perception on the results has been considerably reduced, and the objectivity of comparison between different countries has increased.

These conceptual, statistical and methodological updates have greatly improved the GCI as the measure of countries' productivity levels. It offers all the necessary information for understanding the national competitiveness, its main drivers, major weaknesses and provides guidelines for sustainable development. Thus, it is of crucial importance to the policy-makers and business sector, as it helps them create successful economic strategies and monitor their progress.

Due to the huge changes in the methodology, in the structure of the pillars and in indicators used for the new GCI, the score of GCI and its pillars, as well as countries' rank based on it, do not correspond to the scores and ranks obtained using the previous index. For that reason, with the aim of analysing the position of the chosen countries and making comparison between them during a longer period of time, the old GCI and data were used.

4. Research Results and Discussion

4.1. Comparative analysis of goods market efficiency in Serbia and neighboring countries

In order to observe the efficiency of goods market in Serbia and to make comparison with a surrounding countries, the 6th pillar of GCI will be presented in detail. The data refer to the period of seven years, from 2011 until 2017. Since the structure of GCI, as well as the calculation methodology, was changed in 2018, as mentioned above, the latest data is left out, because it is not comparable to the one from previous years.

Table 2. Goods market efficiency index for Serbia and surrounding countries (2011 – 2017)

Year	2011/ 2012	2012/ 2013	2013/ 2014	2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	Average
Number of countries	142	144	148	144	140	138	137	142
Country	**Score/ Rank**	**Score/ Rank**	**Score/ Rank**	**Score/ Rank**	**Score/ Rank**	**Score/ Rank**	**Score/ Rank**	**Score/ Rank**
Serbia	3.5/ 132	3.6/ 136	3.6/ 132	3.8/ 128	3.7/ 127	3.8/ 121	3.9/ 110	**3.7/ 127**
Albania	4.5/ 43	4.3/ 58	4.1/ 97	4.2/ 93	4.3/ 63	4.3/ 69	4.4/ 57	**4.3/ 69**
BH	3.8/ 115	3.9/ 109	4.0/ 104	--	3.7/ 129	3.7/ 129	3.7/ 126	**3.8/ 119**
Bulgaria	4.1/ 86	4.2/ 83	4.2/ 81	4.4/ 63	4.4/ 61	4.4/ 57	4.3/ 69	**4.3/ 71**
Croatia	3.8/ 114	3.9/ 114	3.9/ 111	4.1/ 105	4.0/ 105	4.1/ 95	4.0/ 99	**4.0/ 106**
Hungary	4.3/ 55	4.3/ 67	4.2/ 78	4.4/ 65	4.3/ 72	4.4/ 59	4.4/ 64	**4.3/ 66**
Macedonia	4.3/ 63	4.3/ 68	4.5/ 44	4.6/ 38	4.6/ 33	4.7/ 34	--	**4.5/ 47**
Montenegro	4.5/ 39	4.4/ 48	4.3/ 64	4.3/ 69	4.3/ 70	4.3/ 74	4.4/ 65	**4.4/ 61**
Romania	4.0/ 96	3.9/ 113	3.9/ 117	4.2/ 89	4.3/ 73	4.2/ 80	4.1/ 92	**4.1/ 94**
Slovenia	4.4/ 48	4.4/ 49	4.3/ 62	4.4/ 61	4.5/ 47	4.6/ 42	4.6/ 40	**4.5/ 50**

WEF (2011, 2012, 2013, 2014, 2015, 2016, 2017)

Analyzing the trend of the goods market efficiency index of Serbia and of countries from the neighborhood – Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Hungary, Macedonia, Montenegro, Romania and Slovenia, it can be seen that Serbia had been in a very unenviable position for years (Table 2). Moreover, from 2011 to 2015 its rank had been by far the worst in the region. Since then, Serbia has had the second lowest score, leaving behind only Bosnia and Herzegovina. According to the Global Competitiveness Report 2017-2018, Slovenia was the highest ranked economy of the Balkan considering the 6th pillar of GCI (57th out of 137), but it should be noted that Macedonia was left out. Observing the average score and rank of the mentioned countries for the 2011 – 2017 time period, it can be concluded that Macedonia had been the most successful in regard to the efficiency of goods market. Besides, it was the country which had improved its rank the most in the past years. Slovenia is only a few steps behind when the average rank is taken into account, with approximately the equal score. Although Serbia has enhanced its position in the last seven years, the average value of its index was the lowest among

discussed countries, confirming that the overall market conditions have been far from satisfactory.

4.2. Analysis of goods market efficiency indicators in Serbia for a seven-year period

With the purpose of explaining the causes of such unfavorable position of Serbia regarding the goods market efficiency, it is necessary to look further into the indicators within this pillar. Factors influencing the efficiency of goods market are grouped into two categories: competition, domestic and foreign, and quality of demand conditions. Market competition is crucial for increasing market efficiency and productivity of business, making the selection between those who provide the wanted goods in an efficient way and the ones who do not. However, since customers' needs and behaviour can vary significantly from one market to another, demand conditions such as customer orientation and buyer sophistication can have a great impact on market efficiency as well.

Based on the data provided by World Economic Forum for the analyzed period, Serbia had been ranked the worst in regard to buyer sophistication and the extent of market dominance (Table 3, Table 5). Buyer sophistication had been the indicator with the lowest score and rank within the goods market efficiency index for years, except in 2017 when agricultural policy costs took over the unflattering leading position. It implies that the sophistication of customers demand had been very low and that they had been making purchasing decisions primarily based on the price and not on the product performance. Such consumer behaviour, along with a small number of customer oriented companies, had had a negative impact on the innovativeness of business entities in Serbia. Customer orientation, as an element of market orientation, provides ideas that serve as the basis for innovations consistent with customer requirements, while the increased level of sophistication of their requirements stimulates further innovations (Stanković, Đukić, Popović, 2014, p.274). Besides the poor quality of demand conditions, the goods market in Serbia had been characterized by weak competition. The first two indicators of 6th pillar had had a very low score and rank over the years, proving that the competition had not been intense and that a few business groups had dominated the local market. Thus, the success had often not been the result of productive and efficient working process, actions and strategies, but the consequence of dominant market position. Despite the fact that ranks of these indicators had been improved throughout

the years, the level of competition was still insufficient. Such circumstances had been the main causes of reduced market efficiency in Serbia.

Table 3. Indicators of the goods market efficiency by factors for Serbia (2011 – 2017) – Domestic competition

Year	2011/ 2012	2012/ 2013	2013/ 2014	2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	**Average**
	Score/ Rank	**Score/ Rank**	**Score/ Rank**	**Score/ Rank**	**Score/ Rank**	**Score/ Rank**	**Score/ Rank**	**Score/ Rank**
1. Intensity of local competition	3.6/136	3.6/137	3.8/138	4.2/128	4.3/125	4.2/128	4.5/115	**4/ 130**
2. Extent of market dominance	2.5/139	2.6/142	2.6/142	2.8/136	2.7/134	2.9/129	3.2/112	**2.8/ 133**
3. Effectiveness of anti-monopoly policy	2.8/137	2.8/142	3.0/141	3.3/126	3.1/121	3.0/118	3.1/114	**3/ 128**
4. Effect of taxation on incentives to invest	2.9/118	2.9/122	2.8/130	2.7/136	2.9/124	3.1/107	3.3/98	**2.9/ 119**
5. Total tax rate	34.0/50	34.0/50	34.0/53	36.8/69	38.6/71	39.7/77	39.7/78	**36.7/ 64**
6. Number of procedures to start a business	7/65	7/74	6/47	6/57	6/57	6/54	5/36	**6.1/ 56**
7. Time required to start a business	13/51	13/59	12/57	11.5/61	12/68	12/73	7/40	**11.5/ 58**
8. Agricultural policy costs	3.4/112	3.3/119	3.2/130	3.0/128	2.9/132	2.8/132	2.9/130	**3.1/ 126**

WEF (2011, 2012, 2013, 2014, 2015, 2016, 2017)

On the other hand, the openness to foreign market players and uncomplicated process to start a business had been factors that had contributed to Serbia's market efficiency the most (Table 4). The number of procedures, as well as the time required to start a business, had been the highest ranked indicators of goods market efficiency index for years. The share of imported goods and services in GDP had been increased over the same time

period, making this indicator the highest ranked in the last year of the analyzed interval. Alongside other indicators of foreign competition, it implied that the access to the Serbian market had become more open and that barriers to international trade and investment had been reduced.

Table 4. Indicators of the goods market efficiency by factors for Serbia (2011 – 2017) – Foreign competition

Year	2011/ 2012	2012/ 2013	2013/ 2014	2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	Average
	Score/ Rank	**Score/ Rank**	**Score/ Rank**	**Score/ Rank**	**Score/ Rank**	**Score/ Rank**	**Score/ Rank**	**Score/ Rank**
9. Prevalence of non-tariff barriers	4.2/90	3.8/113	4.0/109	4.3/90	4.2/81	4.0/101	4.0/101	**4.1/ 98**
10. Trade tariffs	5.5/68	5.3/72	5.2/70	5.0/68	5.0/70	5.1/70	5.2/74	**5.2/ 70**
11. Prevalence of foreign ownership	3.9/116	3.8/124	3.9/118	4.0/109	4.1/99	4.1/98	4.4/77	**4.0/ 106**
12. Business impact of rules on FDI	3.5/125	3.7/123	3.5/129	3.2/130	3.6/121	4.1/102	4.3/80	**3.7/ 116**
13. Burden of customs procedures	3.7/93	3.5/102	3.4/112	3.6/96	3.5/94	3.5/101	3.9/87	**3.6/ 98**
14. Imports (as a percentage of GDP)	43.6/69	53.5/56	60.7/42	57.6/46	56.9/50	59.4/37	61.6/ 30	**56.2/ 47**

WEF (2011, 2012, 2013, 2014, 2015, 2016, 2017)

Table 5. Indicators of the goods market efficiency by factors for Serbia (2011 – 2017) – Quality of demand conditions

Year	2011/ 2012	2012/ 2013	2013/ 2014	2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	**Average**
	Score/ Rank	**Score/ Rank**	**Score/ Rank**	**Score/ Rank**	**Score/ Rank**	**Score/ Rank**	**Score/ Rank**	**Score/ Rank**
15. Degree of customer orientation	3.6/131	3.7/135	3.8/128	3.9/116	3.8/120	3.9/119	4.2/100	**3.8/ 121**
16. Buyer sophisticati on	2.2/136	2.2/138	2.3/143	2.4/137	2.3/133	2.3/133	2.4/128	**2.3/ 135**

WEF (2011, 2012, 2013, 2014, 2015, 2016, 2017)

4.3. Comparative analysis of goods market indicators in neighboring countries

In order to compare the position of Serbia, in terms of goods market efficiency, to the situation in other countries of the region, scores and ranks of their indicators within the 6th pillar of GCI are presented in Tables 6 - 21, as well as the average values for the observed time period. Analysing the average score and rank of the market efficiency factors in the category of domestic competition for the seven years interval, it can be seen that Serbia had had the worst position regarding the intensity of local competition, extent of market dominance and effectiveness of anti-monopoly policy. Strong and fair competition makes economies more productive and innovative, motivates companies to reduce the costs, to increase their efficiency and to be creative, demanding constant improvement. For that reason, the anti-monopoly policy has the crucial role in ensuring healthy competition and preventing unfair superiority of some business entities over the others. These elements are essential for achieving high efficiency of goods market. Slovenia had been the best ranked concerning the first three indicators, demonstrating the importance of domestic competition for the market efficiency (Tables 6 - 8) while Macedonia had kept the top spot of remaining five (Tables 9 – 13). Although the number of procedures and time required to start a business had been among the best ranked indicators of Serbia's market efficiency index for years, they had been far from the highest, compared to the countries in the region. In fact, starting a business in Serbia was easier only than in Bosnia and Herzegovina, while Bulgaria and Croatia had been in worse position considering separately the time and the number of procedures respectively (Tables 11 –

12). The results showed that effects of taxation on incentives to invest had been the most negative in Croatia, Romania and Slovenia (Table 9), while the total tax rate had reduced the market efficiency to the greatest extent in Hungary and Romania (Table 10). Agricultural policy had been the most burdensome for Croatian and Serbian economy, causing very high costs (Table 13, Table 3).

Table 6. Comparative presentation of the domestic competition efficiency indicators of the goods market by factors for the neighboring countries (2011-2017) – Intensity of local competition

Year	ALB	BIH	BGR	HRV	HUN	MKD	MNE	ROU	SVN
	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank
2011	4.0/122	3.8/132	4.4/99	4.1/115	5.3/39	4.2/110	4.0/121	4.5/97	5.1/51
2012	3.9/128	3.6/138	4.3/101	4.0/120	5.3/38	4.1/119	4.1/114	4.3/102	5.2/41
2013	3.4/144	3.4/143	4.6/101	4.5/107	5.3/43	4.8/85	3.9/135	4.4/115	5.2/49
2014	3.5/142	-	5.0/75	4.9/83	5.3/47	5.4/43	3.9/135	4.4/120	5.1/66
2015	4.0/134	4.4/117	4.6/104	4.9/83	5.1/63	5.5/31	4.2/131	4.5/112	5.1/64
2016	4.5/116	4.5/119	4.6/107	4.8/92	4.2/129	5.4/41	4.3/124	4.8/93	5.2/55
2017	4.7/100	4.5/117	4.8/91	4.7/102	4.2/127	-	4.4/122	4.9/86	5.4/38
Avg.	**4.0/127**	**4.0/128**	**4.6/97**	**4.6/100**	**5.0/69**	**4.9/72**	**4.1/126**	**4.5/104**	**5.2/52**

WEF (2011, 2012, 2013, 2014, 2015, 2016, 2017)

Table 7. Comparative presentation of the domestic competition efficiency indicators of the goods market by factors for the neighboring countries (2011-2017) – Extent of market dominance

Year	ALB	BIH	BGR	HRV	HUN	MKD	MNE	ROU	SVN
	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank
2011	3.5/78	2.8/131	3.1/116	3.1/119	3.7/62	3.4/92	4.0/46	3.6/74	3.7/63
2012	3.3/100	3.1/127	3.3/106	3.2/117	3.4/91	3.4/97	3.8/59	3.4/92	3.7/71
2013	3.0/131	3.3/111	3.2/120	3.3/110	3.3/112	3.5/89	3.6/80	3.6/88	3.7/79
2014	2.9/131	-	3.2/115	3.3/110	3.5/88	3.7/70	3.5/92	3.8/61	3.7/74
2015	2.8/130	3.1/115	3.4/91	3.2/113	3.5/86	3.7/67	3.4/89	3.6/71	3.9/52
2016	2.9/124	3.3/108	3.8/57	3.3/107	3.1/113	3.7/67	3.4/89	3.8/63	4.3/27
2017	3.1/115	3.2/107	3.8/61	3.1/113	3.2/108	-	3.5/84	3.6/76	4.3/26
Avg.	**3.1/116**	**3.1/117**	**3.4/95**	**3.2/113**	**3.4/94**	**3.6/80**	**3.6/77**	**3.6/75**	**3.9/56**

WEF (2011, 2012, 2013, 2014, 2015, 2016, 2017)

Table 8. Comparative presentation of the domestic competition efficiency indicators of the goods market by factors for the neighboring countries (2011-2017) – Effectiveness of anti-monopoly policy

Year	ALB	BIH	BGR	HRV	HUN	MKD	MNE	ROU	SVN
	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank
2011	3.7/87	3.4/110	3.3/116	3.7/94	4.0/76	3.6/96	3.9/79	3.7/93	4.3/52
2012	3.6/99	3.8/86	3.5/108	3.8/90	3.8/83	3.7/96	3.8/87	3.4/120	4.1/64
2013	3.4/125	4.1/68	3.3/126	3.8/96	3.9/90	4.0/81	3.8/94	3.6/113	4.0/77
2014	3.4/120	-	3.4/122	3.7/97	3.9/80	4.2/62	3.7/101	3.8/89	3.9/77
2015	3.2/112	3.1/122	3.6/91	3.5/100	3.5/95	4.0/57	3.6/93	3.7/82	3.8/66
2016	3.1/112	3.3/105	3.6/74	3.4/98	3.7/59	3.9/49	3.5/85	3.3/101	3.9/50
2017	3.3/102	3.4/88	3.5/85	3.4/91	3.7/73	-	3.6/75	3.4/95	3.8/60
Avg.	**3.4/108**	**3,5/97**	**3.5/103**	**3.6/95**	**3.8/79**	**3.9/74**	**3.7/88**	**3.6/99**	**4.0/64**

WEF (2011, 2012, 2013, 2014, 2015, 2016, 2017)

Table 9. Comparative presentation of the domestic competition efficiency indicators of the goods market by factors for the neighboring countries (2011-2017) – Effect of taxation on incentives to invest

Year	ALB	BIH	BGR	HRV	HUN	MKD	MNE	ROU	SVN
	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank
2011	4.2/24	2.8/123	3.3/81	2.2/140	2.5/131	3.7/51	4.3/19	2.5/135	2.7/129
2012	3.9/42	3.1/109	3.4/80	2.3/137	2.5/134	4.1/26	4.2/25	2.2/142	2.8/130
2013	3.7/75	3.1/119	3.4/103	2.3/143	2.7/135	4.2/37	4.0/46	2.6/136	2.9/127
2014	3.6/83	-	3.6/81	2.1/142	2.8/133	4.5/19	4.0/43	2.9/128	2.8/134
2015	3.2/105	2.8/127	3.8/56	2.4/137	3.0/120	4.6/21	3.9/43	2.9/126	2.7/130
2016	2.8/126	2.9/122	4.0/42	2.5/132	4.0/40	4.6/22	3.9/49	2.7/127	2.8/123
2017	2.7/123	2.6/128	3.8/58	2.7/125	4.1/41	-	4.0/46	2.9/121	3.0/113
Avg.	**3.4/83**	**2.9/121**	**3.6/72**	**2.4/137**	**3.1/105**	**4.3/29**	**4.0/39**	**2.7/131**	**2.8/127**

WEF (2011, 2012, 2013, 2014, 2015, 2016, 2017)

Table 10. Comparative presentation of the domestic competition efficiency indicators of the goods market by factors for the neighboring countries (2011-2017) – Total tax rate

Year	ALB	BIH	BGR	HRV	HUN	MKD	MNE	ROU	SVN
	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank
2011	40.6/73	23.0/16	29.0/28	32.5/44	53.3/ 114	10.6/3	26.6/25	44.9/90	35.4/57
2012	38.5/71	25.0/21	28.1/29	32.3/45	52.4/ 114	9.7/2	22.3/16	44.4/95	34.7/55
2013	38.7/74	24.1/19	28.7/34	32.8/44	50.3/ 116	9.4/1	22.3/14	44.2/99	34.7/58
2014	31.7/45	-	27.7/28	19.8/11	49.7/ 114	8.2/1	20.9/13	42.9/91	32.5/48
2015	30.7/40	23.3/21	27.0/29	18.8/11	48.0/ 103	7.4/1	22.3/17	43.2/93	32.0/45
2016	36.5/66	23.3/22	27.0/29	20.0/13	48.4/ 103	12.9/3	21.6/18	42.0/88	31.0/42
2017	36.5/67	22.6/19	27.0/28	20.9/14	46.5/ 100	-	22.2/18	38.4/73	31.0/42
Avg.	**36.2/62**	**23.6/20**	**27.8/29**	**25.3/26**	**49.8/ 109**	**9.7/2**	**22.6/17**	**42.9/90**	**33/50**

WEF (2011, 2012, 2013, 2014, 2015, 2016, 2017)

Table 11. Comparative presentation of the domestic competition efficiency indicators of the goods market by factors for the neighboring countries (2011-2017) – Number of procedures to start a business

Year	ALB	BIH	BGR	HRV	HUN	MKD	MNE	ROU	SVN
	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank
2011	5/23	12/119	4/15	6/34	4/15	3/8	7/65	6/34	2/3
2012	5/29	12/121	4/20	6/47	4/20	3/8	6/47	6/47	2/3
2013	4/20	11/126	4/20	6/47	4/20	2/3	6/47	6/47	2/3
2014	5/32	-	4/22	6/57	4/22	2/3	6/57	5/32	2/3
2015	5/38	11/123	4/22	7/76	4/22	2/3	6/57	5/38	2/3
2016	6/54	12/126	4/22	7/76	4/22	1/1	6/54	5/41	2/3
2017	5/36	12/125	6/53	8/91	6/53	-	6/53	6/53	4/18
Avg.	**5/33**	**11.7/ 123**	**4.3/25**	**6.6/61**	**4.3/25**	**2.2/4**	**6.1/54**	**5.6/42**	**2.3/5**

WEF (2011, 2012, 2013, 2014, 2015, 2016, 2017)

Table 12. Comparative presentation of the domestic competition efficiency indicators of the goods market by factors for the neighboring countries (2011-2017) – Time required to start a business

Year	ALB	BIH	BGR	HRV	HUN	MKD	MNE	ROU	SVN
	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank
2011	5/9	55/124	18/72	7/21	4/7	3/3	10/40	10/40	6/13
2012	5/10	40/120	18/76	7/25	4/8	3/4	10/48	14/66	6/16
2013	4/8	37/120	18/78	9/43	5/10	2/2	10/49	10/49	6/16
2014	4.5/12	-	18.0/84	8.0/39	5.0/14	2.0/2	10.0/52	8.5/48	6.0/21
2015	4.5/14	37.0/ 123	18.0/91	15.0/83	5.0/18	2.0/2	10.0/53	8.0/42	6.0/28
2016	5.5/28	67.0/ 133	18.0/94	12.0/73	5.0/26	1.0/2	10.0/56	8.0/48	6.0/34
2017	5.0/22	65.0/ 130	23.0/ 103	7.0/40	7.0/40	-	10.0/60	12.0/74	7.0/40
Avg.	**4.8/15**	**50.2/ 125**	**18.7/85**	**9.3/46**	**5/18**	**2.2/3**	**10.0/51**	**10.1/52**	**6.1/24**

WEF (2011, 2012, 2013, 2014, 2015, 2016, 2017)

Table 13. Comparative presentation of the domestic competition efficiency indicators of the goods market by factors for the neighboring countries (2011-2017) – Agricultural policy costs

Year	ALB	BIH	BGR	HRV	HUN	MKD	MNE	ROU	SVN
	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank
2011	3.9/66	3.3/121	2.9/136	2.7/139	3.8/75	4.1/52	4.6/16	3.3/122	3.6/90
2012	3.6/92	3.6/100	3.1/130	2.5/143	3.8/84	4.2/43	4.6/21	3.3/122	3.6/95
2013	3.4/115	3.8/76	3.4/116	2.5/146	3.7/90	4.4/26	4.3/30	3.5/110	3.5/111
2014	3.9/64	-	3.2/120	2.5/141	3.6/89	4.3/23	4.2/27	3.8/69	3.4/107
2015	4.6/15	2.9/128	2.9/127	2.5/138	3.5/93	4.3/28	4.1/40	4.0/54	3.4/100
2016	4.7/15	3.1/124	3.2/118	2.5/136	2.9/129	4.4/29	3.9/56	3.9/59	3.5/89
2017	4.7/20	3.3/109	3.4/98	2.6/134	3.0/122	-	4.0/54	3.8/65	3.6/86
Avg.	**4.1/55**	**3.3/110**	**3.2/121**	**2.5/140**	**3.5/97**	**4.3/34**	**4.2/35**	**3.7/86**	**3.5/97**

WEF (2011, 2012, 2013, 2014, 2015, 2016, 2017)

In regard to foreign competition, the analysis of average scores and ranks implied that non-tariff barriers had limited the competitiveness of imported goods on domestic markets in Bulgaria and Serbia the most, in the observed time period. Despite that Slovenia had the highest average, Croatia had been the highest ranked during the last three years of the interval (Table 14). When it comes to trade tariffs, Serbia and Macedonia had been at the bottom of the list, while Bulgaria, Hungary, Romania and Slovenia all had the

same average, and shared the leading position (Table 15). Even though the research showed that Slovenia had had the second most efficient goods market, with high competition and opened to foreign products, infrequent foreign ownership of companies and restrictive rules on foreign direct investment (FDI) positioned the country at the lowest and the second lowest rank in the group, regarding the 11th and 12th indicator (Table 16 – 17). The FDI regulation had been more restrictive only in Croatia. On the other hand, the prevalence of foreign ownership had been by far the greatest in Hungary, while Macedonia had the best average rank for this seven years period in relation to FDI rules. Serbia had been placed behind Hungary, Montenegro, Romania, Bulgaria, Croatia and Bosnia and Herzegovina in terms of the presence of foreign ownership, and shared the third worst average rank with Bosnia and Herzegovina and Bulgaria regarding the strictness of FDI regulation. Data on customs procedures indicated that they had been the most onerous in Bosnia and Herzegovina and Serbia, while Slovenia had had the most efficient customs policy in observed time frame (Table 18). As mentioned before, the highest average rank and score within goods market efficiency index of Serbia had been achieved in regard to imports, as the percentage of the GDP (Table 4). However, such ranking had been far from the best in the region. As it can be seen in the Table 19, better average rank of this indicator was reached by Hungary, Slovenia, Macedonia, Bulgaria, Montenegro and Bosnia and Herzegovina, while Croatia had the smallest share of imports in the GDP.

Table 14. Comparative presentation of the foreign competition efficiency indicators of the goods market by factors for the neighboring countries (2011-2017) – Prevalence of non-tariff barriers

Year	ALB	BIH	BGR	HRV	HUN	MKD	MNE	ROU	SVN
	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank
2011	4.8/46	4.4/72	4.1/97	4.4/74	5.6/15	4.3/85	4.8/42	4.5/69	5.0/31
2012	4.5/63	4.2/85	3.9/110	4.2/82	4.8/32	4.3/73	4.4/68	3.9/111	4.8/30
2013	4.1/99	4.0/107	3.8/123	4.4/58	4.6/43	4.3/69	4.3/82	3.8/128	4.5/45
2014	3.7/136	-	4.1/99	4.6/35	4.7/30	4.4/73	4.3/78	4.0/117	4.6/39
2015	3.8/119	4.2/88	4.1/98	4.9/16	4.5/36	4.3/66	4.4/61	4.5/47	4.5/49
2016	4.3/81	4.0/105	4.2/84	5.0/13	3.8/114	4.5/62	4.6/52	4.7/32	4.6/42
2017	4.3/75	3.8/114	4.2/82	5.0/23	4.1/91	-	4.5/56	4.6/42	4.6/44
Avg.	**4.2/88**	**4.1/95**	**4.1/99**	**4.6/43**	**4.6/52**	**4.4/71**	**4.5/63**	**4.3/78**	**4.7/40**

WEF (2011, 2012, 2013, 2014, 2015, 2016, 2017)

Table 15. Comparative presentation of the foreign competition efficiency indicators of the goods market by factors for the neighboring countries (2011-2017) – Trade tariffs

Year	ALB	BIH	BGR	HRV	HUN	MKD	MNE	ROU	SVN
	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank
2011	3.4/43	5.2/65	0.8/4	3.0/38	0.8/4	5.3/66	4.3/49	0.8/4	0.8/4
2012	3.1/46	5.1/68	0.9/6	3.0/45	0.9/6	5.2/70	4.4/57	0.9/6	0.9/6
2013	2.7/39	4.9/67	0.8/4	3.3/44	0.8/4	5.3/71	3.5/45	0.8/4	0.8/4
2014	2.8/42	-	0.8/5	3.2/45	0.8/5	5.3/71	2.9/44	0.8/5	0.8/5
2015	2.4/38	4.9/67	1.2/5	1.2/5	1.2/5	5.2/71	3.1/47	1.2/5	1.2/5
2016	2.4/39	4.8/66	1.0/5	1.0/5	1.0/5	5.1/71	3.5/48	1.0/5	1.0/5
2017	2.3/39	4.9/70	1.1/6	1.0/5	1.1/6	-	3.2/46	1.1/6	1.1/6
Avg.	**2.7/41**	**5.0/67**	**0.9/5**	**2.2/27**	**0.9/5**	**5.2/70**	**3.6/48**	**0.9/5**	**0.9/5**

WEF (2011, 2012, 2013, 2014, 2015, 2016, 2017)

Table 16. Comparative presentation of the foreign competition efficiency indicators of the goods market by factors for the neighboring countries (2011-2017) – Prevalence of foreign ownership

Year	ALB	BIH	BGR	HRV	HUN	MKD	MNE	ROU	SVN
	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank
2011	4.6/80	4.5/91	4.3/104	4.3/103	5.7/19	3.6/127	4.7/66	4.5/84	3.7/126
2012	4.1/103	4.4/86	4.1/107	4.0/111	5.6/16	3.8/123	4.6/78	4.1/106	3.4/132
2013	3.6/128	4.4/88	4.0/111	4.2/102	5.5/16	4.0/109	4.7/66	4.1/105	3.2/137
2014	3.2/133	-	4.0/108	4.3/92	5.5/15	3.9/112	4.5/75	4.3/89	3.2/134
2015	3.4/122	3.3/127	4.0/102	4.0/104	5.3/26	4.1/100	4.3/87	4.3/86	3.3/130
2016	3.9/107	3.6/116	4.3/87	4.1/101	4.5/70	4.2/95	4.1/99	4.3/85	3.5/119
2017	4.2/92	3.9/106	4.4/76	4.3/89	4.5/67	-	4.3/88	4.2/93	3.9/104
Avg.	**3.9/109**	**4.0/102**	**4.2/99**	**4.2/100**	**5/33**	**3.9/111**	**4.5/80**	**4.3/93**	**3.5/126**

WEF (2011, 2012, 2013, 2014, 2015, 2016, 2017)

Table 17. Comparative presentation of the foreign competition efficiency indicators of the goods market by factors for the neighboring countries (2011-2017) – Business impact of rules on FDI

Year	ALB	BIH	BGR	HRV	HUN	MKD	MNE	ROU	SVN
	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank
2011	5.1/33	3.7/120	3.6/122	3.1/138	4.9/49	3.7/119	5.1/31	4.1/105	3.4/126
2012	4.7/66	4.0/108	3.6/124	3.0/139	4.6/77	4.3/99	4.8/57	3.8/120	3.2/135
2013	4.5/81	4.3/92	3.7/118	3.0/140	4.2/102	4.9/43	4.5/78	3.7/116	2.9/142
2014	4.5/62	-	3.8/113	2.6/140	4.3/84	5.2/20	4.4/74	4.0/105	2.9/136
2015	4.4/78	3.3/128	3.8/115	3.1/134	4.6/56	5.3/15	4.2/94	4.7/55	3.4/125
2016	4.8/59	3.4/127	3.9/112	3.9/109	5.1/38	5.1/32	4.2/95	5.1/34	3.9/107
2017	5.3/24	3.7/122	3.9/110	4.2/99	5.0/46	-	4.4/78	5.3/25	4.1/104
Avg.	**4.8/58**	**3.7/116**	**3.8/116**	**3.3/128**	**4.7/65**	**4.8/55**	**4.5/72**	**4.4/80**	**3.4/125**

WEF (2011, 2012, 2013, 2014, 2015, 2016, 2017)

Table 18. Comparative presentation of the foreign competition efficiency indicators of the goods market by factors for the neighboring countries (2011-2017) – Burden of customs procedures

Year	ALB	BIH	BGR	HRV	HUN	MKD	MNE	ROU	SVN
	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank
2011	4.2/66	3.4/119	3.5/110	4.1/72	4.5/47	4.2/61	4.5/46	3.3/121	5.0/23
2012	3.7/92	3.9/80	3.6/97	3.9/81	4.7/38	4.4/55	4.3/60	3.0/134	4.9/27
2013	3.3/117	4.3/55	3.9/78	4.2/62	4.8/32	4.6/45	4.1/68	3.3/118	4.8/33
2014	3.4/112	-	4.1/67	4.6/41	4.8/31	4.7/36	4.1/65	3.7/86	4.9/30
2015	3.5/98	3.3/112	3.8/78	4.6/40	4.7/34	4.6/36	4.0/66	4.0/65	4.9/28
2016	3.7/86	3.3/115	3.8/77	4.4/51	4.8/35	4.6/42	4.1/67	4.1/69	5.0/26
2017	4.0/77	3.3/116	3.9/85	4.2/64	5.0/30	-	4.2/61	4.2/68	5.0/28
Avg.	**3.7/93**	**3.6/100**	**3.8/85**	**4.3/59**	**4.8/35**	**4.5/46**	**4.2/62**	**3.7/94**	**4.9/28**

WEF (2011, 2012, 2013, 2014, 2015, 2016, 2017)

Table 19. Comparative presentation of the foreign competition efficiency indicators of the goods market by factors for the neighboring countries (2011-2017) – Imports (as a percentage of GDP)

Year	ALB	BIH	BGR	HRV	HUN	MKD	MNE	ROU	SVN
	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank
2011	55.2/47	58.1/42	61.6/40	38.9/87	80.4/15	68.6/30	64.7/36	44.0/68	71.5/25
2012	60.0/42	64.5/40	67.8/36	37.3/92	84.9/19	77.3/29	64.2/41	45.8/69	80.7/26
2013	52.6/60	60.8/41	72.0/31	42.5/82	87.2/14	77.8/27	65.3/38	46.5/72	79.1/25
2014	54.0/53	-	73.5/31	42.4/79	87.8/15	74.4/29	66.8/37	44.0/77	80.8/22
2015	56.8/51	64.1/35	73.4/30	46.7/71	89.2/11	74.7/28	62.7/38	44.9/75	78.9/22
2016	51.7/49	60.0/35	69.9/24	49.7/54	89.7/12	75.8/20	62.1/32	45.5/61	79.5/18
2017	52.6/48	57.8/37	63.7/26	50.7/53	87.4/11	-	67.9/25	45.9/64	79.6/16
Avg.	**54.7/50**	**61/38**	**68.8/31**	**44.0/74**	**86.7/14**	**74.8/27**	**64.8/35**	**45.2/69**	**78.6/22**

WEF (2011, 2012, 2013, 2014, 2015, 2016, 2017)

Based on the analysis of demand conditions in observed countries, it could be concluded that situation in Serbia had been quite disturbing. Not only that the last two indicators had had very low scores in the past, but their average rank was the worst compared to surrounding countries, especially the level of customer orientation, in which Serbia had lagged far behind the rest of the states. This implied that companies' customer orientation and buyer sophistication in Serbian market had been at the lowest degree in the region. The best average score and rank of both indicators for the 2011 – 2017 time interval was achieved by Albania (Tables 20 – 21). Such results indicated that companies in this country had been paying a lot of attention to customer satisfaction, treating them well, while buyers had been making purchasing decisions based mostly on the sophistication of the product, not the price.

In the last few years, it has been pointed out to the connection between market orientation and the orientation for knowledge management, because it is believed that it leads to better performances of the enterprise (Milisavljević, 2015, p. 10). Efficient knowledge management (especially with the knowledge from the market and about the market) is a crucial factor of success and enhancement of business competitiveness. Business and market risk is lower if the enterprises successfully: create a product "made for" the customer, continuously innovating products, processes and business models, sell the experience and participate in the creation of communities of consumers (Stanković, Đukić, 2011, p. 282). This way, with the enhancement

of business subject competitiveness, it is being contributed to national competitiveness.

Table 20. Comparative presentation of the quality of demand efficiency indicators of the goods market by factors for the neighboring countries (2011-2017) - Degree of customer orientation

Year	ALB	BIH	BGR	HRV	HUN	MKD	MNE	ROU	SVN
	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank
2011	5.3/23	4.4/86	4.5/82	4.2/98	4.4/92	4.6/70	4.5/78	4.1/106	4.8/59
2012	5.0/38	4.5/83	4.6/69	4.2/107	4.3/103	4.4/92	4.5/76	4.0/116	4.8/52
2013	4.5/77	4.6/67	4.8/51	4.5/84	4.3/93	4.5/74	4.5/75	4.1/116	4.8/52
2014	4.7/57	-	5.0/40	4.6/60	4.4/85	4.7/54	4.4/79	4.4/84	4.9/45
2015	5.4/23	4.1/107	4.7/61	4.7/59	4.3/94	4.9/44	4.2/98	4.8/54	5.0/40
2016	5.3/29	4.2/101	4.6/73	4.6/74	4.6/72	4.8/57	4.2/102	4.6/69	5.1/40
2017	5.1/33	4.2/96	4.5/84	4.2/102	4.6/65	-	4.4/90	4.3/91	5.1/35
Avg.	**5.0/40**	**4.3/90**	**4.7/66**	**4.4/83**	**4.4/86**	**4.7/65**	**4.4/85**	**4.3/91**	**4.9/46**

WEF (2011, 2012, 2013, 2014, 2015, 2016, 2017)

Table 21. Comparative presentation of the quality of demand efficiency indicators of the goods market by factors for the neighboring countries (2011-2017) - Buyer sophistication

Year	ALB	BIH	BGR	HRV	HUN	MKD	MNE	ROU	SVN
	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank	Score/ Rank
2011	3.5/63	3.0/103	3.2/89	2.8/116	2.9/108	2.7/123	3.6/52	3.2/83	3.0/99
2012	3.5/62	2.7/124	3.2/92	2.9/116	2.7/123	2.3/133	3.2/88	3.0/102	3.0/108
2013	3.2/89	2.5/139	2.9/112	2.9/116	2.7/125	2.5/136	2.9/117	2.9/115	2.9/114
2014	3.0/105	-	2.9/111	2.7/128	2.7/124	2.8/118	2.9/113	3.0/107	2.9/116
2015	3.0/103	2.1/139	3.2/86	2.6/126	2.6/127	2.6/125	3.0/102	3.0/106	3.3/81
2016	3.1/91	2.1/135	3.3/82	2.7/121	3.4/74	2.9/106	3.0/95	2.7/122	3.4/73
2017	3.3/80	2.1/134	3.1/94	2.7/116	3.2/86	-	3.0/96	2.6/121	3.3/75
Avg.	**3.2/85**	**2.4/129**	**3.1/95**	**2.8/120**	**2.9/110**	**2.6/124**	**3.1/95**	**2.9/108**	**3.1/95**

WEF (2011, 2012, 2013, 2014, 2015, 2016, 2017)

5. Conclusion

Numerous factors influence both national and business competitiveness, thus the attempts of their systematization, were the subject of interest of many researchers in the area of the economy. In the latest

researches the focus in factor evaluation is switched from specialization, work division (which is dominant in a classical school) and investments into physical capital and infrastructure (in a neoclassical school) to more contemporary mechanisms connected to education, technological development, macroeconomic stability, market efficiency and similar indicators which are not mutually exclusive (Stanković, Đukić, 2011, p. 268).

The analysis showed that the low quality of demand conditions and insufficiently intensive domestic competition have been the main causes of reduced goods market efficiency in Serbia for years. Compared to the surrounding countries, the average scores of these indicators were the lowest, which implied that Serbia is lagging far behind the region. On the other hand, more open access to the Serbian market and uncomplicated process to start a business had been factors that had contributed to the market efficiency the most. Although the best ranked in Serbia, these indicators' scores were still lower than in some of the neighboring countries, emphasizing that goods market in Serbia had not been the most efficient concerning any factor. Observing the average score and rank of Serbia and the surrounding countries for the 2011 – 2017 time period, it can be concluded that Macedonia had been the most successful regarding the efficiency of goods market. Besides, it was the country which had improved its rank the most in the past years. Slovenia is only a few steps behind when the average rank is taken into account, with approximately the equal score. Although Serbia has enhanced its position in the last seven years, the average value of its index was the lowest among discussed countries, confirming that the overall market conditions have been far from satisfactory.

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MEASUREMENT OF THE SUPPLY CHAIN PERFORMANCES IN THE FUNCTION OF IMPROVING COMPETITIVENESS OF THE COMPANIES IN TOPLICA DISTRICT OF THE REPUBLIC OF SERBIA

Goran Milovanović, Ph.D[1]
Milenko Tanović, M.Sc[2]

The purpose of the work is to identify and evaluate a) the influence supply chain performance has on acquiring and maintaining the concreteness and competitiveness of entities (companies) that comprise it and b) involvement level of Toplica district companies in supply chains measured as a degree of implementing performance measurement systems into their supply chains.Identification and evaluation are based on an analysis of information from relevant scientific sources, and results of empiric research. Considering that the competition between individual companies is replaced more and more with competition between supply chains the quality of management with supply chains is crucial for the value that it generates for stakeholders and end users. System of measurement performances has to be designed the way it creates and keeps competitiveness of all subjects in supply chain as well as competitiveness of the chain itself. Within the process of the performance management balancing has to be done on many levels, whereby designing of the performances measurement system has to be carried out, not only because of the needs of certain company, but also because of the needs of all stakeholders in supply chain.Taking into account the fact that supply chains include more companies, there is a need for each company to design its own performance measurement system that will suit its business and that will be derived from the performance measurement system of the entire supply chain. An excellent designed supply chain performances measurement system significantly improves competitiveness of the companies.The supply chain performance measurement system must be created to meet the balance requirement on a number of grounds. It represents the base for managing with supply chain process and a long term increase of their competitiveness. The authors demonstrate that a) what must be common to all performance measures is that they are related to the competitive advantages of companies and supply chains, b) companies and supply chains must particularly respect those measures that are relevant to improving their competitiveness and

[1] Faculty of Economics, University of Niš, goran.milovanovic@eknfak.ni.ac.rs
[2] Innovation Centre University of Niš, tanovicmilenko@hotmal.com

profitability, and c) measuring supply chain performance of companies based in Toplica district contributes to their overall competitiveness.
Key words: supply chain, values chain, performances measurement system, competitiveness, performances criteria

JEL classification: L25, *M11*, *M21*
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1. Introduction

A modern business environment is turbulent, changeable and with a lot of competitors. Companies are forced to invest a high amount of funds in such an environment, as well as an effort, time and knowledge in order to compete successfully on chosen markets. Therefore, the ability of companies to adapt successfully to a change in the environment is precondition for their existence. Only companies which create competitive advantage can have certain future in business. Otherwise, sooner or later, they will face bankruptcy.

On nowadays market supply chains compete more and more, but not individual companies. Competition between companies is increasingly replaced by competition between supply chains. This new kind of a competition has caused turning an attention of the managers and academicians from managing performances of individual companies to managing performances of supply chains. Necessary preconditions for successful managing of performances of supply chains are introduction, usage and development of measurement of the supply chain performances (SCPMS - Supply Chain Performance Measurement System). An adequate designed SCPMS is a base for acquiring the competitive advantage of the company. SCPMS enables measurement of the key indicators of supply chain performances.

It is first pointed in this work the importance of the supply chain performances measurement for improving their competitiveness. Then we represented a type of performances measurement and phases of performances measurement. Next thing which is pointed is necessity of adjustment of chain supply performances measurement system to the requests of internal and external stakeholder companies. It is also identified an importance of the informational system for successful measurement and analysis of the key indicators of the supply chain performances. In the part of the work before the final one, limitations and risks that follow the process of the supply chain performances measurement are analyzed. In the last part of the work, on the basis of analysis of results of empiric research, characteristics

of the supply chain performances measurement are identified with 29 companies that do the business on territory of Toplica district. The focus of the last one is determination of the supply chain performances measurement influence onto competitiveness of these companies.

2. Theoretical Background and Literature Review

2.1 Supply Chain Performance Measurement and Competitive Advantage

The intense changes in the environment in the last two decades of the twentieth century have caused a change in the business philosophy of companies. Companies realized they are not specialists in performing all of the activities for creating and delivering products and services to end customers. As part of this, there is a recommendation to managers of modern companies to focus on several activities in which they are best, and explicitly contract others with the best external partners (Milićević, 2003, p. 57).

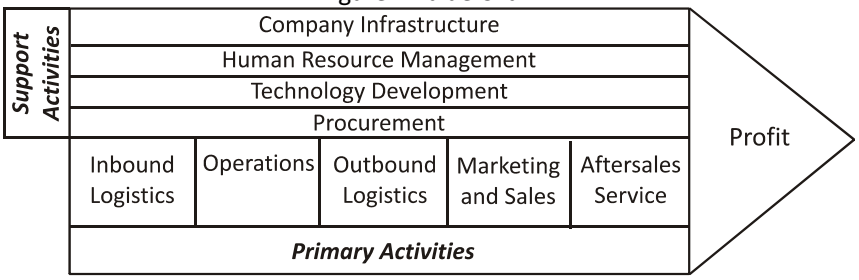
In order to become more competitive, companies began to get involved in supply chains. Supply chains are the arteries of today's globalized economy - they strengthen international trade flows that enable global trade (Millar, 2015). They are to a certain extent the product of companies' reaction to a highly competitive, super-linked, highly variable and unstable global environment. Companies base their competitive advantage not only on factors of a financial nature but also on factors of a non-financial nature (quality, customer requirements response time, creating added value for customers, etc.).

In order to understand the impact of the supply chain performance measurement system on the competitive advantage of companies, we will start from Porter's value chain (Porter, 1985). Porter points out that understanding and achieving competitive advantage requires a company to integrate all activities in order to create products and services that will meet customers' demands. The competitive advantage is the result of the synergistic effects of performing all activities (primary and auxiliary). Since companies are not specialists in performing all activities on the one hand, and customers' demands intensely change in line with other changes in the environment, on the other hand, supply chains have become a powerful tool for creating a competitive advantage.

The supply chain is a network of organizations that, through upstream and downstream connections, are involved in various processes and activities that create value for the end customer in the form of products and services

(Christopher, 2005, p. 26). In fact, this means that supply chains are composed of many entities that, with their related processes and activities, create added value for the end consumer. The synergetic effects of the action of numerous entities are identified with a powerful tool for gaining competitive advantage. Porter created a value chain in the context of gaining a competitive advantage under the influence of changed business conditions (see Figure 1).

Figure 1 Value Chain



Source: Porter, 1985.

The figure shows that there are two groups of activities: 1) primary activities (inbound logistics, operations, outbound logistics, marketing and services) and 2) auxiliary activities (procurement, technology development, human resource management and company infrastructure). Primary activities create value. Auxiliary activities do not directly participate in the creation of values but form a basis for its creation. The company gains a competitive advantage by efficient organization and management of primary and auxiliary value chain activities. It is necessary to analyze all activities and eliminate those that do not add value. After that, the supply chain becomes a value chain.

2.2 Types of Supply Chain Performance Measures

The term performance has different meanings. It is usually used as a common denominator for different coefficients, parameters, performance characteristics, technical data, and result measurers. The value of a particular performance is presented by a measure of performance, a measurer, or an indicator that clearly describes the relevant criterion.

For the purposes of measuring supply chain performance, different types of measures are used for different purposes. All performance measures must be useful for decision makers. Ranking of performance measures by relevance is not necessary. The reason is that the significance of certain

performance measures varies depending on the type and activity of the company. Observed in the broadest sense, supply chain performance measures must have the following characteristics (Beamon, 1999, pp. 275-292):

- *comprehensiveness*: performance measures should include all relevant aspects of the supply chain, to ensure a similar level of performances in the supply chain and its members;
- *universality*: performance measures should be comparable in different system operating conditions, to allow comparison with competitive systems;
- *measurability*: all data on which performance measurement is based must be measurable, to enable accurate and timely evaluation of performance; and
- *consistency:* performance measures must be consistent with the goals of the organization, to enable insight into the performances of the entire supply chain while taking into account organizational goals.

Benita Beamon formulated a performance measures system (resource measures, output measures and flexibility measures), allowing for the character and strategic goals of the supply chain. She concluded that an integrated approach to these measures, and therefore to their components, can positively contribute to supply chain performance management (Milovanović and Krstić, 2007, p. 268).

SCPMS is one of the important trends in logistics and supply chain management. SCPMS requires managers to continuously improve supply chain performances, but also the very process of their measurement.

Supply chain performance measurement is important for 1) informing employees about what is important for their company and where they should direct their competencies development; 2) the behavior of employees in individual companies and therefore the behavior of all employees in the supply chain, 3) control i.e. comparing planned and targeted performances; and 4) improving the supply chain performance and therefore the efficiency of the companies (Gunasekaran, et al. 2001, pp. 71-87).

Supply chain performance can be measured by short-term measures (relating to a period of up to one year), mid-term measures (relating to a period of one to three years) and long-term measures (relating to a period longer than three years). A successfully conceived supply chain performance measurement system must include measures from all three categories mentioned above. In addition, drawing a clear line between the categories of measures is directly related to the performance measurement process. If they are miscategorised, supply chain performance measurement may yield distorted results.

To measure supply chain performance, one can use quantitative measures and qualitative measures. Quantitative measures (measures of income and expenditure, number of customer complaints, degree of realization of planned sales, etc.) numerically measure the supply chain performance. However, due to the change in the business environment of companies, there was a need for supply chain performance measures that cannot be expressed numerically (qualitative criteria). On certain occasions, these measures are more important to decision makers than quantitative criteria. Typical non-numerical (qualitative) measures include the degree of customer satisfaction, supply chain agility and readiness of supply chain participants to adapt to customer requirements. Chan identified seven non-numeric measures: costs, resource utilization, quality, flexibility, visibility, trust and innovativeness (Chan, 2003, pp. 534-548). Han et al. developed a framework for managing the supply chain performance in cases where supply chains belong to different cultures, where the main emphasis was on mutual understanding and overcoming cultural differences (Han et al. 2018, pp. 2437-2451).

In close connection with the above supply chain performance measures are financial measures and non-financial measures. Financial measures of supply chains performance are a direct product of the accounting and financial reporting system. As such, they often cannot be applied directly and in the process of measurement, they often need to be reworked in order to become useful for measurement purposes. On the other hand, non-financial measures describe measurement dimensions that are not a direct product of the accounting and financial measurement system, and they concern the dimensions of time and quality. Finally, performance measures can be observed at the level of a single company in the supply chain and at the level of the entire supply chain.

2.3 Phases of the Supply Chain Performance Measurement Process

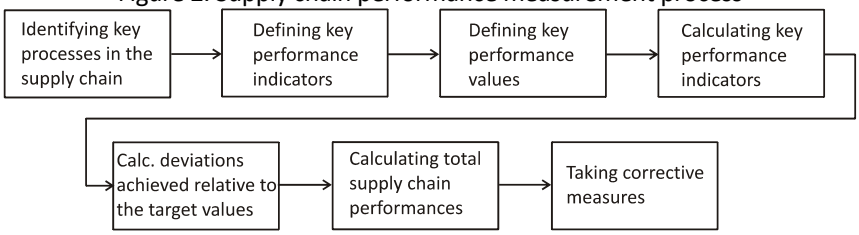
Supply chains have long not been considered a network of different entities gathered around a common goal - maximizing individual profits. Since its establishment in the 1980s, the concept of supply chain has evolved from a concept that implied the integration of different business functions to a strategic tool for achieving the competitive advantage of companies (Bloomberg, et. al. 2002, p. 1). Today, the supply chain concept involves planning and measuring all segments of raw material, product, service, money

and information flows from supplier's suppliers to buyer's buyers. It is therefore clear that this concept is oriented towards customers.

The problem of measuring supply chain performance is very complex because, in modern business, partnership and integration in the supply chain have major importance for achieving superior performance and competitive advantage (Krstić and Milovanović, 2007, p. 82). The supply chain performance measurement system is not an end in itself. Its focus it to meet customers' demands and achieve competitive advantage.

Customer orientation and gaining competitive advantage require certain specifics in the supply chain performance measurement system. A performance measurement system is a process that consists of clearly defined stages (see Figure 2).

Figure 2. Supply chain performance measurement process



In order to create an efficient system for measuring supply chain performance, it is important to identify the key processes in the supply chain itself. All the supply chain entities affect its performance with their activities. Supply chain entities, through their interactions, can make the supply chain not only robust but also vulnerable. Therefore, the processes necessary for the supply chain to be agile and flexible to all requirements and changes in the environment must be identified.

Supply chains face frequent interactions between their companies. These interactions are the result or generator of various events. The events themselves produce data. Each data is a potential indicator, and only some indicators are key performance indicators (Petrović, 2016, p. 217). It follows that key performance indicators are actually critical success factors of the company and the supply chain, so their definition is of strategic importance for achieving competitive advantage.

In order to measure key performance indicators, it is necessary to define their target values that must be achieved to meet the many demands of stakeholders (primarily suppliers and buyers) in the supply chain. Defining the

target values requires taking into account the market in which one acts, the needs and wants of customers, the specifics of the economic sector and the business performance of the supplier. Underestimated or overestimated levels of performance act destimulatively on supply chain entities and lead to a weakening of its competitiveness. Only with optimal levels of target performances can a supply chain achieve good results.

Calculating key performance indicators is the central phase of the supply chain performance measurement process. The results achieved are compared with the target results. This allows demonstrating the level of success r of both individual processes and overall supply chain performance measures.

At the end of the performance measurement process, the supply chain management takes corrective measures to eliminate all factors that have led to the non-achievement of target values. Their task is to re-examine the target levels if they are found to have been underestimated or overestimated.

Supply chains change over time. Consequently, the very concept of supply chain management also changes. New business processes are emerging requiring new performance indicators that must be included in the measurement system for the purpose of measuring efficiency.

2.4. Measuring the Supply Chain Performance According to Stakeholders Requirements

The competitive advantage of a company can be achieved: 1) if in its supply chain, the supply chain performance measurement system is adequately designed and successfully applied, and 2) if the needs for information of all participants in its supply chain are accommodated. This means that the supply chain performance measurement system is not an end in itself. The purpose of this system is to enable making quality decisions. Decision-makers will benefit substantially from this system only if their requirements for improving the supply chain performance are met. In doing so, one must "identify all the requirements that support improving the key processes in the supply chains and in any way affect the future system or will be affected by the system" (Petrović, 2016, p. 219).

When designing a supply chain performance measurement system, the requirements of key internal (owners, managers and employees) and external (suppliers, customers, public authorities and the wider community) stakeholders of companies must be met. Each of the categories of stakeholders has its own requirements which must be defined by certain performance indicators (see Table 1).

Table 1. Stakeholder requirements in the supply chain performance measurement process

PUBLIC AUTHORITIES AND WIDER SOCIAL COMMUNITY Information on the required key performance indicators and all member organizations of the supply chain in a pre-defined form.		
SUPPLIERS	ENTERPRISE	CUSTOMERS
- Defined product/service delivery specifications - Electronic data exchange - Predictability - Exchange of information about the key performance indicators of business processes and their target values - Information about weighing factors on key performance indicators for the appropriate supply chain type	*Owners* - Return on invested capital and long-term sustainable capital increase - Percentage of sales growth - Percentage of reduction/increase in Transport costs - Supply chain optimization *Managers* - Monitoring key business processes - Measuring and analyzing their key performance indicators over certain periods - Measuring and analyzing the overall performance of different types of supply chain types during the period - Evaluation, ranking and comparison of different supply chain types *Employees* - Bonuses and rewards for successful work - Possibility of promotion - Possibility of professional development	- Information about the level of product quality - Information regarding delivery quality compliance - Information regarding meeting deadlines - Information regarding the acceptance of the price - Information about quality/price ratio - Information about the availability of the necessary products and services - Information about complaints

Source: Petrović, 2016, pp. 219-221.

Each company stakeholder has its own requirements in the process of measuring supply chain performance. In order to fulfill its requirements, and at the same time achieve the goal of performance measurement, it is crucial to define performance indicators for each business process in the supply chain. In this way, the goal of measuring supply chain performance contributes to its efficiency, which is ultimately reflected in the competitiveness of companies.

Company stakeholders often do not change over the period, which is not the case with their requirements. With changes in the environment, new legislation, the emergence of new products and services, the development of information and communication technologies, new requirements of stakeholders arise that have to be considered in order to identify new

processes in the supply chain as well as identify new key performance indicators.

2.5 Information and Communication System for Measuring Supply Chain Performance

Supply chain management cannot be imagined without the use of information technology (Milovanović, et al. 2011, p. 346), so measuring supply chain performance requires the application of the information and communication system (IC system). Namely, the requirement for efficient supply chain management requires the management to have an implemented IC system designed to meet the specific requirements of the supply chain. Therefore, for the purposes of performance measurement as an element in overall management, it is necessary to apply an adequate IC system. This system has *an information (primary) role and a communication (secondary) role*.

The information role of this system is reflected in its primary purpose, which is to meet of management's information requirements. A large number of business processes and defined key performance indicators, transactions in everyday business inside and outside the supply chain, require management to have a system that will provide information necessary for business decision making based on all data. In fact, this means that the frequency and scale of the processes listed, key performance indicators, and transactions require the possession of software that converts raw data into useful information that will measure the supply chain performance.

The communication role of this system is reflected in its secondary purpose, which is the horizontal transmission of information and management decisions - through the entire supply chain. Taking into account that modern supply chains include a large number of entities that carry out a multitude of transactions on a daily basis, it is a non-formal system that will make all necessary information accessible to all entities in the chain, primarily information related to performance measurement.

The competitive advantage of a company involved in the supply chain can be achieved by raising the competitiveness of the overall supply chain. Taking into account that the competitiveness of the supply chain is achieved with the improvement of its business processes, it is necessary to design an IC system in a way that will enable the improvement of business process performances. Having in mind the defined and established key performance indicators, the basis for defining the structure of the management information

system for the improvement of business processes consists of the following processes: procurement, sales and logistics (Petrović, 2016, p. 222). This more precisely means that the prerequisite for measuring and analyzing key performance indicators of the supply chain is the existence of an information system that monitors business, primarily procurement and transport (Petrović, 2016, p. 222). For each process, it is necessary to select key performance indicators and perform their measurement using the software tool.

2.6. Problems in Designing a Supply Chain Performance Measurement System

In addition to the rivalry between individual companies, modern business is increasingly characterized by the rivalry between supply chains. We also increasingly face rivalry between supply chains both at the level of national economies and in market arenas that significantly exceed the borders of individual countries. An efficiently designed performance measurement system can help both companies and entire supply chains become superior to their rivals.

In the supply chain, there are numerous processes taking place that can be measured. Designing an efficient supply chain performance measurement system entails different problems. The most important are the following (Krstić and Milovanović, 2007, pp. 85-86):

- Failure to link performance measures with the supply chain strategy;
- The lack of a balanced approach to linking financial and non-financial measures;
- Most of the measures used are mainly internally focused (emphasize monitoring of internal functions and processes), and measures that can lead to better communication, understanding and cooperation between different stakeholders in the supply chain are neglected;
- The lack of systemic thinking, which requires the supply chain to be regarded as an entity and to perform measurement comprehensively;
- The lack of a holistic approach to the supply chain, which can encourage local optimization; and
- Choosing a small number of right measures so that the management can adequately and timely make decisions based on them.

Measuring supply chain performance, viewed from the aspect of competitive advantage, must include only those measures that are related to the supply chain strategy. The aim of this strategy is for the supply chain, and the entities therein, to achieve superior performance relative to the competition.

Supply chain management requires a balanced approach to linking the system of financial and non-financial measures. Besides the need for a large number of financial measures, changes in the environment also led to the need for non-financial measures that primarily observe the dimensions of quality and time.

By improving the quality of communication, understanding and cooperation between all entities in the supply chain, it is easier to increase its competitive advantage and long-term profitability. In this regard, the supply chain performance measurement system must also include the measures of communication, understanding and cooperation between all entities in the supply chain, and not just process-oriented performance measures.

The supply chain is as strong as its links. The supply chain cannot be stronger than its weakest link (Barac, Milovanović, p. 90). Each entity in the supply chain has a certain significance, and the supply chain should not be regarded as a group of companies gathered around a single interest, but as a group of companies whose common interest is networking for achieving a competitive advantage. For this reason, performance measurement must be carried out at the level of the entire supply chain, not only at the level of its individual entities (systemic approach).

The basis of a holistic approach to the supply chain is the requirement to view all of its subjects as an inseparable entity, and not as a randomly gathered network of companies guided by their individual interests. Maximizing the performance of individual companies is important, but the priority is to maximize the performances of the entire supply chain.

Finally, another problem in measuring supply chain performance is the selection of the number of measures. It is essential to choose a set of measures that will weigh those processes that can simultaneously contribute to the creation of the competitive advantage of companies, on the one hand, and the supply chain, on the other.

2.7. Supply Chain Performance Measurement System in Toplica District

Domestic authors have made a significant contribution to the theoretical coverage of supply chain problems. Based on the analysis of relevant foreign business practice and scientific sources, a multitude of books in Serbian has been written about the specificities of the process, activities and system of measuring supply chains performance. The results of numerous surveys have been published to provide all interested individuals with current knowledge of importance to both designing the supply chain performance measurement

system and identifying the impact of these performances on the creation and preservation of the competitive advantage of supply chains. Thus, in spite of the present gap between foreign and domestic business practices, conditions have been created to transfer experiences from developed market economies to domestic practitioners in order for them to successfully implement supply chain performance measurement systems.

According to Prof. Sekerez (Sekerez, 2007), members of the newer generation of managers and accountants play a very important role in implementing the supply chain concept. The entire generations of managers and accountants were educated at a time when companies operated in quite different environments, both in terms of their organization and in terms of their operating conditions. However, the rapid changes since the end of the 20th century have forced companies to introduce and apply new theoretical achievements related to supply chains.

International companies in the Republic of Serbia and their supply chains have become an example of good practice for domestic companies. Efficient supply chain management has significantly helped international companies to successfully position themselves in the Serbian market. The market principles of business have long been ignored in the Republic of Serbia, which has greatly influenced the creation of a gap between domestic business practice and the practice of developed market economies. This is one of the reasons why domestic companies have been starting to get involved in supply chains only in the last two decades. Fortunately, there is a growing number of domestic companies that base their competitiveness, growth and development on the implementation of the supply chain concept. However, as in most Western Balkan countries, the insufficiently developed logistics infrastructure and the lack of logistics professionals are the biggest challenges for the development of supply chains in the Republic of Serbia (Milovanović, 2018).

In order to confirm the preliminary findings and to identify the level of awareness of managers in domestic companies about the significance of the performance measurement system for achieving and preserving their competitiveness, a research was conducted in the territory of Toplica District of the Republic of Serbia in April 2019. The research involved 29 companies that perform their primary activity on the territory of this district. The focus of the research was to identify the level of involvement of companies in some form of supply chain as well as the level of implementation of systems for measuring the performance of their supply chains.

3. Research Methodology and Hypotheses

In the introductory part of the paper, the *key hypothesis* is given stating that adequately designed supply chain performance measurement systems significantly improve the competitiveness of companies.

The methodological basis of the work is the collection, systematization and analysis of information obtained on the basis of theoretical research of supply chains as well as information resulting from the research of the supply chain performance measurement systems in 29 companies from the territory of Toplica District.

4. Research Results and Discussion

The research was based on surveys of the top managers in the mentioned companies. The SPSS (Statistical Package for the Social Sciences) software tool was used to process the obtained data. Data processing results are presented below.

Table 2. The relationship between the involvement of companies in some kind of supply chain and the implementation of performance measurement systems

			Does the company implement a performance measurement system?		TOTAL
			Yes	No	
Is the company involved in some kind of supply chain?	Yes	Number	8	6	14
		%	57.1%	42.9%	100.0%
		Total	27.6%	20.7%	48.3%
	No	Number	0	15	15
		%	0.0%	100.0%	100.0%
		Total	0.0%	51.7%	51.7%
TOTAL		Number	8	21	29
		%	27.6%	72.4%	100.0%
		Total	27.6%	72.4%	100.0%

By observing the contents of Table 2 we can conclude that 48.3% of surveyed companies, or 14 of them, are included in some kind of supply chain and that 27.6% of surveyed companies, or 8 of them, implement a performance measurement system. The results of the survey indicate a high level of involvement of Toplica District companies in supply chains, and that

they implement a supply chains performance measurement system to a significant extent.

Table 3. The share of the types of performance measures in the supply chain performance measurement system

			Does the company implement a business information system? (financial and non-financial performance measures)			TOTAL
			Yes, both of them	No, none	Only financial	
Does the company have an implemented performance measurement system? (companies that are involved in some kind of supply chain)	Yes	Number	7	0	1	8
		%	87.5%	0.0%	12.5%	100.0%
		Total	24.1%	0.0%	3.4%	27.6%
	No	Number	9	3	9	21
		%	42.9%	14.3%	42.9%	100.0%
		Total	31.0%	10.3%	31.0%	72.4%
TOTAL		Number	16	3	10	29
		%	55.2%	10.3%	34.5%	100.0%
		Total	55.2%	10.3%	34.5%	100.0%

By analyzing data related to companies that have implemented a performance measurement system, we have come to the finding that 24.1% of companies, or 7 of them, apply both financial and non-financial performance measures. The share of companies that apply only financial performance measures is 3.4%, i.e. only one company (Table 3). Companies that implement a supply chain performance measurement system give great importance to both financial and non-financial performance measures.

When it comes to companies involved in some kind of supply chain, but does not measure the performance of those supply chains, as much as 85.8% of them have an appropriate information system that could measure supply chain performance (42.9% or 9 of them implement both financial and non-financial performance measures, while the same number implements only financial performance measures). More precisely, 18 companies are involved in some kind of supply chain, implement certain performance measures, but have no designed supply chain performance measurement system. By analyzing the data, it has been concluded that as much as 72.22% of companies that do not have a performance measurement system have no trained personnel to measure the supply chain performance. Of all companies that do not measure performance, about 66.67% of them have information infrastructure for

performance measurement. This may indicate the fact that the lack of skilled personnel can be a key limiting factor if the surveyed companies decide to implement a supply chain performance measurement system.

The surveyed companies expressed their views on the importance of meeting deadlines in relations with suppliers and customers. In order to express their views, the companies used a Likert scale ranging: 1- "*We do not find deadlines important at all*", 2- "*We mostly do not find deadlines important*", 3- "*Deadlines are both important and unimportant to us*", 4- "*Deadlines are mostly important to us*" and 5- "*Deadlines are very important to us*". The average value of assessing the importance of meeting deadlines in relations with suppliers is 4.69, while in customer relations it is 4.62. We conclude that relationships with suppliers and customers as well as meeting deadlines are very important for the surveyed companies.

The surveyed companies expressed their views on the importance of internal and external stakeholders. For these purposes, the companies used a Likert scale ranging: 1 - "*We do not find requirements important at all*", 2 - "*We mostly do not find requirements important*", 3 - "*Requirements are both important and unimportant to us*", 4 - "*Requirements are mostly important to us*" and 5 - "*Requirements are very important to us*". The average value of assessing the importance of requirements of internal and external stakeholders is: 1) 4.29 for companies involved in some type of supply chain, and 2) 3.67 for companies not involved in some type of supply chain. We conclude that there is a significant difference between these two categories of companies. Companies that are involved in a supply chain meet the requirements of stakeholders on a higher level, and therefore the supply chain performance measurement system is implemented according to their needs. About 80% of companies that are not involved in any form of supply chain believe that their competitiveness in the market would improve if all entities in the business had clearly defined criteria that they must satisfy.

5. Conclusion

In modern business, it is not an easy task for companies to achieve and maintain competitive advantage over rivals. The survival of companies in the market demands that they increasingly integrate into supply networks as well as build long-term partner relationships with end customers. In order to be more competitive in the modern environment, companies must be ready to compete within supply chains rather than as separate entities. The involvement of a company in some form of supply chain is a key requirement

for achieving competitive advantage. Supply chains are one of the most sophisticated instruments for creating competitive advantage of companies. It is therefore logical that more and more supply chains, rather than independent companies, compete on markets.

Supply chains are usually made up of a multitude of companies that have a clear goal - maximizing the performance at the supply chain level. Supply chains are dynamic and complex systems the processes and activities of which need to be managed efficiently.

Interactions between companies from the same supply chain intensify. The activities and processes of one and the same company are often associated with the activities and processes of companies from different supply chains. For these reasons, designing a supply chain performance system is a prerequisite for the successful supply chain management.

The theory has evolved, and the practice has applied a number of models and tools for measuring supply chain performance. Each of these models provides an adequate basis for measuring supply chain performance. Still, there is no universal model for measuring supply chain performance. Therefore, each of these models should be adapted to a specific supply chain, to the needs of its entities, while accommodating the specific needs of stakeholders.

Based on the conducted empirical research in the Toplica District of the Republic of Serbia, we conclude that there is a high level of involvement of companies in supply chains; that companies implement supply chain performance measurement systems to a significant extent; that a significant number of companies analyze the financial and non-financial performance measures; and that there is a growing need of the practice for the implementation of supply chain performance measurement systems. Unfortunately, the research has shown that the analyzed companies of Toplica District lack experts who would continuously develop and implement supply chain performance measurement systems. Due to this fact as well as due to the growing unpredictability of the business environment, the vulnerability of the companies in this district is increasing, thus reducing their competitiveness and profitability.

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BUSINESS CULTURE AS CRITICAL FACTOR OF BUSINESS PROCESS MANAGEMENT IMPLEMENTATION

Marija Radosavljević, Ph.D[1]
Radenko Milojević, Ph.D[2]

The attractiveness of business process management, as a comprehensive, holistic management approach, has has been growing for decades. According to the most researches dealing with business process management, business culture is one of the critical factors of its successful implementation. The purpose of the research presented in the paper is to evaluate the role of business culture in implementation of business process management in the Republic of Serbia, as developing country.The main objective of the research is to identify whether business culture can accelerate or restrict the implementation of business process management. In order to accomplish this objective and test defined hypotheses, based on a sample of 146 units, the authors used statistical tools, under the SPSS software. The final conclusion is that presence of business culture elements (teamwork, responsibility, customer focus, excellence) creates the greatest internal environment for the implementation of business process management. The main conclusions of the research will provide a solid base for managers of the enterprises in Serbia who want to improve their business culture in order to make in favourable for business process management. They will be able to recognize which business culture elements should be further improved and developed and which values should be spread among the employees.Since it usually is not enough just to transplant some new concepts and ideas from the more developed economies, this paper offers the way for implementing the modern business concepts into the specific internal environment of the enterprises in the Republic of Serbia.
Key words: business process management, business culture, employee behaviour, developing country.

JEL classification: M14, M21, M54
UDC: 005.6

[1] University of Niš, Faculty of economics, marija.radosavljevic@eknfak.ni.ac.rs, rg kralja Aleksandra Ujedinitelja 11, 18000 Niš, Serbia
[2] University of Niš, Faculty of economics, radenko.milojevic@eknfak.ni.ac.rs, Trg kralja Aleksandra Ujedinitelja 11, 18000 Niš, Serbia

1. Introduction

Business process management (BPM) is a popular topic at the beginning of the 21st century, because it is very important from a practical point of view, but at the same time a significant challenge for scientists and theoreticians, primarily in the field of business management, but also from other social and technical disciplines, considering multidisciplinary nature of the phenomenon (Radosavljević, 2015). BPM is an important issue of any organization that wants to provide sustainable performance improvement. It is defined as a holistic management approach that focuses on identifying, defining, implementing, measuring, monitoring, analysing and continuously improving business processes, based on integration of process design and application of appropriate information technology (Rosemann & vom Brocke, 2015).

BMP can be considered as a sum of all methods, tools, procedures, techniques, technologies, information system and software supporting business processes through planning, design, flow, monitoring, analysis, control, change and process improvement (Van Der Aalst, 2013). Therefore, it may be said that BPM is a predefined and structured approach that enables business processes to be analyzed and enhanced.

Holistic perspective of BPM is actually based on soft elements of this business management approach (Trkman, 2010). On this, soft side of BPM, very important element is business culture (BC), as the way employees behave and shared values that become visible in actions and structures, since BPM initiatives often fail for cultural reasons (Schmiedel at al., 2015).

This is confirmed by other authors (Škerlavaj, 2007), claiming that often neglected is the fact that most problems regarding business process management are not technical, but arise from an inappropriate organizational culture that may impede innovations being implemented and superior performance being achieved.

In order to be supportive for business process management, and in that case represent the lever of business process management implementation, business culture must have the following characteristics: full commitment of all employees, knowledge sharing, on-going learning and innovation, trust and mutual respect between employees regardless of position, empowerment and participation of employees in decision-making process, managers' support, managing by facts. Utilisation of employees' potentials also depends on adequate communication or interpersonal relationships within an enterprise, as an integral part of BC. Therefore, the research will especially be focused on

employees behaviour, in terms of inclusion, control and openness behaviour (Mathews, 2004).

In the most of Serbian enterprises, some characteristics of BC may be identified that do not have very supportive role in business process management implementation. One of them concerns that fact that there is no precise definition of employees' *responsibility*. For that reason mistakes are usually transferred to the other employees. Transfer of mistakes and responsibility for them is a consequence of functional organizational structure, which still dominates in the enterprises. This can be great problem if there are processes which extend over few functions, because no one is responsible for the whole process, but only for its activities which are performed inside certain function. Identification of responsibilities is important not only for rewording or punishment of the employees, but also for learning about mistakes and avoiding them in the future.

BC in Serbian enterprises also fails in the field of ***customer focus***. The most of enterprises consider demands of external customers, but a great number of them do not have a practice of considering demands of internal customers.

An important "defect" of culture in Serbian enterprises is lack of *improvement and innovation* significance awareness. It is already mentioned that the most of employees in Serbian enterprises used to spend only one part of working hours for actual work and the other part for different breaks. They must change their habits and increase hours of actual work and if there is time available for breaks they should use it to "think" about work and how it could be done more efficiently.

Lethargy of employees can be resolved by *empowerment and team work*. Here appears some kind of closed loop, because one of the BC characteristics that enterprises in Serbia do not have is empowerment. Empowerment means giving employees the amount of power to take over the decisions that managers or their superior usually prepare for them. In that way employees will be included in decision-making process and not only in its realization. By empowering employees, managers will receive their commitment which is very important part of BC and significant factor of improvement implementation success. Empowerment of employees demands previous acknowledgement, because it is necessary to arm employees with certain knowledge and information needed for decision-making. Empowerment and acknowledgement will lead to trust and trust contributes to greater involvement and commitment of employees. If enterprises in Serbia

manage to resolve mentioned closed loop, they will certainly find a way for successful implementation of business process management.

2. Teorethical backgrounds

Changes in the environment provoke changes in the way of functioning, but also in the way of management in mechanical industry. In order to respond to the changes, enterprises have to introduce modern techniques and management tools, as well as new methods of work organization. One consequence of the dynamics of the environment is certainly the introduction of process approach. A lot of authors concluded that process approach and process management provoke positive results in different segments of mechanical industry (Scheer & Nüttgens, 2000; Monfared, West, Harrison & Weston, 2002; Hines, Holweg, & Rich, 2004; Müller, Herbst, Hammori, & Reichert, 2006; Hallerbach, Bauer, & Reichert, 2010).

In order to ensure the positive effect of process approach implementation, it is necessary to spread the philosophy of process orientation within the enterprise, between employees who perform exact activities, and not just at the higher hierarchical level (among managers). In this way, employees feel that they are part of the enterprise, that their opinion about what they are doing seems important and respected, and that they are responsible for the success of the enterprise as a whole (Fisher, 2004).

Process management is a structured way of managing horizontal flow of processes and activities of enterprises, linked with suppliers, customers and other partners, with a goal to create a specific result of the process for specific customers or markets in which the enterprise performs. There are a number of important benefits that can be achieved if the enterprise takes care of the management of its business processes, for example (Management Accounting Committee of the Institute of Management Accountants, 2000):

- Optimal value for customers is created,
- Customers' satisfaction and loyalty is provided,
- Changes in the environment are continually anticipated and monitored, especially changes in customers' requirements,
- Faster can be responded to changed customers' demands, which increases the flexibility and responsiveness of the enterprise,
- It is easier to define, measure and analyze the desired performance of the process,
- Unnecessary activities in the value chain are eliminated,
- Downtime, delays, waste of time are eliminated,

- Coordination and cooperation between employees is better,
- Each employee understands the importance of her/his work and is encouraged to propose ideas for the improvement,
- Profitability is increased, due to higher quality of process output and costs reduction.

BPM systems involved flexibility and agility issues for a long time. A process defines ways for the organization to interact with its internal entities (e.g., applications, staff, and departments) and with its external entities (e.g., partners, customers). It concerns ways of 'how' to conduct business behaviors. However, the business logic is defined by rules, where a rule represents the logic and knowledge in decision making (Gong & Janssen, 2012). The success of BPM implementation will depend on technical knowledge concerning process sinhronisation and coordination, but also on some "rules" explaining employees behavior in the workplace.

Therefore, in order to explore the full potential of the BPM, it is necessary to provide the "support" of the business culture. In fact, the holistic perspective of BPM actually appeared when BC was recognized as one of the key elements in BPM practice, although the results of the research provided evidence that BC is still a widely under-researched topic in BPM (Vom Brocke & Sinnl, 2011). In addition, BPM initiatives often fail for cultural reasons (Schmiedel at al., 2015). Although, there is no universally accepted definition, BC may be explained as a dominant and coherent set of shared values conveyed by symbolic means such as stories, myths, legends, slogans, anecdotes and fairy tales (Peters & Waterman, 1982).

From the enterprises' point of view, it may be said that BC represents the set of attitudes, values and beliefs that are enacted on a day to day basis in an organization (Mathews, 2004) or, more simply the way things are done in an enterprise. In modern conditions an enterprise has to create BC that incorporates learning and innovation, and provides well defined infrastructure for improvement projects implementation. In traditional culture, there were specialists who took care of the improvements.

BC of an enterprise shows the attitude of employees to the job. In this sense, employees should be required to be responsible, they look at the work they do as their own personal business, work teamwork, but also ensure their continuous improvement, as well as enriching the work. The culture that supports business process management must be based on continuous improvement. In doing so, continuous improvement relates both to the knowledge and skills of employees, as well as to the way in which the activities entrusted to them are realized.

The introduction of a culture of continuous improvement implies the initiative and support of top management. There should be awareness and will of senior management levels in the process of improvement including managers at lower levels, as well as direct executors. Although, it is true that there is no "secret recipe" for success, it is necessary to create a culture that encourages and rewards creativity and innovation, and which is in the function of continuous improvement of processes and business, in general.

Employees should be introduced to the tasks of their colleges, especially ones that are their internal customers or suppliers. This is necessary for understanding internal customers' needs, but also for getting an impression and a clear picture of enterprise's strategy and vision in order to understand their contribution to enterprise's success. Considering the next employee in the certain process as internal customer, functional or departmental work orientation has to be converted into process flow and customer output related work orientation. Also, the previous shows that customer focus does not mean only focus on completing demands that come from external customers, but also focus on accomplishing needs of the internal customers or employees that carry out the activities which come after. Organizational culture can change the performance of organizations because of its capacity to solve the basic problems of (Mohammad Mosadegh Rad, 2006): a) Organizational survival in and adaptation to the external environment, b) Integration of internal processes to insure the capacity to continue to survive and adapt.

In order to make it appropriate ground for business process management implementation, sometimes BC should be transformed. BC transformation depends a great deal on managers' behaviour. The main reason for that is the fact that initiative for business process management implementation comes from managers and therefore their attitudes about BC and its changes have a great influence on success of the implementation. It means that managers are the first ones who should change their behaviour in order to make appropriate climate for business excellence model implementation and, also, in order to show the other employees that changes are necessary. In that way managers' behaviour represents an example for other employees' behaviour.

Important characteristics of business excellence culture are: full commitment of all employees, knowledge sharing, on-going learning and innovation, trust and mutual respect between employees regardless of position, empowerment and participation of employees in decision-making process, managers' support, managing by facts. Probably an enterprise will not be able to provide all of mentioned characteristics in short period of time, but

culture change is not an easy task and needs some time and persistence. Some of differences between traditional and business excellence culture are shown in Table 1.

Table 1. Some differences between traditional and process management supportive business culture

Aspects of business culture	*Traditional*	*Process management supportive*
Work orientation	Departmental, functional and/or task	Process flow and customer-output related
Who defines what needs to be improved	Senior managers and department managers	Senior and department managers plus bottom-up suggestions from project leaders and team members
Leadership for improvement	Functional managers or designated project leaders	Champions and improvement specialist
Who has skills to develop and implement solutions	Specialists (e.g., engineers) and managers	Specialists plus project leaders, team members and managers
Improvement methods/tools used	The most familiar ones	Common, state-of-the-art approach and tools
Degree of operator involvement	Ad hoc	Widespread through Yellow Belt training
Project management discipline related to improvement	Variable	Gate reviews at each step of DMAIC
How performance is measured	Actual versus budget	Impact on Xs (causal measures) that affect Ys (outcomes)

Source: http://europe.isixsigma.com/library/content/c050615b.asp

Vom Brocke and Sinnl (2011) provide a summary of how culture is perceived in BPM research. They identify the following four relationships:

- Culture as an independent factor influencing BPM: culture is perceived as a success factor or a barrier for BPM,
- Culture as a dependent factor influenced by BPM: BPM systems or general BPM initiatives are recognized as affecting culture through structure changes,
- Culture as BPM culture: BPM culture generally describes a culture supportive of BPM objectives and can be understood as a specific aspect of an organizational culture,
- Culture as an aspect of BPM: BPM requires attention to culture.

Some authors (Hribar & Mendling, 2014; Demir at al., 2011) that have been analyzed the relationship between BC and business process management usually used four types of culture: clan, adhocracy, market, and hierarchy.

Clan culture is characterized by a friendly workplace, where teamwork and employee development are emphasized and the organization promotes loyalty, tradition, participation, and commitment.

Adhocracy culture is characterized by a dynamic, entrepreneurial, and creative working environment, where people take risks and value innovation, agility and experimentation. Such organizations emphasize acquiring new resources, creating new opportunities and rapid growth.

Market culture is a result-oriented workplace focused on goals and creating the competitive advantage. The main values that dominate market-type organizations are profitability, competitiveness, productivity, and goal achievement.

Hierarchy culture is characterized by a formal work environment, where structure, control, coordination, and efficiency are emphasized and procedures govern people`s activities. Similar systematisation of BC has been given by Škerlavaj, Štemberger,and Dimovski (2007), who identified also four types of BC: group, rational, developmental, and hierarchical culture.

The relationship between culture and process management success has been issue of analysis and discussion by many authors. There are research results that include culture in the list of factors affecting process management implementation success. Some of them show that impact of culture on the success of BPM (Rosemann &vom Brocke, 2015) is evident. Others suggest that some types of culture provide better environment for BPM success, such as clan culture, compared to some other, like hierarchical culture (Hribar & Mendling, 2014).

There are authors (Škerlavaj at al., 2007) that observed culture impact on performances from the employee perspective, concluding that (learning) culture has a positive direct impact on all three aspects of non-financial performance: performance from the employee, customer, and supplier perspectives.

In their earlier work, in order to evaluate the impact of BC on business process management adoption success, Schmiedel vom Brocke and Recker (2013) based their analysis on eight culture elements, identified by:

- Customer orientation refers to the responsiveness for internal and external customers' needs,
- Excellence refers to the orientation towards optimality in process performance through discipline, quality awareness and sustainability,

- Development refers to the orientation towards continuous change and innovation through open mindedness, creativity and risk awareness,
- Leadership refers to professional integrity, responsibility, competence and pragmatism,
- Determination refers to the feeling of ownership, ambition, motivation and commitment towards process objectives,
- Cooperation refers to transparency amongst stakeholders, cross-functionality and the orientation towards constructiveness in communication,
- Entirety refers to an integrated view on an organization oriented towards business processes as opposed to functional units,
- Strategy awareness refers to the orientation towards growth and competitive advantage through awareness for the alignment of resources.

In their recent work, the same authors suggest the framework for BC analysis that contains four types of organizational cultures: collaborate, compete, create, and control, which represent the combination of the two dimensions (Schmiedel at al., 2015):

- The "focus" dimension differentiates an internal (teamwork) from an external (customer orientation) focus of an organization,
- The "structure" dimension is determined by the two extremes of flexibility (excellence) and stability (responsibility).

In order to make a successful change of BC in Serbian enterprises, organizational and leadership problems have to be solved. The most of these problems are based on employees behaviour (EB), which is connected with the needs which can be described like (Mathews, 2004):

- Inclusion behaviour, which concerns achieving the right amount of contact with people,
- Control behaviour, which concerns achieving the right amount of power and influence in relation to others,
- Openness behaviour, which concerns the right amount of discussion of feelings and thoughts.

Mentioned needs of employees actually represent so called FIRO theory (Fundamental Interpersonal Relations Orientation), formally introduced by Will Schutz.[3] Using the scientific analysis of FIRO theory, individuals and

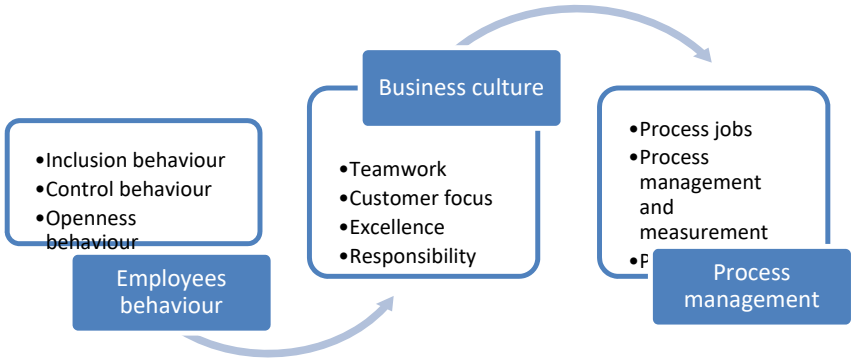
[3] FIRO could be extensively applied to all situations where interpersonal relationships are investigated (Schutz 1966). Its theoretical applications could be viewed by number of persons involved in interpersonal relationships from three different levels—individual level

organizations better understand human behavior and initiate processes for improving human relations, building trust, creating high performing teams, developing more effective leaders and so on (Oakland & Marosszeky, 2017; https://www.thesweden.se/files/FIRO-a_brief_summary_of_firo_theory.pdf).

3. Research methodology and hypotheses

Since the analysis is based under the triangle BC, BPM and EB, it is necessary to provide indicators for all three dimensions of the research model. The model is presented in Figure 1.

Figure 1. The research framework



For measuring the success of BPM adoption, bearing in mind previous aspects of process management, authors suggest usage of BPO maturity model (McCormack & Johnson, 2001) which assumes evaluation of the BPM implementation from the three aspects: Process jobs, Process management and measurement and Process view (Hribar & Mendling, 2014).

(one person), family level (more than two persons) and group level (much more than two). While individual level applications described mainly one's orientation in the three dimensions, which provided the foundations to analyze his or her social behaviors, family level applications mainly deal with how family members' orientations in the three areas influence their relationships inside and outside the family, and group level applications discussed mainly how the match of group members' orientations in the three dimensions, namely, the group compatibility, affect the group performance (Li & Lai, 2007).

The analysis of BC, as supportive element for BPM, is based on so-called constituting (CERT) values of the BPM culture concept. CERT is actually an acronym meaning (Schmiedel, 2015):

- Customer orientation - the proactive and responsive attitude towards the needs of process output recipients, with two sub-elements external customer orientation and internal customer orientation,
- Excellence - the orientation towards continuous improvement and innovation to achieve superior process performance, with two sub-elements continuous improvement and innovation,
- Responsibility - the commitment to process objectives and the accountability for process decisions, with two sub-elements accountability and commitment,
- Teamwork - the positive attitude towards cross-functional collaboration, with two sub-elements formal structures and informal structures.

Finally, EB analysis is based on the evaluation of the three mentioned aspects of behaviour - Inclusion behaviour, Control behaviour, and Openness behaviour.

The main objective of the research is to identify whether business culture can accelerate or restrict the implementation of business process management. Bearing in mind mentioned types of culture, the task of the research also is to check on which type of BC has the greatest positive impact on business process management implementation. Therefore, the following hypotheses have been formulated:

- There is statistically significant impact of BC on BPM,
- There is statistically significant impact of EB on BPM,
- There is statistically significant impact of EB on BC,
- The presence of EB aspects intensifies the relationship between BC and BPM.

Hypothesis testing has been done on the sample consisting of 146 completely fulfilled questionnaires (response rate was 29.2%), by the managers of production enterprises from Serbia. Beside, general questions, the questionnaire included three groups of questions, concerning: BPM implementation, BC characteristics and EB aspects' presence, all based on managers assessment on five-point Likert scale, where 1 means that the observed variable is not present at all in the enterprise, while 5 means that the observed variable is apsolutely present in the enterprise. Collected data have been analysed through SPSS software and analysis involved descriptive statistics, ANOVA, cluster analysis, regression and correlation analysis.

4. Research results and discussion

Before the beginning of the analysis, based on certain statistical tools, reliability of the collected data has been checked. Since Cronbah's Alpha test has shown that the data concerning Process jobs and Process measurement and management, as sub-elements of BPM, should be excluded from the analysis, the Alpha value 0.900 indicates that the data for all variables are considered as reliable for further processing. With the sample 146, the usage of regression analysis is possible, according to the assumption (Field, 2005) that sample size has to be 15 times the number of independent variables (which is 15*4).

Table 2 shows descriptive statistics for all observed variables, dependant and independent. The first four variables concern BC elements, the second three concern EB elements, while the last one represents the element of BPM.

Table 2. Descriptive statistics

	N	Min	Max	Mean	Std. Dev.
TW*	146	1.00	5.00	3.6507	1.11783
CF	146	1.00	5.00	3.7055	1.05809
RS	146	2.00	5.00	3.9726	.86260
EX	146	1.00	5.00	3.8699	.93413
IB	146	1.00	5.00	3.6507	1.14827
CB	146	2.00	5.00	4.1233	.80422
OB	146	1.00	5.00	3.6507	1.10543
PV	146	2.00	5.00	3.9041	.97081

As it can be seen from the Table 2, the greatest value, when it is about BC elements has Responsibility, followed by Excellence. Responsibility is also characterised by the lowest standard deviation, which means that interviewees are agree on this issue, to a great extent. Further, this means that enterprises in the sample are characterized by the commitment to process objectives and the accountability for process decisions, but also by the orientation towards continuous improvement and innovation to achieve superior process performance. On the other hand, Control behaviour is the EB element with the highest mark and lowest standard deviation.

Regression analysis concerning BC impact on BPM has show that this impact is positive and statistical significant (Table 3a). The normality of the

* TW – Teamwork, EX – Excellence, RS – Responsiblity, IB – Inclusion behaviour, CB – Control behaviour, OB – Openness behaviour, PV - Process view.

sample is confirmed by Cook's (max value less than 1) and Mahalanobis (15.020 or less than corresponding Chi-square critical value, which is 18.47) distance. In this way, the first hypotheses has been confirmed.

Table 3a. ANOVA results – The impact of BC on BPM

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	60.453	4	15.113	27.964	.000[b]
	Residual	76.204	141	.540		
	Total	136.658	145			
a. Dependent Variable: PV						
b. Predictors: (Constant), EX, TW, CF, RS						

Based on the results presented in Table 3b, it can be seen that two BC elements with statistically significant impact on BPM are Customer focus and Excellence.

Table 3b. Regression analysis: BC impact on BPM

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	TW	.024	.064	.028	.377	.707
	CF	.440	.085	.479	5.161	.000
	RS	.113	.106	.101	1.067	.288
	EX	.352	.083	.446	4.825	.007
a. Dependent Variable: PV						

In order to analyse the relationship between the variables under the BC, dendrogram may be used. A dendrogram or cluster tree is a diagram that shows the hierarchical relationship between objects. It is created as an output from hierarchical clustering. The dendrogram presented in Figure 2 shows the relationship between the BC elements. According to Figure 2, the greatest connection characterises the relationship between Customer focus and Responsibility.

Regression analysis concerning EB impact on BPM has show that this impact is positive and statistical significant (Table 4a). The normality of the sample is confirmed by Cook's (max value less than 1) and Mahalanobis (11.524 or less than corresponding Chi-square critical value, which is 16.27) distance. In this way, the second hypotheses has been confirmed.

Figure 2.Dendrogram

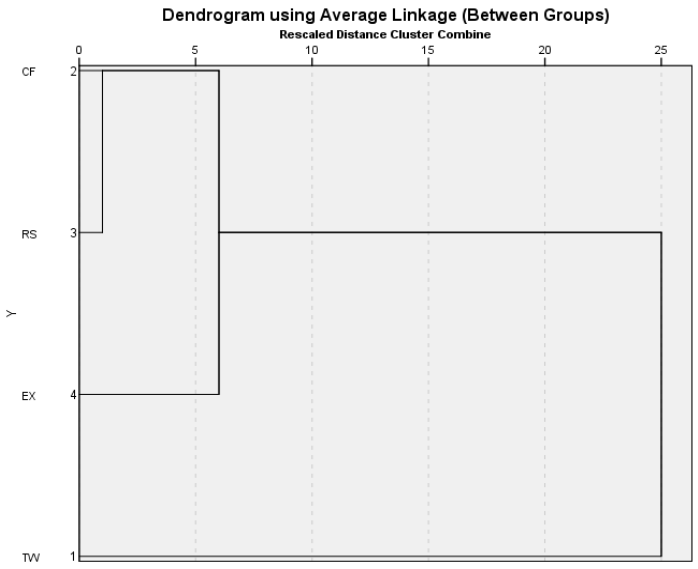


Table 4a. ANOVA results – The impact of EB on BPM

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	86.712	3	28.904	82.177	.000[b]
	Residual	49.945	142	.352		
	Total	136.658	145			
a. Dependent Variable: PV						
b. Predictors: (Constant), OB, CB, IB						

Based on the results presented in Table 4b, it can be seen that two EB elements with statistically significant impact on BPM are Control behaviour and Openness behaviour.

Table 4b. Regression analysis: EB impact on BPM

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	IB	.118	.064	.140	1.838	.068
	CB	.358	.076	.297	4.729	.000
	OB	.443	.060	.504	7.360	.000
a. Dependent Variable: PV						

By comparing these results with the descriptive analysis it can be noticed that the good thing is that Control behaviour is assessed as the most present EB element in business practice of the enterprises in the sample. However, bearing in mind their impact on BPM, Openness behaviour should be developed and improved and more present in the business practice.

Regression analysis concerning EB impact on BC has show that this impact is positive and statistical significant (Table 5a). The normality of the sample is confirmed by Cook's (max value less than 1) and Mahalanobis (11.524 or less than corresponding Chi-square critical value, which is 16.27) distance. In this way, the third hypotheses has been confirmed.

Table 5a. ANOVA results – The impact of EB on BC

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	51.714	3	17.238	62.184	.000[b]
	Residual	39.364	142	.277		
	Total	91.077	145			
a. Dependent Variable: BC						
b. Predictors: (Constant), OB, CB, IB						

Based on the results presented in Table 5b, it can be seen that all three EB elements have statistically significant impact on BC (significance is less than 0.05).

Table 5b. Regression analysis: EB impact on BC

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
IB	.200	.057	.290	3.514	.001
CB	.386	.067	.392	5.747	.000
OB	.150	.053	.210	2.815	.006
a. Dependent Variable: BC					

Table 6 indicates that between all observed variables, elements of BC and BPM, there is statistically significant positive correlation. Actually, correlation analysis confirms the results of the regression analysis, since the greatest correlation coefficient there is between Customer focus and Responsibility (0.644 and 0.532, respectively). In this way, the correlation analysis confirms the results of clustering, presented on Figure 2. Positive correlation also characterises the relationship between BC elements.

Table 6. Correlation analysis between BC and BPM

Control variables		TW	CF	RS	EX	PV
TW	Correlation	1	.484**	.469**	.339**	.357**
	Significance (2-tailed)		.000	.000	.000	.000
	df	146	146	146	146	146
CF	Correlation	.484**	1	.694**	.554**	.644**
	Significance (2-tailed)	.000		.000	.000	.000
	df	146	146	146	146	146
RS	Correlation	.469**	.694**	1	.586**	.532**
	Significance (2-tailed)	.000	.000		.000	.000
	df	146	146	146	146	146
EX	Correlation	.339**	.554**	.586**	1	.480**
	Significance (2-tailed)	.000	.000	.000		.000
	df	146	146	146	146	146
PV	Correlation	.357**	.644**	.532**	.480**	1
	Significance (2-tailed)	.000	.000	.000	.000	
	df	146	146	146	146	146

** Correlation is significant at the 0.01 level (2-tailed).

Bearing in mind that the greatest correlation coefficient characterises the relationship between Responsibility and Customer focus, on one hand, and the characteristics of the BC types on the other (Schmiedel et al., 2015, see Fig. 4, p. 8), it may be said that the observed enterprises have compete culture. Compete or market organizations. These companies are similar to the Control (hierarchy) in that they value stability and control; however, instead of an inward focus they have an external orientation and they value differentiation over integration (https://pdfs.semanticscholar.org/b0e2/fd342fcf402920e264f15070276b79be1e25.pdf).

In order to check whether the EB aspects may act as mediating element between BC and BPM in this research model, partial correlation analysis has been conducted. The results of the partial correlation are presented in Table 7.

Table 7. Correlation analysis: EB impact excluded

Control variables			TW	CF	RS	EX	PV
IB & CB & OB	TW	Correlation	1.000	.204	.257	.094	-.028
		Significance (2-tailed)	.	.014	.002	.266	.743
		df	0	141	141	141	141
	CF	Correlation	.204	1.000	.449	.285	.238
		Significance (2-tailed)	.014	.	.000	.001	.004
		df	141	0	141	141	141
	RS	Correlation	.257	.449	1.000	.376	.010
		Significance (2-tailed)	.002	.000	.	.000	.909
		df	141	141	0	141	141
	EX	Correlation	.094	.285	.376	1.000	.146
		Significance (2-tailed)	.266	.001	.000	.	.083
		df	141	141	141	0	141
	PV	Correlation	-.028	.238	.010	.146	1.000
		Significance (2-tailed)	.743	.004	.909	.083	.
		df	141	141	141	141	0

Partial correlation analysis, when EB impact is excluded shows that assumed impact of EB on the observed relationship, certainly exists. Correlation analysis in this case are significantly smaller compared to the results in the Table 6, thus indicating that without EB presence, as a support element of process management, impact of BC would be negligible. This result indicates that the fourth hypothesis has been confirmed.

5. Conclusion

BC is usually listed as one of the soft factors of BPM. Different research results, conducted by a significant number of authors, confirmed the existence of BC impact on BPM. However, authors considered important to examine possibilities to increase BC impact on BPM, especially if it is positive. In this paper authors analysed the possibility to use employees' behaviour in order to accelerate positive BC impact on BPM. Based on results of correlation analysis, indicating that correlation coefficient between Responsibility and Customer

focus are is the highest, it may be said that the observed enterprises have compete culture.

The results of regression and correlation analysis confirmed all three hypotheses of the research. Based on ANOVA and regression analysis, it was confirmed that there is statistically significant impact of BC on BPM, also that there is statistically significant impact of EB on BPM, and as well as that there is statistically significant impact of EB on BC. Correlation analysis has been used for testing the fourth hypothesis. Based on bivatiate and partial correlation analysis it has been confirmed, first that there is statistically significant positive correlation between BC elements and BPM, but also that the presence of EB aspects intensifies the relationship between BC and BPM.

Therefore, the main conclusion is that business culture elements (teamwork, customer focus, responsibility and excellence) have positive impact on business process management (observed from process view presence in the observed enterprises). Also, it may be concluded that employees' behaviour aspects intensify the relationship between BC and BPMIS.

One of the limitations that could hardly be eliminated is subjectivity of interviewees. Authors suggest that further research should involve different methods and techniques for improving the elements of business culture that have positive impact on business process management, and explore possibilities for their implementation in the business practice in order to provide better internal environment for business process management implementation.

If BC relies on and promotes BPM values, and employees' behaviour aspects are present so their positive impact intensifies the relationship between BC and BPM implementation, it may be said that an enterprise provides the context where process orientation is natural internal environment.

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MODEL FOR EXPLORING THE INFLUENCE OF INNOVATIONS ON THE COMPETITIVENESS OF INDUSTRIAL ENTERPRISES

Viktoriya Kalaydzhieva, Ph.D[1]

There are separate methodologies for the measurement of innovativeness and competitiveness, but there is no methodology for the assessment of the role and influence of innovations for the improvement of competitiveness. The main aim is to choose a system of indicators for analysis and assessment of such an impact. This article proposes a possible approach to (methodology of) studying the influence of innovations on the enterprise's competitiveness. This model is tested and applied by the author in the studies of this correlation for the industrial enterprises in Southwest Bulgaria. The analyses of regression and correlation are applied as methods for establishing the availability of a statistically significant and regular relation between innovations and competitiveness. The directions of the empirical study are described, as well as the algorithm and the stages of its implementation. Appropriate analytical-assessment indicators for the statistical characterization of the industrial sector are also provided, making it possible to reveal the relation between innovations and competitiveness. The indicators to be covered by the sample inquiry researches related to various aspects of the sought relation and influence are described. This method and algorithm of studies bring to reliable assessments and results, the analysis of which provides directions for undertaking further actions of production, technological, financial and organizational-management nature. The approach and the proposed model of studies can be applied not only in the industrial sector, but in other sectors of the economy, too.
Key words: innovations, competitiveness, model, indicators, statistical characteristics.

JEL Classification: O30
UDC: 330.341.1:338.45.012

[1] Chief Assistant Professor, South-West University "Neofit Rilski" Blagoevgrad, Faculty of Economics, viktoriq_kalaidjieva@abv.bg, 2700 Blagoevgrad, Ivan Mihaylov 60.

1. Introduction

One of the essential effects of the innovative activity of the enterprises in the industrial sector is the capability of increasing their competitiveness. The competitiveness is defined as "one of the most important factors for accomplishment of economic success" in conditions of competition.

In documents from the European commission it is emphasized that the increasing of the competitiveness is especially important in "globally developing area, which is characterized with constantly structural changes and elevated competition pressure" (Small Business Act for Europe, 2008, p. 2, http://www.mi.government.bg/bg/themes/small-business-act-11-285) and is expected one of the priorities for development of the European economy to be the achievement of sustainable growth, connected with encouragement of more competitive economy with more effective usage of resources (Europa 2020, 2010, p.12).

The especial significance of competitiveness for the development of the economy as a whole and of the industrial sector, particularly imposes the necessity to be viewed as its essence, types, influencing factors and measures.

It is an indisputable fact that the competitiveness of the economy, enterprises and products and services offered by them are in a substantial correlation with the innovations and innovation activity of the enterprises. Therefore, it is important to study and assess the relationship between innovations and competitiveness. The purpose of this article is to clarify the theoretical issues and to suggest some appropriate assessment indicators, characterizing this relation.

Our research is induced from the profile of Bulgaria in SBA (Small Business Act) through the last years (Fact Sheet 2015-2016). Bulgaria has no results above the average level for the EU in none of the ten priority criteria. In the field "Skills and Innovations" the discrepancy is most significant. According to these criteria Bulgaria is drifting away most drastically from the average level for the EU.

Internationalization of the enterprises in Bulgaria and the linked with them import and export of production and services are also under the average level in contrast with the European indicators. In other words, the competitiveness of the Bulgarian enterprises in the borders of the EU is weak. Moreover, the competitive position of the Bulgarian industrial production is very low on the markets outside the EU. This shows that the enterprises must undertake immediate and systematical actions for increasing of its own competitiveness, including also through great improvement of its innovative activity.

2. Teorethical backgrounds and Literature review

The aspects of such a correlation were object of the studies of many authors, among whom D. Ricardo, K. Marx, J. B. Say, J. Schumpeter, I. Kirzner, P. Draker, M. Porter, etc. The influence of innovations on the competitiveness is usually related to the achievement of higher productivity, which is above the average level in the branch, at lower costs and lower price of the goods or services, with a higher rate of surplus value and others. Innovations are most frequently studied as a tool, factor for the improvement of competitiveness, or as an element of competitiveness (Marx, 1988, p. 356).

J. Schumpeter (1982) revealed the role of innovation for the occurrence of a new type of competition, more active than the price one, imposing on its part the need for continuous implementation of new combinations and the introduction of new equipment that change markets and influence the development of economy and economic growth. According to him the opportunities of principle for the implementation of new combinations in economy are: producing new products with new qualities and properties; introducing new production methods – new technique, technology or new production processes; inventing new materials and new sources of raw materials; acquiring new markets for sales; economic re-organization (pp. 146, 153, 277).

According to P. Drucker (2002) the innovations are a function of the entrepreneurship and the new knowledge. The new knowledge is "the superstar" of the entrepreneurship. Innovations, based on knowledge, give a possibility for analyzing of the important factors, taking a strategic position, which is market-focused, concentrated on key functions and application of practicum of entrepreneurship management. The innovation is a specific instrument of entrepreneurship. This is the action which gives the resources a new quality for producing of wealth. "Resource" doesn't exist until man doesn't find application for something new in the nature and doesn't give it an economical value (pp. 37, 41-57).

The theoretical views of M. Porter (2004) proved significant for understanding the interconnection between the two phenomena. According to him an important prerequisite for the success of enterprises is to "base their strategies on the improvement and innovations, on the readiness to compete and on the realistic understanding of their national environment and on the ways they could improve it. Analyzing the innovations-competitiveness relation he attracts the attention also to the connection between innovations and the competitive advantage that underlies competitiveness. The most typical

examples of innovations re-directing the competitive advantage as outlined by M. Porter, are, as follows: new technologies; buyer's new or changing needs; the occurrence of a new industrial segment; change of price or availability of investments. M. Porter defines the continuous improvement and modernization, development of innovation as the most important factor for maintaining the competitive advantage. The stage of innovations is the most resistant to macroeconomic fluctuations and outer events, in particular when the country provides a capacity for the enlargement of clusters. The companies compete in the field of technology and differentiation (pp. 45, 71-73, 78, 661-664).

B. Reisberg (2008) states that "in the 21st century innovations are becoming a main factor determining the level of competitiveness of a country on the global arena and securing a high standard of living for its population (pp. 35-39). The opinion of J. Kraft and I. Kraftová (2009) is that „innovations are the basis for the implementation of the technical and economic progress in their capacity of a significant multi-plan factor for the improvement of competitiveness and rise of productivity" (pp. 53-70). The innovational modernization, i.e. the introduction of innovations into the industry, the leading technologies and the newest forms of organization of production, provide an opportunity for an intensive growth of an economy based on the achievements of the scientific and technical progress (Solod, 2011, p. 148). In Bulgarian specialized literature many authors reveal the relation between innovations and competitiveness. They refer it not only to the renewal of product and increase in the number of sales, but also the optimum management of production, technological, marketing, managerial and financial means, potential and resources of the enterprise. D. Damyanov and B. Beluhova (2012) state that "Innovation activity is the only way to develop the competitiveness of the enterprises" (p. 191).

The overview of the literary sources, which describe the relation between innovations and competitiveness (see cited authors and etc.) give basis to some conclusions. The competitiveness is a multispectral economical category, which connects to the standard of the production, quality of the products and innovativeness. It manifests through competitive advantages and affects the results of the effectiveness of the activity of the enterprise. It has relative nature, because it is defined in comparison with the competition and it is dynamic, and not a static value, which changes according to the demands of the market. The competitiveness is expressed with the accomplishment of competitive advantages of one or more markets.

Numerous modern economical and mathematical theories give a reason the competitiveness to be described as interaction and sharing of experience, which in most cases leads to pros for each one of the subjects. There are particular features, which are imposed by the morphology of the market (polypoly, monopoly competition, oligopoly, clean monopoly), which have to be taken to account.

The Innovations and the competitiveness have to be reviewed as management and organizational process, securing long term success, through effective usage of resources. The firms have to have established and functioning system for their administration/management. This system has to report and conform with the external environment, in which it will function. Many and different are the factors of the external environment: political, legal, scientific and technical, social, demographic, ecological, cultural and etc. It should not be underestimated the meaning of the intra-branch competitive environment, industrial infrastructure, engineering and technological mediators.

In the strategy of the industrial enterprise have to laid volatility in the company politics. As obligatory should be set aside reasonable, but sufficient financial reserve, which can be used for R&D and in critical situations. It is necessary to have written down detailed, flexible and responsive plan for action, the whole balance of the income and expenditure. The questions linked to the innovations and the competitiveness have to be considered in the context of the economic, social and political relations. Not only on a national, but also on a global level. For the better use of the innovations as a tool for increasing of the competitiveness, enterprises are supposed to use unification of clusters and realization of narrower with the research institutions and universities. In this way the indicators, which are participating in the formation of the index for global competitiveness, will be overcome. Also, conditions for growth of their national potential in this area will be created.

3. Research Methodology and Hypothesis

The assessment of the influence of innovations on the industrial enterprise's competitiveness is based on the results of authors' own survey conducted with 126 owners and managers of enterprises in Southwest Bulgaria. The methods of analysis and synthesis, comparison and questionnaire survey were used in the course of the study. Statistical methods are used for the processing and analysis of collected information. The authors' hypothesis is that the regression and correlation analysis are going to prove that there is a

relation between the two phenomena. This is a certain dependence of the positive changes in competitiveness on the basis of the increase of innovativeness. Furthermore, it is not the only factor that has an influence on the increase of competitiveness, but in a combination with other factors, it influences its level.

4. Research Results and Discussion

Analysis and assessment of innovations and innovation activities of the enterprises of the industrial sector for the improvement of their competitiveness brings to the need for applying an appropriate methodology covering the use of objective models and suitable measuring procedures. This is an issue that is not sufficiently studied in research literature and practice.

In many researches, methodologies for the assessment of innovation projects are mainly proposed. To that end some authors use dynamic methods applied for the assessment of innovation projects (Nedeva, p. 129-133), and others assess the possible alternatives of process innovations based on the expected economic results that would be obtained from their implementation (Yankova, 2011, pp. 129-133). There are separate methodologies for the measurement of innovativeness and competitiveness, but there is no methodology for the assessment of the role and influence of innovations for the improvement of competitiveness. This fact brings to certain difficulties in determining the approach to analysis and assessment of the influence of innovations on competitiveness and brings to the issue of choosing a system of indicators for analysis and assessment of such an impact.

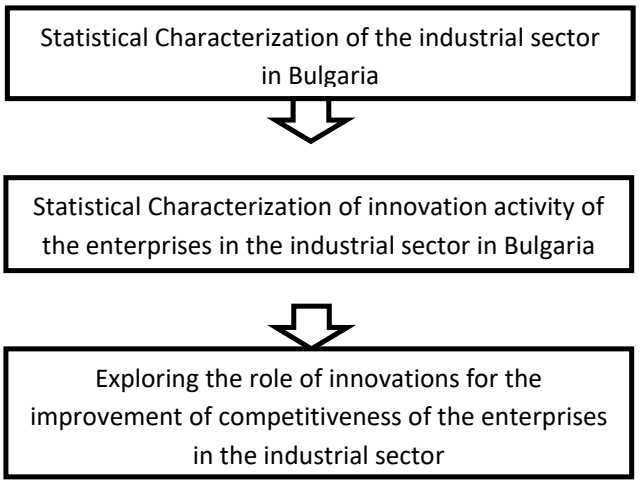
At the assessment of innovation activity, the difficulty results from the complex nature and various aspects of its activity and efficiency. For the analysis of the assessment of the state of European and national parameters of innovation there are methodologies developed and series of regular studies are carried out. There is also a system of R&D indicators and innovations that is maintained on the website of the NSI and Eurostat. The following are of significance for conducting researches to that regard: the aggregate innovation index of the EU Innovation Scoreboard that divides the countries into four groups depending on the dynamics of innovations as compared to the EU average level for the past year and provides an assessment based on several groups of indicators, and the methodology of assessment of knowledge consisting of 80 structural and qualitative indicators covering the four pillars of the economy of knowledge (http://ec.europa.eu/enterprise/policies).

Another assessment methodology corresponding to the European and global requirements takes into account the dynamics of the factors influencing innovativeness and the need for comparability of the data with a view to the selection of the main factors of this type. It uses the index methods and includes identification of a group of indices, as follows: “Innovation activity” index; “Access to financing” index; “Activity related to intellectual property” index; “Internationalization” index; “Good practices” index.

Various methods are also used for studying competitiveness. To characterize the competitiveness of the enterprise M. Velev (2004) proposes measurers like: competitiveness of production; productivity of labor; financial results; growth of the enterprise; innovativeness; production and marketing flexibility; ability to adapt to market (p. 74-75). As one may see innovativeness is included as a component of this model. Some authors calculate competitiveness of products as compared to that of analogue products as a relation between the product assessed and the base product used to make the comparison by various parameters - technical (based on the performance parameters of the two products), economic (based on the price – costs and consumption of the two products, and finally an integral index of competitiveness is determined (Donchev, Velev, Dimitrov, 1998, pp. 267-270).

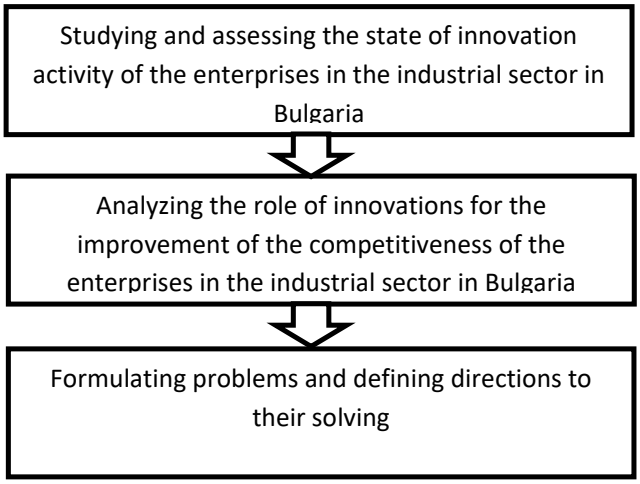
For the assessment of competitiveness M. Porter’s model is also used – the model of the five forces of competition – direct competition between active competitors, the threat from the market entry of new competitors, market power of customers, market power of suppliers, impact by the part of substitute products (Porter, 2004, p. 59). Other models applied are the cost-chain model for assessing and designing the competitiveness of the enterprises, as well as the model of competition and the key factors to the success of an enterprises which is developed based on the hierarchy of the key factors for the achievement of a competitive advantage (Marinov, Velev, Geraskova, 20001, pp. 155-158). It is considered necessary and appropriate the competitiveness and the competitive advantage to be researched on a macro - and microlevel. On a macro level in the literature the question for the national competitiveness and the national competitive advantages, are set. And on a micro level it is set the same, but for the enterprise and the product (Porter, 2004, pp. 105-106). Given such a variety of methods it is very important to choose the appropriate methodological approach that is to assess not only the innovation activity of the enterprises and their competitiveness but at the same time the influence of innovations on competitiveness.

Figure 1. Areas of empirical study



Source: author's survey

Figure 2. Algorithm of studies



The approach to analysis and assessment of the state and level of economic activity of industrial enterprises proposed and applied by us provides a possibility for developing an appropriate measuring tool, consisting of a system of indicators revealing the economic aspects and statistical methods for

their assessment. We believe that although there is an option for the increase of the number of indicators, the measurement tool used is suitable and sufficiently reliable. This approach unites into a complex the study of the state of industrial sector in Bulgaria, the level of innovation activity and the role of innovations for the improvement of competitiveness. To that regard an empirical study covers a complex of the following areas (Figure 1). On this basis the main algorithm for the study is determined showing its stages in their sequence (Figure 2):

Each of the defined stages of study is characterized by certain specificities regarding the particular approaches, studied indicators and the used methods of analysis and assessment.

The study conducted by us is based on data for the period 2008-2015. The analyses and assessments of the state of industrial sector in Bulgaria, its innovation activity and its role for the improvement of competitiveness are based on the following information sources:

- Official information published by the National Statistical Institute of the Republic of Bulgaria;
- Author's own sample inquiry for research (Kalaydzhieva, 2017, pp. 243-263, 311-322, 339-350).

Within the sample inquiry, research conducted by the author, 126 owners and managers of industrial enterprises in Southwest Bulgaria were interviewed. The analytical and assessment indicators used, are, as follows:

- Number and dynamics in the development of the enterprises of the industrial sector in Bulgaria for the period studied;
- Distribution and dynamics in the development of the enterprises based on the type of their economic activity;
- Distribution of enterprises depending on their economic activity and size based on the number of employees;
- Employment in the industrial sector – general and by economic activities;
- Distribution of the enterprises in the sector by regional location – planning regions;
- Financial-economic indicators: value of tangible fixed assets; operating expenses; income from operations; produced production; turnover and added value – general, by economic activities, depending on the size of the enterprises.

Regarding the assessment of the level of innovation activity of the enterprises in the industrial sector of the country based on the statistical information (provided by the NSI), the following indicators should be observed and their values should be determined:

- Share of innovative enterprises in the total number of the enterprises in the industrial sector;
- Share of the enterprises producing new or improved products - market novelties, in the total number of enterprises;
- Share of the turnover from the sales of new or improved products - market novelties, in the total turnover of the enterprises;
- Share of the turnover from the sales of new or improved products – novelty for the enterprise but not market novelty, in the total turnover of the enterprises;
- Share of the enterprises with innovational cooperation in the total number of enterprises with technological innovations;
- Expenses for research & development activity in several cross-sections (by types, sectors, statistical regions, sources of financing, within a sector of enterprises by economic activities, by the size of the enterprises);
- Personnel occupied in research and development activities in several cross-sections (by categories and sex, sectors, statistical regions, level of education, within a sector of enterprises by economic activities and the size of the enterprise, etc.).

The analyses and the assessments of innovation activities of the enterprises studied with the use of the inquiry methods (by interviewing their managers and owners) should be based on the problems defined in the study plan and the indicators resulting thereof, as follows:

- Presence of a strategy and innovation plan, of an organizational system for innovation process management;
- Presence of connections with other enterprises with an R&D profile and development of joint project solutions with other enterprises;
- Availability of a highly-qualified personnel for the implementation of innovation activity;
- Implemented innovation projects;
- Type of planned and implemented innovations;
- Number of enterprises spending on R&D and amount of expenses for innovation activity;
- Introduced and marketed new products;
- Analyses and assessments of innovation activities and assessment of the level of innovativeness performed by the enterprises.

In the authors' model the values of the following indicators showing the business trends in the industry and the level of competitiveness are calculated:

- Expectations for export – this indicator is significant for the analysis as it shows the position of the enterprises and the acceptance of their products on the international markets;
- Competitive position on the domestic market;
- Competitive position on the market in the EU-countries;
- Competitive position on the markets beyond the EU.

Moreover, some factors, related to the competitiveness of the enterprises of industrial sector, and namely: demand on the domestic and international markets, competitive import, financing and economic environment, are necessary to be researched too. Attitudes and perceptions of the client have to be recognized. It is imperative an answer to be found if what is produced and presented is actually perceived from the customers as the way it is made.The imposing of the system approach in aspect of the enterprise gives a possibility the connections and the inter-dependencies between its structural elements and between it and its environment to be established, which is reflected in the state and the results of the actions and secures the needed dynamics and adaptability to all changes in it.

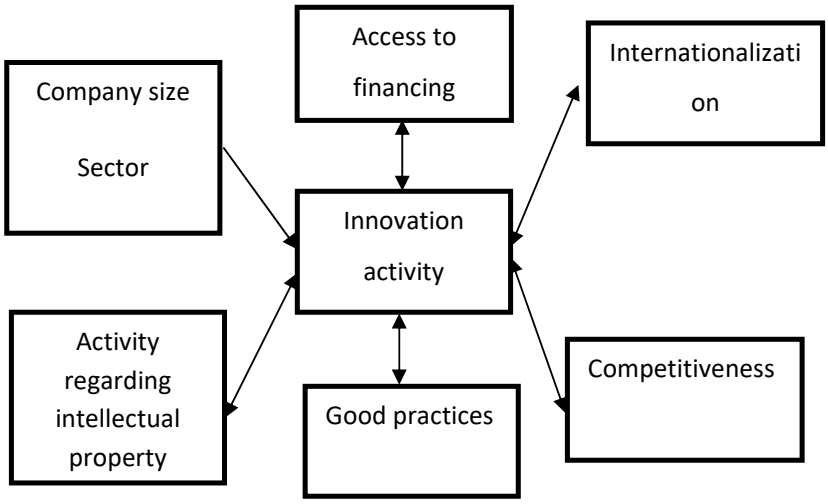
The learning and the knowing of the competitors appear to be an essential premise for taking actions, with which the competitiveness can be raised and to answer adequate to competitors' pressure, to increase the innovative activity and on the market to be proposed products with better qualities and more beneficial for the clients. The following can be studied:

- Competitors, market share and competitive advantages;
- Availability of strategies sand plans for the improvement of competitiveness;
- Analysis of customers;
- Acceptance by the part of the customers and sales of the new products on the market;
- Assessment of the enterprise's ability to adapt to market changes;
- Export, assessment of consumer demand for new products and their market performance;
- Assessment of the level of innovativeness and competitiveness;
- Assessment of the role of innovativeness for the improvement of competitiveness, as well as the enterprises' financial results.

Upon assessment of the role of innovations and innovation activity for the improvement of competitiveness, it is to be taken into consideration that both the innovation activity and the competitiveness are synthetic indicators, which combine a series of achievements of the enterprises. Innovativeness is one of the many elements (indices) for calculation of competitiveness by the

part of the authors, as well as at calculating the global competitiveness index. Considering this circumstance, the influence of innovations on competitiveness can be presented in the following way, which covers all the indices and their mutual influence (Figure 3).

Figure 3. Model for studying the influence of innovations on the competitiveness of industrial enterprises



Source: author's survey

The following statistical methods can be used to perform the analysis to the three directions (Figure 1):

- Grouping the statistical data;
- Tabular and graphical method required for the illustrative presentation of statistical arrays;
- Method of comparison for the efficient application of which comparability of data is provided;
- Identifying relative shares and average levels, comparative analysis of the relative shares of the enterprises of various economic activities, periods of development and territorial location by major indicators;
- Statistical studies of development and establishment of the level of changes and the speed of development by calculating growth rates;
- Statistical studies of territorial location of the phenomena studied;
- Statistical studies of dependences.

At the establishment of the role of innovativeness for the improvement of competitiveness the methods of regression and correlation analysis are also used. The analyses of regression and correlation are applied only as methods, providing an opportunity for studying and measuring relations and dependences of correlation type and for establishing the availability of a statistically significant and regular relation between the phenomena studied (Nikolova, 2004, pp. 178-190).

5. Conclusion

The model, the study method and the conducted results proposed by us confirm the hypothesis that innovations influence significantly the development of competitive advantages and enhance the level of competitiveness, but they are not the only influencing factors.

An essential problem in the use of statistical information of business trends is that it is not possible to calculate the exact part of the improvement of competitiveness that is due only to innovations. This method and algorithm of studies of the innovation influence on competitiveness bring to reliable assessments and results, the analysis of which provides directions for undertaking further actions of production, technological, financial and organizational-management nature.

The model is applied from us whereas information from the period 2008-2015 was used for small and medium enterprises in the industrial sector of southwest Bulgaria. The methods, in our opinion, can be used also for big enterprises. One open problem is the modification and actualization of some of the given analytical and evaluation measures, in order this model to be carried out. It tests the connection between the innovativeness and the competitiveness also for big enterprises. The factual results from the implemented from us research are published in Innovations, entrepreneurship and competitiveness of the enterprise (Kalaydzhieva, 2017).

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DEVELOPMENT OF ELECTRONIC ADMINISTRATIVE SERVICES AS A TOOL FOR INCREASING THE QUALITY OF BUSINESS ENVIRONMENT IN THE REGIONS

Georgi Nikolov, Ph.D[1]
Elka Vasileva, Ph.D[2]

The purpose of the current study is to analyze and evaluate the role and importance of introducing electronic administrative services to accelerate regional development and improve the quality of the business environment for corporations and citizens. The rapid transformation and digitization of the economy confronts us with new challenges related to the business development as many of the existing traditional professions are expected to disappear.The complex nature of the study requires an integrated use of a set of traditional research approaches and methods such as: historical approach, comparative analysis, content analysis, expert assessment, inductive and deductive method. In addition, an unpresentative documentary study of publicly available empirical and statistical information was published on the e-government websites of the institutions responsible for e-government. The findings are based on the argumentation of the authors' thesis that the development and multiplication of e-Government will directly affect economic activity and quality of life in the regions.The study presents guidelines and suggestions for improving the process of introducing electronic administrative services at a regional and local level. The results of the study offer a new perspective and complement the added value of administrative services for the development of the business environment in the regions.
Key words: e-Government, regional development, e-Government services, business environment.

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[1] Assoc. Prof., Department of Regional Development/University of National and World Economy, Faculty of Management and Administration, e-mail gnikolov@unwe.bg, Bulgaria, Sofia, 1000, Student town, 8 dekemvri Str

[2] Chief Assist. Prof., Department of Regional Development/University of National and World Economy, Faculty of Management and Administration, e-mail elvasileva@unwe.bg, Bulgaria, Sofia, 1000, Student town, 8 dekemvri Str.

1. Introduction

With the emergence of the Internet, not only new ways of communicating, working, shopping, training, and games have been created, but a much more effective way of managing is already being given through the use of electronic communication and the provision of e-services.

Information and communication technologies are already widespread in all areas of social and economic life and in the work of the administrative authorities. The construction and development of e-government is directly related to the improvement of the quality of the administrative services and the more effective public control over the activity of the administrative bodies.

Delivering efficient, affordable and quality e-services to citizens and businesses is a key focus of e-Government policy. The state of the e-Government services and the improvement of e-administration determines the need to develop information resources and to implement new governance policies as well as new technological solutions.

The main goal of e-Government is to improve people's lives by facilitating access to information, services and thus changing their perceptions of government and statehood. Achieving this goal is particularly important for future regional development, and in this context, the improvement of the provision of administrative service to business and citizens can be considered as one of the key factors for improving the business environment in the regions.

Defending the above thesis requires fulfillment of the following research tasks:

Firstly, to identify the essential characteristics of e-Government and the business environment through the prism of regional development, exploring their scope and possibilities for interaction.

Secondly, to analyze the structural and meaningful elements of electronic administrative services and assess their importance for the development of the regions.

Thirdly, to develop guidelines for improving electronic administrative services and speeding up their introduction for new fields of administrative service delivery to citizens and businesses.

Information and communication technologies offer unlimited opportunities for developing public services and building people's trust towards the state, and business relies on transparency in public procurement and fair competition, reducing regulation and equal access to European funding, introducing entirely electronic invoices, etc.

2. Theoretical backgrounds

2.1. European e-Government initiatives

The idea to build and develop e-government in the European Union was established in 1987. The International Federation of Information Processing (founded in 1960, based in Geneva, Switzerland), with main activity to promote the development and deployment of information- communication technologies in the field of science, education, international relations, thus improving the overall processing of information in these areas and establishing the WG 8.5 Working Group. This working group publishes several publications that focus on the development of information and communication technologies. These publications set goals for coordinating research in the field of information systems and their integration in public administration at the international level (International Federation for Information processing, 2015).

The first European e-Government Initiative was launched in 1998 when a Declaration on Closer Administration to Citizens was presented at a conference in Vienna (12-13 November). It addresses issues such as the creation of an "Information Democracy" and administration, oriented to providing information to citizens and businesses. Targets are presented, such as:

- Clarify citizens' right to information more clearly;
- Wide public offering of electronic services in order to achieve public accessibility for citizens;
- Public-private partnership;
- Where possible, free access to public information;
- Dissemination of best practices.

At a high-level meeting in Lisbon on 23-24 May 2000, Heads of Government and Heads of State of the 15 EU Member States set out the goal to turn the European economy into "the most competitive and dynamic science-based, economy in the world". This objective identifies the urgent need for Europe to make rapid use of the opportunities and achievements of the Internet. As a result, the "e-Europe" work plan is launched, with the clear criteria for assessing progress formulated in two main indicators:

1) Percentage of basic public services available online;
2) Use of "online" public services for informing or filling in forms.

There are 20 basic indicative public services, of which 12 for citizens and 8 for business presented in Table 1.

Table 1. List of indicative public services available on-line

Recommended public services	
Priority Business Services:	Priority Citizens Services
Social security for employees	Income taxes: declarations, notifications
Corporate taxes - declarations, notification	Job search services at the employment offices
New company registration	Social Security, Unemployment Benefits, Child Benefits, Medical Expenses, Scholarships
Sending data to the National Statistical Institute	Personal documents - passports, driving licenses (motor vehicles)
Customs declarations	Vehicle registrations - new, used, imported vehicles
Permissions related to environmental requirements	Submission of documents for building permits
Declarations, notification	Statements to the police, e.g. theft
Procurement	Public libraries - catalogs, search engines
	Testimonies - birth, marriage, etc.
	Diplomas for secondary and higher education
	Change of address registration
	Health-related services

Source: Strategy for e-Government of Bulgaria, 2002

The future development of Europe in the light of economic growth requires the development and improvement of knowledge and skills at a new level. Modern processes are increasingly based on the application of high technology and this requires a new approach to the training of the workforce and its professional qualification. Creating and maintaining a reliable, effective and efficient communication environment between administrations in Bulgaria is a key factor for e-Government.

2.2. Key concepts

UNESCO's e-Governance Institute defines the following definition of e-Government: "e-Government encompasses new leadership styles, new ways of debating and decision-making and investment policies, new ways of accessing education, new ways of listening to citizens, and for organizing and disseminating information and services" (UNESCO, 2013). This broad definition highlights the social and cultural meaning of e-governance, with technological and administrative aspects being integrated into this complex cultural context. According to the same universal consensus-based definitions, the e-

government objective is good governance. Therefore, the ethical, cultural and civic potential here is leading.

E-Government includes three levels as follows:

- *e-administration,* which refers to the improvement of administrative processes at the state and local level and to the internal interconnections in the public sector, based on a new type of computer technologies and information processes.
- *e-services* related to the distribution of public interactive services to citizens, examples of which are some documentary services, reference requirements, certificates, permits, etc.
- *e-democracy* that requires wider and more active citizenship and participation, supported by new technologies and decision-making processes.

The last level of e-government is in fact a sign of its real functioning in society. It is deeply dependent on cultural, socio-psychological and historical factors.

E-Government is a process of implementation by administrative bodies, the judiciary and public service organizations, legal interconnections, administrative processes and services, and interaction with consumers through the use of information and communication technologies providing a higher level of effectiveness management (Architecture of e-Government in the Republic of Bulgaria, 2019, p.3).

Complex administrative services are, by definition, services where the services are provided by the competent administrative bodies, the public officials and the public service organizations without requiring the applicant to provide information or evidence for which there is data collected or represented by public authorities primary data controllers, whether these data are kept in electronic form or on paper. Customers are natural or legal persons who realize their legitimate interest in filing and the results of administrative services directly or through their own representatives.

Essential characteristics of electronic administrative services

Electronic administrative services are the administrative services provided to citizens and organizations by the administrative authorities, the services provided by the persons entrusted with the execution of public functions and the public services that can be claimed and/or provided at a distance by using electronic means (Article 8, paragraph 1 of the Law on

Electronic Governance). In the process of implementing electronic administrative services, a service provider and recipient interact.

The provider is an administrative body, a public functionary, or an organization providing public services that provides electronic administrative services to citizens and organizations within their competence. Beneficiaries are a citizen or organizations that use electronic administrative services.

Users of electronic administrative services interact with public administration through different channels when submitting or receiving service results. They may communicate at other stages of providing the service, such as requesting additional information from the customer. By requesting the service an internal administrative process is started. It may in turn initiate one or more internal administrative inspection services and / or require collection of data from primary registers such as checking the National Register of Bulgarian Identity Documents at the Ministry of Interior, extracting cash benefits paid in the National Registry insurance institution, information on registered animals on farms by category in the registers of the Bulgarian Food Safety Agency, etc.

Electronic administrative services - administrative services provided to citizens and organizations by the administrative authorities, services provided by persons entrusted with public functions and public services that can be requested and/or provided by electronic means of remote use. Administrative bodies, public service providers and public service organizations are required to provide all services within their jurisdiction electronically, unless the law provides for a specific form for performing certain acts or issuing relevant acts.

Business environment and regional development - research discourses

The European Statistical Office (Eurostat) and the European Commission use zoning as an important tool both for regional policy purposes and for regional research. Region mapping allows for territorial differences to be recorded, and then, based on an analysis of open spatial laws, to look for the reasons for these differences and to identify the most appropriate tools to overcome them.

In this context, the essence of the term "*region*" is also clarified, which determines the territorial basis of the site in this study. A European understanding of the region, as a geographical area based on the classification established by the Eurostat in the 60s of the last century, called the Nomenclature of Territorial Units for Statistics (NUTS), is perceived. This territorial classification adopted by Bulgaria introduces a three-level zoning

corresponding to the requirements for NUTS 1, NUTS 2 and NUTS 3 territorial units under Regulation (EC) No 176/2008, 20 February 2008 amending and supplementing Regulation (EU) No 1059/2003 on the common classification of territorial units for statistics (NUTS) applied by Eurostat to the regions of the EU.

Regional development is the result of complex interactions between various processes and activities in the regions, with the decisive importance for the rational development of territorial systems: the level of technical and technological solutions, the level of employment and the quality of regional resources (natural, material, labor, financial, information, etc.), the specificity of the investment activity, etc. The universal goal is to achieve regional growth, which is also a major measure of regional development (Andonova, 2010).

The definition of "business environment" is complex and ambiguous, synthesizing a variety of elements for which the position in a particular country or region is specific and individual to the different actors. There are various methodologies for assessing the business environment that are contained in reports by well-established international organizations and institutions, including: World Bank, the United Nations Conference on Trade and Development, the Organization for Economic Cooperation and Development, the World Association of investment promotion agencies, etc.

Typical of the overall assessment of the business environment is that elements that depend on the country's macroeconomic governance and central executive activity are taken into account: political and economic stability; instruments of the tax system; public administration; legal certainty; fight against crime; available infrastructure; labor resources, etc. (NSI, Business Climate, 2019).

In the process of managing regional development, it is important to formulate objectives and priorities that takes into account the specific needs and internal potential of each of the regions. A fundamental issue that deserves attention is how the state policy for regional development would support the competitive advantages of the regional economy. On the other hand, for the assessment of the business environment in a particular region (region, district or municipality), components such as: functioning of the local economy, local and administrative relations, local taxes and local regulatory environment, infrastructure provision, demographic potential, quality of human resources, regional security and others are considered to be essential.

In practice, the implementation of regional development policy is tied to the creation of the necessary conditions and prerequisites for improving the regional business environment. That requires a focus on the impacts associated

mainly with the creation of a favorable investment and innovation climate, marketing the regional competitive advantages of business management, effective municipal property management, improvement of the local regulatory framework, regulation of financial and administrative local economic operators, establishment and maintenance of the regional technical infrastructure, targeted initiatives to improve the quality of human capital available, etc.

The introduction of electronic administrative services would undoubtedly help to increase the economic activity of business entities and, thus to improve the quality of life for citizens in the regions.

Contributing moments for citizens and businesses (Agrawal, Sethi, Mittal, 2015):

- Facilitating access to administrative services.
- Reduce the time and cost of administrative services.
- Targeting administrative services to the needs of citizens and organizations.
- Reducing Administrative Burdens.
- Conversion of customers from passive recipients of services to active participants in the administration process.

Obtaining added value for the state administration (Chadwick, May, 2003):

- Relieve workflow.
- Reduce costs and increase organizational efficiency.
- Exemption of the resource to focus on policy formulation and implementation of monitoring and regulatory activities.
- Improvement of the cooperation between the administrative structures at central and local level.
- Strengthening trust in institutions.

3. Research Methodology and Hypothesis

The complex nature of the study requires an integrated use of a set of traditional research approaches and methods such as: historical approach, comparative analysis, content analysis, expert assessment, inductive and deductive method. Their integrated use allows to analyze and evaluate the determining components of the electronic management system, according to the general theoretical-methodological and normative layout.

In addition, an unpresentative documentary study of publicly available empirical and statistical information was published on the e-government

websites of the institutions responsible for e-government. Statistical data from the European Statistical Office (Eurostat) and the National Statistical Institute (NSI) were used.

The findings are based on the argumentation of the authors' thesis that the development and multiplication of e-Government will directly affect economic activity and quality of life in the regions.

The study presents guidelines and suggestions for improving the process of introducing electronic administrative services at a regional and local level. The results offer a new perspective and complement the added value of administrative service delivery to the development of the business environment in the regions.

4. Research Results and Discussion

Implementation of the Strategy for Development of e-Governance in the Republic of Bulgaria 2014-2020 is carried out through centralized policy setting and decentralized implementation. Within the seven-year period, it is anticipated that priority services and projects will be implemented with a clear social effect, on the basis of a publicly available methodology, with ongoing monitoring and evaluation of the implementation. The most important criterion is the long-term public benefit (Nikolov, 2016, p. 86).

National e-Government policy is related to the achievement of strategic objectives in four thematic areas:

- E-services for citizens and businesses;
- Digital administration;
- Promoting, accessing and participating;
- Institutional building.

In each of the thematic areas of the Strategy are identified priorities, indicators and target values for monitoring and evaluation related to the electronic services for basic infrastructure development, reduction of the administrative burden, transition to electronic document turnover, stimulation of the use of electronic services and decentralized realization of the electronic management.

The State Agency for Electronic Governance was established and operates from December 1, 2016, in compliance with the E-Governance Act. For the first time in Bulgaria a separate structure has been created with powers in the field of e-government. The management, coordination, control and implementation of e-government policies are centralized and are for the first time identified as a national priority (Concept for the Development of e-

Governance in the Republic of Bulgaria - Towards a Sustainable Model of e-Governance, 2018-2022).

The implementation of the leading priority for the development of e-Government as a basis for the modernization of the state administration and optimization of the processes for the administrative servicing of the citizens and the business requires the implementation of the requirements of the e-Government Act by all administrations. By 2017, a large number of administrative authorities are unable to comply with e-government legislation due to regulatory deficiencies and/or insufficient administrative and/or technological capacity.

At the same time, the State Agency for Electronic Governance presented a 2017 survey, according to which, despite the availability of e-government systems, citizens do not use the services available.

The data in Table 2 confirm that citizens and businesses prefer to contact the administration directly, instead of using the Internet, to interact with public institutions at this stage, for the last six years their relative gravity is about 22% and for sending completed this relative share does not exceed 10% over the entire six-year period.

Table 2. Persons regularly using the Internet to interact with public institutions in the last 12 months (Percentages)

Types of goals	2013	2014	2015	2016	2017	2018
Total	22,6	21,0	17,8	18,4	20,7	22,2
By types of goals						
To obtain information from the website of the Public Administration	20,9	19,5	16,0	15,0	14,7	17,1
To download official forms	12,7	13,5	12,9	9,3	10,4	9,4
To send completed forms	8,5	7,4	9,1	6,5	8,3	9,5

Source: National Statistical Institute, 07.12.2018

According to NSI statistics, more than ¼ of the population in 2018 did not even use the Internet, which is indicative of its willingness to take advantage of the provision of electronic services, although this relative share decreases at a fast pace compared to the initial year of observation 2013 when it was over 40% (Table 3). It also makes an impression on the uneven distribution of non-Internet users in different regions of the country.

Table 3. Individuals who have never used the Internet (percentages)

	2013	2014	2015	2016	2017	2018
Total for the country	40,6	37,1	34,7	33,1	30,3	26,7
By statistical regions						
Northwest	46,9	43,9	49,4	38,7	35,0	29,5
North Central	43,0	36,8	35,3	38,1	29,6	29,7
Northeast	45,7	39,2	39,7	30,6	31,4	28,1
Southeast	43,8	43,5	34,8	38,7	34,1	30,0
Southwest	30,5	28,3	24,8	28,5	26,5	21,5
South central	45,0	40,5	37,9	31,8	30,4	27,9

Source: National Statistical Institute, 07.12.2018

Unlike individual users, business representatives are much more active in the five-year survey shown in Table 4. Their relative share ranges from 60-71%, with large firms registering the highest activity of over 90%.

Table 4. Enterprises using the Internet to interact with public institutions (percentages)

Years	2010	2011	2012	2013	2015
Types of goals / Total					
For information	59,2	69,1	72,3	73,5	71,0
To download forms, e.g. tax forms	56,6	74,7	77,6	77,0	75,8
For submitting filled-in forms (e,g. providing statistical information)	52,6	65,8	76,1	79,3	75,7
Sending an offer in an electronic auction system (e-procurement)	8,2	7,7	8,9	9,9	-

Source: National Statistical Institute, 04.01.2017

The State Agency for Electronic Governance (SAEG) has a crucial role in imposing and ensuring a basic principle of e-government - once-only collection and final enforcement of administrative processes and administrative provision for citizens and business. Therefore, a constant effort of the SAEG, together with all administrative bodies, is to improve the quality of the primary data registers maintained by the primary data controllers.

In order to accelerate the introduction of the office system in the administrative processes, the SAEG will accelerate the joining of RegiX to new data consumers through multi-tenant solution and through the integration of information systems when economically justified.

The achieved results of the SAEG's work for the short two-year period of its existence can be identified:

- Effective control of e-Government costs;
- The implementation of centralized management of information resources and the integration of systems across sectors;
- Development of the overall e-government architecture;
- Development and implementation of horizontal electronic management systems: electronic authentication, electronic delivery and payment, etc;
- Elaboration of mechanisms for coordination and control of the e-government activities, with emphasis on the expenditure part;
- Identify all actors in e-Government and their role.

The focus of the State Agency for e-Government is placed on the user's point of view of electronic administrative services - the citizens and the business. By applying the digital-by-default principle, the SAEG will continue to work as a matter of priority for the tangible reduction of administrative burdens and the extension of the use of administrative services entirely electronically.

The legal basis for the implementation of the strategy are: The Law on Electronic Governance, the Law on Electronic Document and Electronic Signature, the Administrative Procedure Code, the Law on Restriction of Administrative Regulation and Administration on Economic Activity and all laws that regulate the provision of administrative services.

The methodology presented by the Council of Ministers (Methodology for building e-government, 2013) aims to outline the main steps in the preparation, planning, design and implementation of the Basic Model of Complex Administrative Services in the State Administration. The methodology assigns a management model to provide quality management services. A common framework and compliance with public administration rules is proposed. The structure of the methodology follows the main phases of the service lifecycle and includes the main aspects related to the implementation and management of complex administrative services. To implement the basic model of complex administrative services needed in every state administration, it is important to create teams for the management of the implementation process. These include all the authorities responsible for the execution of the service or separated elements. When a service is provided by several administrations, an implementation task force is created. The team leader should be a senior civil servant. To function properly, effective co-operation and coordination between administrations is necessary because they are a key element of complex administrative services.

Interaction between administrations is a critical prerequisite for implementing the principle of data collection. This process includes the following components:

- Centralized security systems and solutions related to administrative services (e.g. ESOD interoperability registers, etc.).
- Mechanisms for interaction between administrations to provide one or more administrative services
- Mechanisms for interaction with institutions and organizations outside the system of the executive bodies, related to the process of providing administrative services.

Introducing the SAS will bring benefits to our state administration as follows:

- Reduce the time and cost of providing services
- Reducing the documents required of citizens and businesses in the provision of services by entering the official exchange
- Increasing availability of services and attracting people
- Strengthening the focus on improving service quality
- Focus on administering the real needs of citizens and businesses
- Improve transparency and the need for the administration to work, and better understand and protect the rights of users of administrative services.
- Improving the quality and availability of information silos and systems and efficiency in the spending of public funds on information systems and infrastructure.
- Exemption from the administration has been subject to complete automation many times.

The Integrated Administrative Service (SAS) will continue to multiply in order to achieve greater efficiency and significantly reduce the administrative burden. One of the main recommendations I would like to propose is to set up an e-Government agency to cover, channel and implement a comprehensive state policy on e-Government.

At the municipal level, as direct access to citizens and business with the executive, and the provision of administrative services, the surveys envisage the population's trust in the municipality in the provision of the relevant municipal services. The municipal staff provide daily administrative support to needy citizens in solving a problem (Botseva, D. 2018). Of great importance as resources are the laws and regulations, the information security, the technical means of providing the service, the facilities, etc. These elements are also present in the study of different places. Communication is the vital link

between the client's problem and the municipal and legislative prescriptions for resolving it. That is why a "client-employee" is complemented by a "problem-legislative solution".

Ethics in the relationship in the provision of administrative services is also part of the process of generating trust in the field of activity. It accumulates the value system in which to build the necessary communication for a quick and reliable solution. The aggregate communication between ethics and the form of business ethics of the service provided. Effectiveness and satisfaction are the results of the professional communication between the employee in the municipal administrations and the client. Their symbiosis forms an effective satisfaction of the needs of the municipal administrative services.

The issues of competence are the fundamental trust of the population in the municipal administrative services. This situation is axiomatic. Obviously, the more competent a municipal employee is, and his actions will be in line with the laws of the country first, and secondly with citizens' wishes on the current regulatory way to solve their problems.

There are different solutions for defining the category of "professional competence" and "competence". They are close to the notion of "qualification". This article assumes that professional competence is a "combination of knowledge, skills, experience and professional qualities necessary for the successful accomplishment of a particular professional activity, task, specific duties, assuming a certain responsibility, etc.". That is why the adequacy of this ability is sought, i.e. knowledge of skills, experience, employee capability, etc.). This is a function of many factors that ultimately answer the question: Can the employee fulfill the functional obligations and the degree of quality.

This moment is an explanation of the social intelligence, the social maturity of the employee as a global characteristic of the personality. In terms of content, it relates to the correct interpretation of the behavior of the other (consumer of electronic services) with sensitivity to its problems (moral cooperation and social support), its perception as a value, humanistic radiance and a sense of justice.

All this leads to the intelligence that is related to the employee's ability to play the human role in the workplace, to build his behavior on facts that really and successfully understand people. At the same time, it must respect inner and inward intelligence, i.e. intelligent attitude towards yourself, self-esteem and satisfaction. These and many such problems can be overcome and avoided by introducing integrated electronic services.

Administrative services "fit" into the market for management services, regulation and public policy. He regulates the authentication of a fact that regulates individual behavior in public anatomy and physiology.

On this basis, e-Government services can be defined as a joint public sector of the consumer industry (product consumption in the market for management, regulation and public service) and specific exchange (normalization, implementation) activities (carried out in an appropriate environment) (the employee) and the exercise of rights and obligations (by the consumer) that is not related to a change of ownership in the strict sense of the word and has the task of regulating social relations. This service can be provided by the state administration (central and regional) and local administration. The municipal administrative service must be separated from the municipal services for the population. The latter is more widespread: besides the direct provision of administrative services to the population, it also includes the funds for this process, on the one hand, and on the other - the services of the municipal economy organizations - roads, water supply, fire, cleaning, etc. In this regard, the first part of the Supplementary Provisions of the Law on Administration states "administrative support for any administrative service activity by the structures of the administration and of the public service organizations".

The municipal administrative service focuses on the process of direct servicing of the population, the immediate consumption of the necessary service: Consultation, consultation, document. Municipal administrative services characterize all participating (and invisible to customer) technical infrastructural resources used to provide the service. This is related to the activities of the general administration of the municipality: keeping information about the activity in a specific order of horizontal and vertical surveys at the request of the citizen, correspondence with other units, coordination of units and others. The linking of the visible part of the work of the population of the municipality with preliminary and subsequent work by providing the requested service requires use in the development of the service in the widest sense of the word as a synonym for the administrative services.

5. Conclusion

In conclusion, we can summarize that understanding e-governance as a sustainable long-term priority should be based on:

- Implementation of the leading European principles enshrined in European and national legislation, including digital default, one-time collection and multiple use (Once Only), etc.;
- Improvement and redesign of the administrative processes and of the administrative services provided by the administration on the basis of episodes of life and business events;
- Complex administrative services in accordance with the principle when providing services "from beginning to end" (end-to-end);
- Development and deployment of electronic services according to their significance and frequency of use respecting the "digital by default" principle;
- Transformation of certification services into internal electronic administrative services;
- Implementation of Unified Interoperability Standards in Design, Upgrading and Implementation of Information Systems in compliance with the "interoperable by default" principle;
- Removing paper interactions between administrations;
- Sustainably high overall level of network and information security.

Therefore, changes are needed in the coordination administrative mechanisms to achieve full coherence of activities and to involve and involve all administrative bodies in implementing e-governance policies through:

- Establishing the institution of the Chief Information Officer (CIO) and the Council for e-government with the Chair of the State Agency for Electronic Governance. The Board includes CIOs of administrative bodies, first-level budget spenders and business representatives;

- Establishment of departmental expert advice to CIOs that will increase the capacity of administrations to implement e-Government projects;

- Development of Sectoral Architectures and Sector Strategies in the field of e-Governance;

- Establishment of a team for system integration within the State Agency for Electronic Governance;

- Develop and validate unified rules for lifecycle management of e-Government systems;

- Elaboration of proposals for change of the positions of the employees in information and communication technologies in the Unified Classifier of the positions in the state administration;

- Elaboration of a program for attracting experts in information and communication technologies (ICT) in the administration;

- Changing the pay model of ICT professionals in the public sector;

- Program for specialized training of ICT specialists for the purposes of e-government;

- Creating a digital environment for the development of small and medium-sized enterprises.

Building e-governance is a process that requires a lot of administrative capacity. This requires trainings and information campaigns to promote and elucidate the essence, principles and objectives of e-Government as a new, modern management approach.

In the final part of the article, it is appropriate to look for the answer to the question: why Bulgarian regions need e-government and how to speed up the transition to e-government?

On the one hand, e-Government provides security. Despite the citizens' still distrust of digital data, unlike paper, they can hardly be destroyed or manipulated. Digital data operations always leave traces. This means control and responsibility.

On the other hand, e-Government is the main tool that will make the state more attractive to both businesses and citizens. Users of administrative electronic services are the only and most important focus of e-Government policy.

Last but not least, the Republic of Bulgaria has for the first time a package of modern strategic documents for e-government development, synchronized with the European policies and the modern trends in the development of information and communication technologies.

It is important that the established strategic framework is kept up-to-date, given the extremely rapid dynamics of the processes in this field. There is also a need to seek more support for the academic environment to achieve a higher level of e-Government by conducting more research and publications to contribute to finding new and effective solutions for implementing the concept of e-Government.

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THE IMPACT OF STRATEGIC HUMAN RESOURCE MANAGEMENT PRACTICE ON ORGANIZATIONAL PERFORMANCE: AN EMPIRICAL EDIVENCE FROM SERBIA

Marko Slavković, P.hD.[1]
Verica Babić P.hD. [2]

The purpose of the article is to identify the key factors of strategic human resource management practice in order to determine the impact of the strategic HR practice on organizational performance and then their individual impact through measuring a significance of each determined factor. Using data obtained from the original research involving companies employing more than 50 employees, a factor analysis was carried out to identify the factors of the strategic HR practice, and then through the construction of a regression model a relation with the organizational performance was established and the significance of each observed factor was determined. The results of research have shown that the practice of strategic human resource management has a statistically significant impact on organizational performance. Of all the factors observed, the most significant impact has Compensation system and Employee development, then Job security, and Training and Job design. Focusing a SHRM core on compensation system and employee development achieves a most perceived impact on organizational performance and investing in these practice ensuring new value creation. Research of the strategic HR practice on organizational performance was first conducted in Serbian context, which gives this work a specific significance.
Key words: strategic HR prectice, human resource management, organizational performance, universalistic approach

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[1] Assistent Professor, University of Kragujevac, Faculty of Economics, mslavkovic@kg.ac.rs, Liceja Kneževine Srbije 3, Kragujevac 34000, Serbia
[2] Full-time Professor, University of Kragujevac, Faculty of Economics, vbabic@kg.ac.rs, Liceja Kneževine Srbije 3, Kragujevac 34000, Serbia

1. Introduction

Human resource management has undergone significant changes in previous years to assist companies maintain a competitive advantage and find an adequate response to the challenges that are present in a labor market. Since the 1990s, strategic human resource management has gained much more significance than human resources management based on day-to-day employee-related activities, and HR function has become a strategic partner (Ulrich, 1997) with the aim to emphasize its significance and contribution to business success of a organization (Ulrich & Brockbank, 2005). Boxall (1996) defines strategic human resource management as a long-term interface between HRM and strategic management. A strategic approach to human resources management view a employees as the most valuable active of organization that is capable of achieving competitive advantage in the long term and a satisfactory level of new value. The newly established reality reflected on the alignment of the business strategy and human resources management strategy in order to achieve a set of goals and create value for the owners.

Darwish & Singh (2013) state that in SHRM literature in previous years two aspects are intensively studied: first, integration of human resources management strategy into business and corporate strategy, second, transfer of HR practices to line managers and their empowerment for the implementation of HR pactices. A higher degree of integration is achieved through a involvement of HR managers into strategic decision making, their participation in executives boards, or the simultaneous creation and alignment of strategic plans with human resources plans based on the realities of the labor market. The transfer of human resource management to line managers is a combination of two processes: trainings, through which line managers acquire the necessary human resource management competencies, and delegation of authority, which empowers them in execution of strategic directives and implementation of HR practice, such as staffing, training, performance appraisal, teamwork, rewarding or career development.

The effectiveness of strategic human resource management depends on several factors (Altarawneh, 2016): 1) recognition of the importance of the strategic planning process, which should establish the link between the internal variables of the organization and the external environment in a way that enables the execution of the defined mission and objectives; 2) involvement of HR managers in the strategic planning process, in the full extent that respects a reality in the domain of quality and quantity of existing workforce, the needs

arising from general strategic plans and the opportunities offered by the labor market to cover the deficit of people or skills; 3) formalization of HRM plans and goals through written documents, which allows the daily planning of human resource management activities and ensures monitoring of the achieved results, as well as execution of the defined plans; 4) harmonization of HR practice with strategic objectives.

Martin-Alcazar et al. (2005) consider strategic human resource management as an integrated set of practices, policies and strategies through which organizations manage their human capital, which influence or is influenced by business strategy, organizational context and socio-economic context. This statement also indicates the existence of two fits in the strategic human resources management: vertical fit and horizontal fit. Vertical fit points to the need to align a practice of strategic human resource management with strategic goals and plans. Horizontal fit requires harmonization of HR function with other business functions, as well as alignment of various HR activities, which is designated as establishment of HR hierarchy.

Generally, in SHRM literature there are two basic normative models: "best-fit" and "best-practice". Best-fit model is labeled as a universalistic approach to strategic human resource management, and the best-practice model is marked as a contingency approach to strategic human resource management. In addition to these two, Delery & Doty (1996) identify a third approach that is established as configurational. Universalist approach suggests that it is possible to identify a specific practice of strategic human resource management that has a positive impact on organizational performance. The identified practice of strategic human resources management is marked as superior and as such is universally applicable in all organizations with certain adjustments. Contingency approach to strategic human resource management points to the need for consistency between HR practice and other aspects of an organization, and an HR practice that delivers good results in an organization can be useless for another organization. Configurational approach emphasizes a need for a synergy of HR practice and strategic management.

The research in this paper is based on a universalist approach of SHRM. The main purpose of the research presented in the paper is to identify the factors of the strategic HR practice that have a statistically significant impact on organizational performance. The aim of the research is to determine a influence of strategic human resource management practice to the perceived organizational performance in the Serbian context. The paper, in addition to the introduction and conclusion, contains a review of literature from the field

of SHRM, the part in which the research methodology and sample are presented, as well as discussion and practical implications.

2. Literature Review

Summarizing the results of the research in the previous period, Lengnick-Hall et al. (2009) identified seven thematic areas of strategic human resource management for researchers: 1) explaining the contingency perspective and fit, 2) changing the focus from managing people to creating strategic importance, 3) elaboration of components and structure of a human resource management system, 4) expansion of a area of strategic human resource management, 5) implementation and execution of the human resources management strategy, 6) measuring results of strategic human resources management, and 7) evaluation of the methodological problems. Research in the field of strategic human resources management over the past thirty years has been largely devoted to the relationship between the practice of strategic human resource management and organizational performance. Singh et al. (2012) states that two perspectives can be used to explain this relationship: a systemic perspective and a strategic perspective. The systemic perspective deals with the relationship between individual HRM practices, such as staffing, employee training, development or reward system, and organizational performance. The strategic perspective highlights the importance of integrated HR prectice in order to achieve an impact on organizational performance through long-term competitiveness. Recognizing both perspectives, the following is an overview of the most important results obtained by previous research.

One of the earliest studies was conducted by Huselid (1993) and he established a positive link between better HR practices and financial performance of company. An important study on this topic was carried out by Arthur (1994) who examined the impact of human resources on the organization's performance on the case of 30 US manufacturing companies. He firsty identified the difference in two types of human resource management and defined them as a controlled and commited system. The results of his research showed that companies that had a committed system in human resources management achieved higher productivity, a smaller percentage of production scrap and a lower employee turnover rate than firms that operated the control system. Similar results were obtained by an extensive survey conducted by Huselid (1995) on a sample of 968 US firms and found that firms that used high-performance work system in workplaces achieved an increase in productivity of 16% reduction of employee turnover by 7.2% and significant

increase in sales, profits and market value of firms measured by absolute amounts in cash units. Becker and Gerhart (1996) came to the conclusion about the positive impact of human resources on the performance of the organization, while confirming the results of the already conducted research. Dyer & Reeves (1995) found that the practice of strategic human resource management contributes to increasing overall organizational performance, reducing human resources costs, increasing innovation, and improving operational efficiency. Guest (2001) suggests that HR practice positively affects organizational performance through the creation of employees who are motivated, commited and competent, and the impact can be manifested as direct or indirect.

Pfeffer (1994) first defined 16 human resource management practices, and subsequently systematized them into 7 practices (Pfeffer, 1998) that could have an impact on organizational performance, such as: training, information sharing, reduction of status differences, employment security, selection, payment system and self-managed teams. The individual impact of HRM practice has been the subject of numerous research. Statistically significant impact of human resource planning on organizational performance in their research was identified by Hiti (2000), as well as Chang & Chen (2002) and Mursi (2003). The impact of job design on organizational performance has been confirmed by Morgeson & Humphrey (2006). The positive impact of staffing on organizational performance was first confirmed in research conducted by Terpsra & Rozell (1993), and then in the studies carried out by Lam & White (1998), Ahmad & Schroeder (2003), Katuo & Budhwar (2006), Khan (2010) and Ekuma (2012). The influence of training and development on organizational performance has been observed and confirmed by numerous authors: Russel et al. (1985), Lam & White (1998), Chang & Chen (2002), Kundu (2003), Katuo & Budhwar (2006), Tharenou et al. (2007), Dimba (2010), Khan (2010), Aldamoe et al (2012), Ahmad & Schroeder (2003) and Kim & Ployhart (2014). Schein (1996) identified the positive impact of employee career development on organizational performance. The positive impact of strategic HR practice in domain of employees' performance appraisal on organizational performance was confirmed by the research carried out by Borman (1991), Stivers & Joyce (2000), Chang & Chen (2002), Islam & Rasad (2006) , Khan (2010) and Aguinis et al. (2011). The influence of compensation system of on organizational performance was identified in the research carried out by Milkovich (1992), Lam & White (1998), Ahmad & Schroeder (2003), Brown et al. (2003), Cardon & Stevens (2004) and Singh (2005). Huang (1999), Harel & Tzafrir (1999) and Koski et al. (2009) have confirmed through their research a

positive relationship between employee participation and organizational performance. The positive influence of internal communication on organizational performance was identified by Ulrich (1997) and Richard & Johnson (2001), and the positive influence of team work was determined by Hoegl & Gemuenden (2001) and Jassawalla & Sashittal (2003).

The impact of strategic human resource management on organizational performance is often referred to as a "black box", because it is not possible to determine the essence of this relationship, and also it can be influenced by other variables that are under control of the company or which can not be influenced. In literature, it is possible to find researches that determine the influence of mediator variables, such as absentism, commitment and innovation, on the relationship between strategic human resource management and organizational performance (Chew & Chong, 1999; Bowen et al., 2002). The moderator's influence of market orientation was studied by Harris & Ogbonna (2001). They found that there is a statistically significant impact of market orientation on the practice of strategic human resource management and that it generates a positive impact on organizational performance, where the impact of SHRM on organizational performance is not direct. Similar results were obtained in a study conducted by Collings et al. (2010), which have established a link between strategic orientation, strategic human resource management and organizational outcomes.

The research in this paper is based on the use of a number of statements to observe various strategic human management resource practices in order to group these statements in factors that will be used as independent variables representing a strategic HR practice.

3. Research Methodology

The research of the strategic human resource management practice has been conducted on a sample of organizations with more than 50 employees. The reason for this lies in the fact that earlier research has found that there is a statistically significant difference in the level of formalities of human resource management practice in small and medium-sized enterprises in relation to large enterprises (Kotey & Slade, 2005), while surveys carried out on a sample of 142 domestic companies confirmed that there is statistically significant the difference in the domain of recruitment, selection and training in small and medium-sized enterprises in relation to large enterprises (Slavković, 2011). An additional reason is the assumption that organizations with more than 50 employees are able to formulate a human resource management strategy.

Arbitrarily, two other restrictions have been introduced in determining organizations that are able to constitute the sample. First, it relates to the age of organization and as a minimum, a five year limit is taken and it is based on the assumption that it takes a certain amount of time from starting a business to the full establishment of a staff corpus and establishing a strategic human resource management practice. The second restriction applies to public or state enterprises, as research has confirmed the existence of a difference in human resources management in these enterprises (Townley et al., 2003) in relation to privately-owned companies that are exposed to market competition. Also, many state-owned enterprises are natural monopolies, so it is difficult to define objective criteria for assessing organizational performance, which makes the sample constituted only by private-owned private organizations, regardless of the origin of capital (domestic or foreign). The sample includes business organizations operating in all sectors of the economy.

Starting from the research model, it can be concluded that it is based on three independent variables and one dependent variables. The required sample size for multiple regression is defined by the formula 50 + 8k (where k is the number of predictors or independent variables) determined by Green (1991). In the concrete case, the minimum required number of observed business organizations in the sample is 74.

Taking into account the target number of business organizations in the sample and the previous experience in data collection, the assumption is that the rate of 40% of the completed questionnaires was taken in relation to the total number of contacted respondents, which involved contacting at least 185 organizations. Using data from the Business Registers Agency, 200 privately-owned business entities were randomly selected and a data collection procedure was initiated. In order to provide the necessary number of organizations in the sample, the data collection procedure was carried out in three phases, in accordance with the recommendations made by Menon et al. (1999). The first phase involved the sending of initial e-mail or a direct telephone call explaining the purpose and subject of research in order to obtain initial approval for participation in the research. In the second phase, sent a questionnaire with a cover letter via e-mail. After two weeks, 57 questionnaires were received, so the initial response rate was 28.5%. The third phase of data collection implied an additional telephone call or sending an additional reminder to fill in the questionnaire by e-mail.

The third phase of data collection was completed after two weeks, and the total number of questionnaires was 81. The three questionnaires were rejected as not-valid: the two questionnaires were only partially filled, and one

questionnaire was rejected because the number of employees was less than 50, because the number of employees is additionally reduced during the current year compared to the data given in the official financial statements that relate to the previous year and which are available as such to the Business Registers Agency. In total, 78 valid questionnaires were collected, with a total response rate of 39%. The research involved executive managers, human resources managers, directors or business unit managers who are well acquainted with practice of strategic human resources management in their own organization.

Table 1. Characteristics of the organization and respondents: summary report

	Frequency	*Proportion (%)*
Number of employees		
50-249 employees	36	46.2
Over 250 employees	42	53.8
Sum	78	100
Sector		
Production	41	52.6
Trade	13	16.7
Service	24	30.8
Sum	78	100
Structure of majority ownership		
Domestic private capital	45	57.7
Foreign private capital	33	42.3
Sum	78	100
Sex		
Female	46	59
Male	32	41
Sum	78	100
Education		
Secondary school	13	16.7
High education	5	6.4
Faculty education and more	60	76.9
Sum	78	100

Source: Authors' research

The results presented in Table 1 show that the structure of the sample is dominated by the companies from the production sector, one third of the sample is constituted by companies whose basic business is providing services

and the least have trade companies. More than 50% of the sample consists of large firms, employing more than 250 employees. The largest number of companies from the sample is owned by domestic private capital (57.7%). Women dominate the structure of respondents from 59%, while the educational structure of respondents mostly come from university education.

To measure the state of all variables, a 5-point Likert scale was used, with the following selection options: "1" - I completely disagree, "2" - I generally disagree, "3" - I agree in part, "4" - I generally agree, "5" - I totally agree. In order to achieve high internal consistency (Kronbach alpha coefficient), each variable used statements tested in numerous previous studies. Each item is translated and additionally languages are adapted to the terminology appropriate to the national HRM practice, in all those situations where it was needed.

Human resource management practice has been viewed through key activities. The state of these activities was observed through statements developed by Delery & Doty (1996), Chang & Chen (2002), Wan et al. (2002), Ahmad & Schroeder (2003), Lepak & Snell (2002) and Verburg et al. (2007). Following items are used in questionaire: „Different training programs are provided to employees in your organization.“; „Employees have certain training programs every few years.“; „There are formal training programs for new employees in order to acquire the necessary skills for doing business.“; „Formal training programs are offered to employees in order to increase the possibility of their career progression.“; „Compensation system encourages employees to act in accordance with their goals.“; „Compensation system is fair in terms of rewarding employees who achieve the set goals.“; „Compensation system and rewarding encourages employees to achieve the set goals.“; „There is an anticipation of employee demand in your organization.“; „There is a formally defined human resources management strategy in organization.“; „In the organization there are socialization programs of new employees.“; „Employees can expect to stay in the organization for as long as they want.“; „Work certainty is almost guaranteed to employees in your organization.“; „Employee reductions are the latest measure if your organization faces economic crisis.“; „Managers have open communication with their employees.“; „Employees have the opportunity to provide suggestions for improving way of doing business.“; „Job description is updated at specified time intervals.“; „Employees have autonomy in doing operations.“.

In the assessment of organizational performance, statements was used that was confirmed in research developed and used by Delaney & Huselid (1996), Jaw et al. (2006), Green et al. (2006), Ling & Jaw (2006) , Lee et al.

(2010), Goldoni & Oliveira (2010), Sheehan & Cooper (2011) and Navarro et al. (2010). Following items are used in questionaire: „Your organization is able to reduce the costs of production/sales/services and general costs.“; „Revenue growth/stability is better than competitors.“; „Employee productivity is better than competitors.“; „Organization has a satisfactory level of profitability.“; „Quality of products/services is better than competitors.“; „Development of new products/services is better than competitors.“; „Customer satisfaction is better than competitors.“; „The organization has the ability to quickly and effectively respond to changes in technology and the market.“; „The organization quickly resolves the problems.“.

The statistical data package SPSS in version 23.0 was used for data processing.

4. Results and Discussion

Initially, an exploitative factor analysis was carried out to determine the independent variable, or the principal components analysis method. The above statistical procedure was used to identify the factors around which the statements of respondents are grouped. To determine the justification of the use of factor analysis, Kaiser-Mejer-Olkin's (KMO) indicator (Kaiser, 1970) was calculated, with 0.6 being recommended as the minimum value acceptable for valid factor analysis (Tabachnick & Fidell, 2007). In addition, Bartler's sphericity test (Bartlett, 1954), which should be significant ($p < 0.05$), is done in order to apply the factorial analysis. The reliability and consistency of the statements was measured using the Cronbach's alpha coefficient, with values of this coefficient above 0.7 indicating their high reliability and consistency (DeVellis, 2003).

Practice of strategic human resource management is determined as an independent variable. In order to determine the level of development of the strategic HR practice, 17 statements were used, which refer to the key human resources management activities. In order to determine the justification of the implementation of the exploitative analysis, the KMO indicator was calculated, which is 0.805, and the Bartlett test of sphericity is statistically significant ($p = 0.000$). As a result of the exploratory factor analysis, four factors are identified that are designated as independent variables of the research model: factor 1 – compensation system and employee development; factor 2 - human resource planning and staffing; factor 3 - job security; factor 4 - training and job design. The values of the Cronbach's alpha coefficient of identified factors are: 0.908; 0.818; 0.817 and 0.811, respectively.

The internal consistency review was done for dependent variable also. The results of the Cronbach's alpha test presented a value of 0.903 suggesting good internal consistency and the possibility of using this variable in further analysis.

Table 2. Exploratory Factor Analysis of Independent Variables: Strategic HR practice

Item		Factors			
		1	2	3	4
Factor 1: Compensation system and employee development					
HR1	Compensation system is fair in terms of rewarding employees who achieve the set goals.	0.868			
HR2	Compensation system and rewarding encourages employees to achieve the set goals.	0.842			
HR3	Compensation system encourages employees to act in accordance with their goals.	0.783			
HR4	Employees have the opportunity to provide suggestions for improving way of doing business.	0.732			
HR5	Managers have open communication with their employees.	0.679			
HR6	Employees have autonomy in doing operations.	0.652			
Factor 2: Human resource planning and staffing					
HR7	In the organization there are socialization programs of new employees.		0.776		
HR8	There are formal training programs for new employees in order to acquire the necessary skills for doing business.		0.761		
HR9	There is a formally defined human resources management strategy in organization.		0.698		
HR10	Formal training programs are offered to employees in order to increase the possibility of their career progression.		0.677		
HR11	There is an anticipation of employee demand in your organization.		0.615		
Factor 3: Job security					
HR12	Employees can expect to stay in the organization for as long as they want.			0.875	
HR13	Work certainty is almost guaranteed to employees in your organization.			0.857	
HR14	Employee reductions are the latest measure if your organization faces economic crisis.			0.689	
Factor 4: Training and job design					
HR15	Employees have certain training programs every few years.				0.855
HR16	Different training programs are provided to employees in your organization.				0.741
HR17	Job description is updated at specified time intervals.				0.690

Source: Authors' research

A multiple regression analysis was used to measure impact of strategic human resource management practice on organizational performance. The aim of using this analysis is to determine an individual contribution of each of the identified factors of the strategic HR practice to organizational performance. The results obtained in this way have much greater analytical value and ability to be used in managerial practice.

Table 3. Multiple regression analysis: organizational performance as independent variable

Variable	β	t	p	VIF
Factor 1: Compensation system and employee development	0.450	4.545	0.000***	1.814
Factor 2: Human resource planning and staffing	0.137	1.495	0.139	1.544
Factor 3: Job security	0.221	2.595	0.011**	1.340
Factor 4: Training and job design	0.171	1.857	0.067*	1.560
Note: *Significance p < 0.01 (***), 0.05 (**),0,1 (*); R2 = 0.606; F = 28.032******				

Source: Authors' research

The results of multiple regression analysis have shown that only some of the identified factors of strategic human resource practice have a statistically significant impact on organizational performance, such as: compensation system and employee development, job security, and training and job design. Human resource planning and staffing, as a factor of strategic HR practice, does not have a statistically significant impact on organizational performance. The different level of significance of certain factors that have a statistically significant influence on organizational performance indicates a different contribution of individual factors to organizational performance. The highest level of significance is achieved by Factor 1: Compensation system and employee development, followed by Factor 3: Job security, and the least important factor is Factor 4: Training and job design. The value of the VIF coefficient, which is significantly below the value of 5, shows that multicolinearity is not a problem for the existing research model.

The results obtained by multiple regression analysis have very significant practical implications. Starting from the level of significance of individual factors, it can be concluded that compensation system and employee development opportunities have the strongest impact on the observed organizational performance. At the same time, it shows that strategic HR practice, realized through the design of compensation system and established employee development policy, has the greatest contribution to organizational

performance. A clearly defined system of compensation, which is supported through employee orientation towards organizational goals and various employee development opportunities, is an important assumption of organizational success. A somewhat smaller contribution has perceived job security, which at the same time suggests that business stability is transferred to employees, which become even more efficient and effective in their work. The lowest level of significance in the presented model is realized by human resource management activities related to training and job design. Although the impact of these activities on organizational performance is statistically significant, it can at the same time point to two important facts: firstly, changes in the environment are so rapid that they cause a constant job redesign, which reduces a effectiveness of the implemented trainings, secondly, training programs are not sufficiently customized to the needs employees and organizations.

A factor that does not have a statistically significant impact on organizational performance refers to HR planning and staffing. In stable business conditions, this result is very difficult to explain, since the significant attention of all business organizations is focused on finding a sufficient number of talented individuals in the labor market. On the other hand, the human resources deficit in the labor market can form significant problems in human resources planning in the field of matching supply and demand for required candidates. This leads to an increase pressure on employees to accelerate work operations which causes a greater number of errors, process stalemates, conflicts, dissatisfaction and the like. These problems are perceived as a weakness in human resource planning and staffing. In fact, the deficit of adequate candidates in the labour market for vacancies causes problems in HR planning and staffing and creates a negative effect on organizational performance.

The results of the factor analysis carried out to form independent variables demonstrated homogeneity in grouping different activities of the practice of strategic human resource management. The relationship between HR planning and staffing is evident and directly focused on determining the appropriate number of employees and their inflow into the organization. The combination of training and design can be explained by significant changes in technology that change the nature of the business, requiring job redesign and acquiring new knowledge and skills in order to successfully perform the job. The long-term employer's attractiveness is a common basis for a factor that relates to the compensation system and employee development opportunities. Competitive compensation packages and clear guidelines for career

development, especially for talented individuals, are improving the position of the firm in the labor market and contributing to the strengthening of the employer's brand. Job security is a factor that shows the highest level of homogeneity, which further points to its importance in strategic human resource management.

The results obtained by this study present a statistically significant influence of most of the observed factors in the strategic human resource management practice on organizational performance, thus confirming the results of previous research carried out by Huselid (1995), Becker & Gerhart (1996), Wright et al. (2003), Lepak et al. (2003), Bowen & Ostroff (2004) and Vlachos (2008), on the impact of strategic HR practice on organizational performance. The difference in relation to the above research relates to the context of human resources management, ie to the general economic environment, since they are mostly carried out in business organizations operating in the most developed economies, and it should be borne in mind that the research carried out by Islam & Siengthai (2010) and Thang & Quang (2011) confirmed the positive impact of strategic HR practice on organizational performance in transition economies also.

A comparative analysis of a state of independent and dependent variables in firms with different origin of capital (domestic private and foreign private) showed that in a small number of elements there is a statistically significant difference between these two categories of organizations, which may be an indicator that enterprises with the dominant domestic private capital has reached the stage of development of strategic human resources management as well as business organizations in developed economies in the West or companies with the dominant foreign private capital in ownership structure does not transmit the practice of strategic human resources management in the domicile countries, which seems like a less likely option. On the basis of the obtained results it is possible to activate causative and consequential relations between strategic human resources management and organizational performance, which would mean that the practice of strategic human resources management can be predictor of organizational performance, or that it can point to possible problems in the business.

5. Limitation and Future Research

The research carried out for the purposes of this article has a number of limitations. The first limitation refers to the structure of the sample from the aspect of a sector. The sample is constituted by organizations operating in the

field of production, trade and services, and the business in each of these sectors has certain specificities which may have an impact on the variables of the research model. The results of the ANOVA test showed that the effect of such a sample structure on the survey results is minimal, since only a small number of observed items have established the existence of statistically significant differences between production, trade and service organizations.

The second limitation relates to the size of the companies that constitute the sample. The results of the t-test showed that there is no statistically significant difference between the organizations that have between 50 and 249 employees and those with over 250 employees for most of the observed elements, but it has been confirmed in some elements, which indicates a certain influence of the size of the company on the observed variables. The third limitation refers to the size of the sample. Despite the formally satisfactory criteria for the minimum required sample size for this type of research, it can be concluded that it is relatively small because it consists of 78 organizations, which is primarily due to the underdeveloped business culture and the closure of external communication organizations, which reduces the possibilities for collecting questionnaires and increasing the number of units in the sample. The fourth limitation refers to the approach to performance measurement. Through the questionnaire, the perceived performance is practically assessed, which can raise the question of the objectivity of the estimates of financial performance and general organizational performance.

These limitations are at the same time a guide for future research. In this context, research focus should be carried out so that the sample is constituted by organizations from only one sector (for example, only production or service organizations). This would avoid the generalization of attitudes, and the results obtained would have practical managerial implications for a specific business or sector. An additional effort in future research will be dedicated to increasing the number of units in the sample.

One part of future research, related to the link between the practice of strategic human resource management and organizational performance, will be focused on the quantification of financial performance, where the data from the official financial statements will be used as a basis. Testing the values and assumptions of the universalist approach can be the subject of future research by comparing the practice of strategic human resource management in companies in Serbia and companies from Western countries.

6. Conclusion

The results of the conducted research have shown that the practice of strategic human resource management is differentiated into four factors, of which three factors have a statistically significant influence (Factor 1: Compensation system and employee development, Factor 3: Job security, and Factor 4: Training and job design.) on organizational performance, with the strongest impact being achieved by Factor 1. Factor 2 (Human resources planning and staffing) is the only strategic HR practice that does not have a statistically significant impact on organizational performance.

Research results presented in the paper are based on the universalistic approach to strategic human resources management, which suggests the need to identify "best practices" in human resource management that can achieve a satisfactory level of organizational performance. The idea of isolating best practice opens the question of the inverse relationship of these variables, or a impact of organizational performance on the practice of strategic human resource management. The logical precondition for establishing and investigating inverse influence lies in the fact that organizations that achieve superior organizational performance, including a financial aspect, have greater opportunities for engaging superior and talented individuals than organizations that achieve lower levels of organizational performance.

An analysis of the results of numerous research carried out in the previous period has shown the existence of a positive link between the strategic HR practice and organizational performance. The establishment of this relationship is based on a significant degree of generalization, since in previous research there is no precisely defined human resource management practice, but the authors of the research have adapted to the specific needs, as well as a unified set of organizational performances that are subject to observation. Nevertheless, the obtained results have a great use and analytical value as they prove that human resources, as the most valuable assets of the organization, contribute to the creation of value in the organization.

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INNOVATION COMPETITIVENESS OF THE COUNTRY IN GLOBAL TRADE LANDSCAPE: THE CASE OF THE REPUBLIC OF MOLDOVA

Marica Dumitrasco, Ph.D[1]

The study highlights the importance of interaction between innovation, competitiveness and foreign trade. This study found the innovation competitiveness of a country is the main determinant for successful integration of a country in the Global Value Chains (GVC). The purpose of research is to study the most problematic factors that affecting the innovation competitiveness of the Moldovan economy. The study is based on the analysis of the Republic of Moldova's score and position in international indicators and rankings in correlation with the methodology of the World Economic Forum. The values of innovation, business sophistication and technological readiness factors of competitiveness between Moldova and Southeastern Europe countries are analyzed in the paper. The study identified that the Republic of Moldova and Serbia recorded low indicators of the innovation and sophistication competitiveness in comparison with other countries of Southeast Europe. At the same time economy of Moldova follows the EU economies on the technological readiness, overcoming the Albanian and Serbian economy in the last years. The study showed that the need to raise the competitiveness by attracting foreign direct investments into research and development, information communication technologies as well as the high-value manufacturing and tradable sectors and by fully and efficiently implementing public institution reform, has become not only important but also urgent because the country is to be capable to strengthen the economic benefits that many countries have reached in past years. The results of study can be used in the process of implementation of public administration reform, the elaboration of the National Program of science and innovation of the Republic of Moldova, the improving of governance the research and development in the country.
Keywords: competitiveness, innovation, sophistication, technological readiness.

JEL classification: F 01, F14, F20, O32, O33, O57
UDC: 330.341.1(478)

[1] Associate research professor, Research Institute of the University of Bucharest (Romania), mdumitrasco@gmail.com, 2001, bd. Stefan Cel Mare 1, Chisinau, Republic of Moldova

1. Introduction

The important links between innovation, competitiveness and external trade have been the subject of an ongoing debate that has attracted considerable attention from both researchers and decision makers. The globalization has intensified the competition between countries. On the one hand, it is widely accepted that innovation is a key to competitiveness in the modern economy. On the other hand, factors and conditions that influence the innovative behavior and performance are largely the same as those which determine the ability of firms to compete.

Since 2010, for emerging economies and commodity-exporting economies in particular, GDP per capita has become more closely correlated with the Global Competitiveness Index's technological readiness, business sophistication, and innovation pillars than it is with the infrastructure, health and primary education, and market-related pillars (goods markets efficiency, financial market development, and labor market efficiency). *(Global Competitiveness Report, 2016-2017)*

In economic literature is accentuated that innovations are combined with the openness of the economy and economic integration. An open, trading economy generates incentives to innovate and invest in new technologies because firms are exposed to competition and new ideas and can benefit from the technology transfer that comes from imports and foreign investment. At the same time, firms can benefit from larger markets abroad (Bustos 2011; Cassiman et al., 2010).

In this regard it should be noted, that the liberal trade policy of the Republic of Moldova is based on the multilateral and bilateral agreements within neighbor countries between which the Foreign Trade Agreement between RM and EU, Central European Free Trade Agreement (CEFTA) embracing the Southeast Europe countries not members of EU.

In this context, economic integration of the Republic of Moldova by using the potential of trade agreements will contribute to the growth of competitiveness of an economy based on the knowledge and integrated into regional value chains.

This paper includes the study of the influence of global trade on the development of national economics, taking a special attention on emerging economies, and the records of the innovational competitiveness of the Moldovan economy, based on the corresponding methodology.

2. Impact of global trade on the development of national economics

The liberalization of foreign trade of goods is one of the main consequences of globalization, which reflects a continuous growth trend of the interdependence of the countries of the world.

A number of reputable international institutions, including the World Bank, the International Monetary Fund, the World Trade Organization, who are promoting free trade, adhere to the point of view that globalization is capable of accelerating the growth processes of the economy (IMF, WB, and WTO, 2017). It was demonstrated by the examples of number advanced and developing economies in the second part of the 20th century. But this relation is not automatic. It is the true the same that not all developing countries can benefit from the priorities of liberalization of foreign trade could be explained by their slow integration into the world technology renewed economy, not the application of trade supporting policies etc.

Despite arguments that seem undeniable, one of more disputable national trade policy topics in the period of post-World II of creation GATT/WTO till the early 1990s were that every country that is actively involved in globalization processes, in addition to obvious benefits, has many difficulties and complicated issues overcome. They caused, by the high competition on international markets, with the result that companies that are not competitive and adapted to the requirements of the day, and last but not least - those in developing countries and economies in the transition phase risk be eliminated from the market.

Agreements GATT and WTO uphold strict rules, but they contain and exceptions. It gives the rules elasticity, but WTO rules are applied with even greater flexibility. Although under agreements there is a ban on import quotas and approved binding tariff levels, GATT also allows anti-dumping and countervailing duties, subsidies as well as safeguard measures and includes an escape clause. Thanking them governments have easy access to all measures that can limit trade. So, the governments of many countries found it inappropriate to increase competition in a number of industries that play an important role in ensuring food security and national security of their own countries. This is why both developed and developing countries resorted to selective bans or restrictions on the import of goods. These measures increase the circulation costs of imported goods, which make them less competitive than domestic ones or create uncertain conditions in the import mechanism of these goods. To be mentioned that the last surge of protectionism took place in the first decade of the 21st century and was explained by post-crisis

consequences of economic shock of 2008-2009 periods. According to researchers, it didn't result in much protectionism because of contemporary developed shock absorber mechanisms (Bown, 2001; Douglas and Kevin, 2011). Although still, trade protectionism is restricting the race of growth of world trade.

Since the early 2000s, then WTO has achieved remarkable results in the liberalization of customs tariffs, their role, as internal market protection tools, logically diminished.

In accordance with the trade management concept applied in the past century, simultaneously with the reduction of tariff barriers, the following trend was also manifested: increasing the use of different non-tariff limitations in foreign trade.

By the accepted definition in international trade practice, non-tariff barriers to trade are considered to be any measures taken by governments, but different to tariffs that help to limit trade-offs between countries.

Compared with tariff barriers, non-tariff measures (NTMs) are often more difficult to detect. They are usually "hidden" in rules and practices that in fact can have a perfectly legitimate objective, but the economic effects of non-tariff barriers (NTBs) can be substantial in both positive and negative sense. The main reasons for the frequent application and use of these measures were generated by the domestic policies of each country. Trade negotiations between countries were driven mainly by the granting of market access "concessions". Consequently, countries diminished NTMs only when their partners weakened theirs.

At present high non-tariff barriers to trade in some key areas of the global economy are remain restricting of trade.

Many experimental studies approved that regulatory NTMs are more predominate for agricultural trade than for non- agricultural.

Recent researches confirm also that developed countries more applied regulatory NTMs than developing ones. In contrast, tariff measures, which are more probably to constrain trade directly, are more widespread among low-income countries (IMF, WB, and WTO, 2017, p. 12).

Thanks to liberalization of customs tariffs, reducing of trade barriers as well as transport and communications costs has been changing global trade picture.

Latest trade facilitation which can be determinate as "the simplification, standardization, and harmonization of procedures and associated information flows required to move goods from seller to buyer and to make payment"

(UNECE, 2012) - has appeared as a key topic in the agenda the world trading system.

As it is mentioned in WTO report 2015: "While trade agreements in the past were about "negative" integration – countries lowering tariff and non-tariff barriers – the WTO Trade Facilitation Agreement (TFA) is about positive integration – countries working together to simplify processes, share information, and cooperate on regulatory and policy goals" (WTO, 2015, p.32).

Last decades in the economic literature dedicated of trade topics have discussed the importance of trade liberalization for organizing the production of goods and adding value across different countries that consistently led to the appearance of global value chains (GVC).

Under value chains according to M. Porter (1985) who primarily described this concept is understanding the division a firm into the discrete activities, it performs in designing, producing, marketing, and distributing its product. This concept was used by him as the main tool for diagnosing competitive advantages by disaggregating the firm in the activities underlying the competitive advantage and identifying links between activities that are central to the competitive advantage and also explaining how coalitions with other firms can replace performance inside the chain.

Value chains have started in framework mainly of one country, then expanded to neighboring countries, have developed at the global level in the early 2000s. In global trade landscape where partners' exports depend on imports and where their connection to the world market is as effective as their link to any other link in the value chain, countries have a greater motivation to work together in order to reduce trade barriers, harmonize standards, costume procedure etc.

A number of recent studies contain important findings related to countries and firm's position in the GVC. The approach of international organizations is based on country and sector-level analyses to fragmentation of production. Several international organizations have developed a range of WEB simulation tools that allow estimating the value-added portion of a country's exports, among which are: Market Analysis Tools of International Trade Center (ITC) of the World Trade Organization and the United Nations, the Trade in Value Added (TiVA) instrument, developed by OECD for the comparative analysis of GVC integration across countries of different levels of development. It was demonstrated that export competitiveness presupposes import openness because foreign inputs lead to the domestic value-added portion of a country's exports.

In contrast with international organizations in many case studies have been emphasized that firm- and sector-level analysis is central to GVC approaches to fragmentation of production. It is also accentuated that unlike the value-added trade, there is no single, accepted standard among GVC economists on how to conceptualize, determine and estimate the value or its distribution among firms (Dallas, 2014).

Based at the analysis of the experimental findings, in the economic literature regarding this phenomenon is concluded, that since the early 1990s GVCs have become a strong driver of productivity and manufacturing exports and they are covering a wide range of goods from labor-intensive activity to high technology (IMF, WB, and WTO, 2017, p. 8; OECD, 2018).

In this context was approved that countries' and firms' benefits do not rely on the kind of activity develop, but on the value generated for the economy, which can come from any type of activity in the framework of the chain (Lopez, 2016, p. 10). So, countries' and firms' position are based on their competitive advantages and measure of effectiveness within the chain.

In the era of increasingly developing GVCs, innovation, and technology transfer are also seen as important sources of more sustained competitive advantage based on intangible assets rather than labor costs (Nolan and Pilat, 2016).

Many studies emphasis positive correlation between the signing deeper agreements and GVC- related trade (Mattoo, Mulabdic, and Ruta, 2017; Osnago, Rocha and Ruta, 2017).

EU membership countries are included in the group of countries with the deepest agreements. It should be noted that the Agreement between the Republic of Moldova and EU members is one of deepest. It covers 44 provisions in comparison with about 25 on average provisions in force in 2015, according to World Bank database documents (Hofmann; Osnago; Ruta, 2017).

In this context, a recent the FTA between of Republic of Moldova and EU gives advantages domestic firms, taking in the attention the possibility for extension their activities in international networks of production and first of all in the EU.

In a country's research is mentioned that the valorification of this potential of FTA will allow to Moldova to overcome the disadvantages of the small country market by the creation of narrow specialization profiles in the production of many times greater than the needs of the domestic market, and even at all unrelated to them. Absorbing the innovations and technology transfer, thanks engagement in GVC, will conduce to overcome such deficiencies of domestic production as the insufficient competitiveness of

Moldovan exports at the external markets as well as the failure to suggest a wide enough assortment of final consumption goods to them. (Dumitrasco, 2016)

In economic literature to complementary to the above mentioned in the example of country's research emphasize following opportunities for developing countries from adhering to GVC. They can more rapidly than was possible in the previous industrialization period to integrate into the global economy by using their comparative advantage to concentrate on a specific production process or task. (Kowalski and others, 2015). They can also create more job opportunities becoming a part of GVCs (UNCTAD, 2013).

In many research regarding developing countries is mentioned that they are entering in GVC at the assembly and production stage and are mainly engaged in low-income global value chains. In context, GVC researchers pointed out the limitations of developing countries in upgrading within fragmented production chains, especially taking in attention such factor of production as labor. Milberg and Winkler (2013) find that offshoring reduces employment and raises income inequality between countries and allows firms in developing countries to bring down domestic investment and focus on finance and short-run stock movements. Development is associated with "upgrading" in global value chains, but this is not sufficient for improved wages or labor standards.

To be mentioned that for the rethinking of upgrading in global value chains is using the concept of "smile curve". It was first introduced by Shih (1996) on the example of the personal computer industry who noticed that at each end of the curve obtain higher value added to the product than in the middle. Therefore, at one end are concentrated preproduction activities such as R&D, while on the other postproduction such as marketing. Both tend to obtain a higher share of final product and are situating in developed countries. In contrast, manufacturing or assembly activities in developing countries tend to be located in the middle of the curve that corresponds to lower value-added share.

At present, the significance of GVCs for the CEFTA economies of Southeast Europe region is limited, because "they are only weakly to moderately integrated into international trade"(CEFTA Investment Report, 2017).

In the country's research also was demonstrated that goods from Moldova are insufficiently penetrated in income value chains. They mostly are related to items with a low value-added share that provided in the customs regime of inward processing trade with few European countries. The

advantage of geographical approximation to Europe one of the main manufacturing hubs around of which is organized the GVC activity is practically unused by Moldova (Dumitrasco, 2016; Dumitrasco, 2017).

OECD study (2015) paid attention to the necessary the adoption of economic policies that can help developing countries improve their competitiveness for integration in GVC.

3. Methodological background and objectives of the research

Innovation competitiveness of a country is the main determinant for successful integration of countries in the GVC, as can be concluded from analysis of literature review.

The study is based on the analysis of the Republic of Moldova's score and position in international indicators and rankings in correlation with the methodology of the World Economic Forum. Understanding the factors of competitiveness in the framework of this methodology is arising from theories of specialization and the division of labor to neoclassical theories emphasis on investment in physical capital and infrastructure, and, later, to interest in other mechanisms such as education and training, technological progress, macroeconomic stability, good governance, firm sophistication, and market efficiency *(Global Competitiveness Report, 2014-2015)*. All listed facilitate integration of the country in the value chains.

Although research pays a special attention to the analysis of indicators included in subindex "Innovation and sophistication factors", first of all will be specified most critical indicators of the Global Competitiveness Index for economy of Republic of Moldova, taking in consideration interconnection between 12 pillars of competitiveness as well as the actual level of economic development of country.

In Global Competitiveness Report (2011-2012) is mentioned:"While all of these factors are likely to be important for competitiveness and growth, they are not mutually exclusive—two or more of them can be significant at the same time".

In this context, in line with innovation and sophistication factors, the technological readiness indicator closely associated with the innovation competitiveness of the country is included in the analysis.

For the purpose of research, it is important to compare the score of indicators covered by subindex "Innovation and sophistication factors" with indicators of other two subindexes.

Analysis below embraces indicators included in the World Economic Forum the Global Competitiveness reports from 2011 to 2017; their average scores there it was is applicable as well as growth rates of indicators of innovation and business sophistication and technological readiness competitiveness of the Moldovan economy calculated by the author for the mentioned period.

It should be noted that in accordance with the methodology applied, for the economies which are measured in the overall GCI below 50, any individual performance measured above 51, are considered advantages (Global Competitiveness Report, 2011-2012, p.90).

The growing interest of Moldovan government to the country's score and position in international indicators and rankings was manifested recently by the introduction of their mandatory monitoring in all key ministers as well as the elaboration of amelioration proposals (Government decision Nr.297 from 30 March 2018). It is explained by the importance of country's score and position for the decisions of foreign investors. So, our research should have applied character. For completeness, the analysis is supplemented by an analysis of national statistics.

Based on the methodology, there are following objectives of the study:

- Establishing the key domains for the improvement of country's competitiveness,
- Determining the most problematic factors that affecting the innovation and business sophistication factors competitiveness of the Moldovan economy, taking into attention the necessity of adopting the urgent economic policy measures,
- Comparing the values of innovation, business sophistication and technological readiness factors of competitiveness between Moldova and Southeastern European countries, with the scope of the estimation the convergence within countries.

4. Records of the innovational competitiveness of the Moldovan economy

According to the stage of development, the economy of Moldova balanced between factor-driven and efficiency-driven in framework analyzed period 2011-2017. It was classified as efficiency-driven in the period 2013-2015. While in the remaining years it was classified as the factor-driven economy. Although the low progress was demonstrated by Moldovan economy, the pillars included in subindex "Basic requirements" (4.2 average

score) are ranking higher than those in subindex “Efficiency enhancers” (3.7) as well as in subindex “Innovation and sophistication factors” (2.9) (Table 1).

Table 1. Most critical indicators of Global Competitiveness Index for the economy of the Republic of Moldova

Subindex and pillars	Year	2011	2012	2013	2014	2015	2016	2017	Average score
A. Basic requirements – total	score	4,1	4,2	4,2	4,3	4,3	4,1	4,2	4,2
	rank	102	93	97	90	89	101	95	
Institutions	score	3,4	3,4	3,2	3,2	3,2	3,1	3,2	3,2
	rank	106	110	122	121	123	128	119	
B. Efficiency enhancers - total, from which:	score	3,6	3,7	3,7	3,8	3,8	3,7	3,7	3,7
	rank	103	99	102	88	94	102	94	
Financial market development	score	3,6	3,6	3,6	3,7	3,3	3	3,1	3,4
	rank	105	104	105	100	115	129	124	
C. Innovation and sophistication factors – total	score	2,9	2,9	2,9	2,9	2,9	2,9	3	2,9
	rank	127	131	133	129	128	131	124	
Business sophistication	score	3,3	3,3	3,3	3,4	3,3	3,2	3,4	3,3
	rank	117	120	125	124	127	127	120	
Innovation	score	2,4	2,4	2,4	2,5	2,6	2,5	2,6	2,5
	rank	128	135	138	131	130	133	128	

Source: Elaborated by the author at the WEF, the Global Competitiveness Report, 2011-2012 to 2017-2018

It can be also observed that only on the groups of basic requirements and efficiency enhancers, the country was placed above the hundredth position during some years.

In the framework of subindexes, the lowest score is obtained by indicators of innovation pillar (2.5 average value), the institution's pillar (3.2), the financial market development (3.4) and the business sophistication pillar (3.3).

To be mentioned that in the subindex “Innovation and sophistication factors” both pillars groped in it were mentioned as critical taking attention their equal weight within subindex, besides the values reached.

Despite the growing scores at the end in comparison with the beginning analyzed period, the annual indicators of the innovational competitiveness show very little progress. The best position occupied by country is the 128 place or is among the last ten countries included in the list.

Although the business sophistication indicators are classified higher than innovational once, they demonstrate a moderate performance the same, with the position in the latest twenty countries in the world.

The scores and ranks of Institutions and financial market development pillars testify the regress of indicators of competitiveness in recent years in comparison with the beginning of the period.

Moldova's situation in Southeast Europe, along with the eastern border of the European Union, is stipulated its participation in the initiatives on the regional level that are aimed at making the region more competitive on the global landscape as well as reaching greater matching between countries.

In this context, the comparative analysis below covers Moldova and six countries of Southeast Europe region with the point of view, their innovation environment competitiveness as well as the technological readiness.

It should be noted that economy of Republic of Moldova was behind the countries of Southeast Europe in terms of the factors of innovation and sophistication competitiveness during analyzed period (Table 2).

Table 2. Evolution of the innovation and sophistication factors competitiveness of the some Southeast Europe countries for the period 2011-2017

Countries	Year	2011	2012	2013	2014	2015	2016	2017	Average score
Moldova	score	2,9	2,9	2,9	2,9	2,9	2,9	3	2,9
	rank	127	131	133	129	128	131	124	
Romania	score	3,2	3,2	3,3	3,5	3,5	3,3	3,3	3,3
	rank	99	106	103	78	89	100	107	
Bulgaria	score	3,2	3,3	3,3	3,3	3,4	3,6	3,6	3,4
	rank	96	97	108	106	94	71	73	
Albania	score	3,2	3,1	3,1	3,2	3,2	3,3	3,6	3,2
	rank	102	113	119	114	115	106	76	
Croatia	score	3,4	3,4	3,5	3,5	3,4	3,4	3,4	3,4
	rank	82	83	80	87	90	92	99	
Serbia	score	3,0	3,0	3,0	3,1	3,0	3,1	3,3	3,1
	rank	118	124	125	121	125	120	104	
Montenegro	score	3,6	3,6	3,6	3,5	3,4	3,4	3,4	3,5
	rank	59	69	70	77	86	98	92	

Source: Elaborated by the author at the WEF, the Global Competitiveness Report, 2011-2012 to 2017-2018

It can be observed also that the factors of competitiveness were estimated with annual score 2.9 in the framework of the observed period with the exception 2017 year (3.0), that notes absent of the progress practically in innovation and business sophistication sphere.

Similar, Serbia has demonstrated low innovation and sophistication competitiveness in comparison with countries of the region. Indicators of

competitiveness have fluctuated between 3.0-3.1 score with the exception of the 2017 year (3.3).

Untypically Montenegro exceeded the countries members of EU included in the analysis of innovation and sophistication competitiveness, obtaining the highest average score -3.5. Although the records indicate a decrease of competitiveness the corresponding factors at the end of analyzed period comparing the beginning.

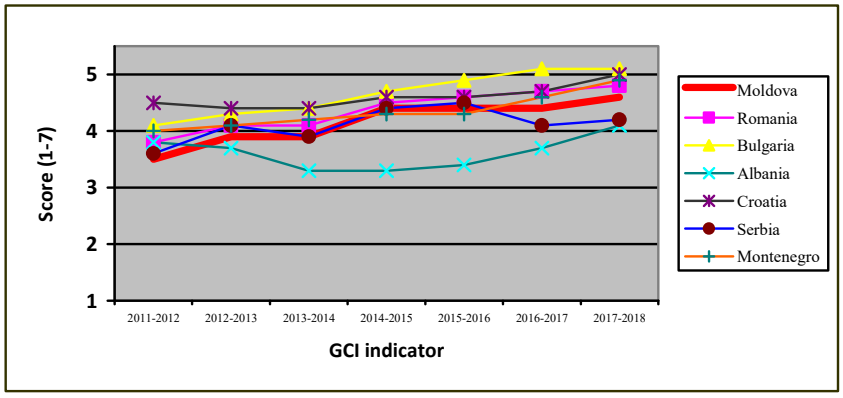
Croatia has insignificant changes in its factors of innovation and sophistication competitiveness, achieved the average score – 3.4.

The economies of Bulgaria and Albania have a favorable tend to increase their competitiveness in the relevant indicators.

There are no big breaks in the innovation competitiveness of the Southeast Europe countries in general. In 2017 all countries were classified in score diapason between 3.0 and 3.6.

In contrast, the evolution of technological readiness of the Southeast Europe countries shows the persistent competitiveness gaps between countries as measured by the GCI indicator (Figure 1).

Figure 1. Dynamics of the technological readiness of the some Southeast Europe countries for the period 2011-2017



Source: Elaborated by the author at the WEF, the Global Competitiveness Report, 2011-2012 to 2017-2018

It can be observed also that in the top of technological readiness competitiveness is an economy of Bulgaria that obtained the score of 5.1 in both 2016 and 2017 years but in the bottom of Albania that received the score

3.7 and 4.1 respectively. In plus beginning with 2014, all analyzed economies have received the score more than 4 items, excepting the Albanian economy.

It is important to emphasize that Bulgaria has had the competitive advantage advantage in technological readiness (2013-2015) and Croatia (2013-2017). Both were ranking higher than the fiftieth place in technological readiness in the mentioned periods while their economies were ranked lower than fiftieth positions in the overall GCI.

Economies of Moldova and Serbia have demonstrated the similar records in 2013-2015 years in technological readiness, following the Romanian economy.

It should be noted that Moldova has overcome the Albanian economy as well the Serbian economy on the technological readiness of competitiveness in the last years. There is the lack of convergence within countries regarding on the technological readiness of competitiveness.

In the following analysis, the factors of innovation, business sophistication and technological readiness competitiveness of the Moldovan economy are studied in detail.

In the framework of business sophistication pillar, the factors of state of cluster development have demonstrated the catastrophic values occupying the latest positions in the world in the period 2014-2016 years, but in the rest years, one of the last places (Table 3).

It speaks about the weak the horizontal inter-firm cooperation in the framework of the geographically approximate regions and the ineffective support by the public institutions the cluster development. Notwithstanding the growth of the state of cluster development (1.3 % annually), the initial comparison base was very low. So, current growth rates are not sufficient for intensify of the production process.

An attention is also drawn to the low values of the factors of nature of competitive advantage, which tend to decrease with significant average annual decline (-3.1%). In context to be mentioned that the cheap labor force is the basis of competitive advantage of the country. At present, the lack of skilled workforce, linked to current and future market demands, is transformed into a one of a key obstacle to the development of small and medium business for the Republic of Moldova.

The country is lagging quite far behind in terms of innovation factors as well as business sophistication. Utility patent granted applications have the highest rating between of factors of innovation pillar (seventy-second place in 2017).

Table 3. Factors of innovation, sophistication and technological readiness competitiveness of the Moldovan economy and their growth rate for the period 2011-2017

Factors	2011		2012		2013		2014		2015		2016		2017		Growth rate,% based on the GCI indicators
	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	
Business sophistication pillar															
Local supplier quantity	4	127	3,9	130	3,9	127	3,9	123	3,7	126	3,6	128	3,8	121	-0,85
Local supplier quality	3,8	117	3,8	117	3,8	115	3,8	113	3,7	115	3,7	113	3,9	100	0,4
State of cluster development	2,4	132	2,4	140	2,3	147	2,4	144	2,3	140	2,3	138	2,6	134	1,3
Nature of competitive advantage	2,9	109	3	106	2,8	127	2,6	131	2,6	130	2,4	130	2,4	126	-3,1
Value chain breadth	3,3	92	3,1	109	3,2	118	3,4	105	3,5	97	3,3	115	3,3	110	0
Control of international distribution	3,7	98	3,6	106	3,7	110	3,7	108	3,3	112	2,9	124	3	120	-3,4
Production process sophistication	2,8	122	2,8	121	2,9	125	3,1	122	3,1	114	3,1	113	3,2	106	2,3
Extent of marketing	3,4	111	3,5	108	3,7	105	3,8	90	3,9	103	3,9	117	4	109	2,74
Willingness to delegate authority	3,1	114	3,3	100	3,4	108	3,4	100	3,4	100	3,4	99	3,9	105	3,9
R&D Innovation pillar															
Capacity for innovation	2,6	107	2,5	122	2,7	134	3,0	128	3,4	115	3,5	124	3,4	119	4,57
Quality of scientific research institutions	2,7	122	2,4	133	2,6	132	2,7	121	2,7	124	2,8	125	2,9	115	1,2
Company spending on R&D	2,1	137	2,1	140	2,1	142	2,3	135	2,3	135	2,2	135	2,4	135	2,25
University-industry collaboration in R&D	2,7	124	2,8	124	2,7	129	2,7	124	2,7	123	2,5	133	2,7	121	0
Government procurement of advanced technology products	2,6	132	2,6	136	2,5	139	2,7	127	2,5	134	2,2	136	2,5	130	-0,65
Availability of scientists and engineers	3,3	122	3,2	131	3,1	131	3,1	128	2,9	132	2,9	131	3,1	120	-1,04
Utility patent granted applications/million population	0	90	0,7	69	0,4	81	0,8	73	1,2	67	0,7	77	0,9	72	N/a
Technological readiness pillar															
Availability of latest technologies	4,3	112	4,1	118	4,1	116	4,3	96	4,4	92	4,3	95	4,4	88	0,38
Firm-level technology absorption	3,9	126	4	128	4	124	4,1	109	4,1	109	4	112	4	106	0,42
FDI and technology transfer	4,1	103	4,1	103	4,1	109	4,2	97	4	99	3,9	100	4	98	-0,41
Internet users % pop.	40	62	38	74	43,1	77	48,8	70	46,6	74	49,8	79	49	71	N/a
Fixed-broadband Internet subscriptions /100 pop.	7,5	61	9,9	58	11,9	52	13,4	52	14,7	52	15,5	56	16,3	54	N/a
Internet bandwidth kb/s/user	14	38	91,1	15	94	23	115,8	23	152,4	18	194,9	16	144,1	34	N/a
Mobile-broadband subscriptions /100 pop.	-	-	3,5	92	5,1	97	47,2	42	49,4	59	51,9	70	55,5	75	N/a

Source: WEF, the Global Competitiveness Report, 2011-2012 to 2017-2018

Scores of the indicators of the local suppliers' quantity and quality were correlated between themselves by supporting a relatively high growth of the production process sophistication of firms (2.3% annually) and extent of marketing (2.74% per year). The quality of individual firm's operations and strategies is characterized also by the willingness to delegate the authority by senior management to subordinates had the highest growth rate (3.9% annually) between the factors of business sophistication pillar. Moldova's firms do not expand its participation in value chains (0% annual growth). The country is placed lower than hundredth (2012-2017) at the bottom of GVC. In plus, the control of international distribution is decreasing in the small economy of Moldova with significant average annual decline (-3.4%).

Innovation capacity is assessed as significantly increasing (4.57%) supported by the average annual company spending on R&D – 2.25%. At the same time, the initial reference base was very low. The best place for capacity for innovation was one hundred and seventh (2011). The best position of the Republic of Moldova on the company spending on R&D was one hundred thirty-fifth rank (2014-2017), that is one of the latest places in the world. University-industry collaboration in R&D is not expanded (0% annual growth). Quality of scientific research institutions is changed slowly (1.2 % per year). Government procurement of advanced technology products fall in average (-0.65% per year). Availability of scientists and engineers also tends to decline (-1.4% annually).

Whereas indicators of technological readiness pillar are ranking the highest in front of business sophistication and innovation pillars they are developed unevenly.

On the one side, Moldova had the competitive advantage in the Internet bandwidth, ranking higher than the fiftieth place (the best – the fifteen in 2012), taking into attention that economy was ranked lower than fiftieth positions in the overall GCI during the analyzed period. Fixed-broadband internet subscriptions should be considered as the upgrading factor with the best rank fifty-second in 2013-2015 years. Also, it has room for improvement.

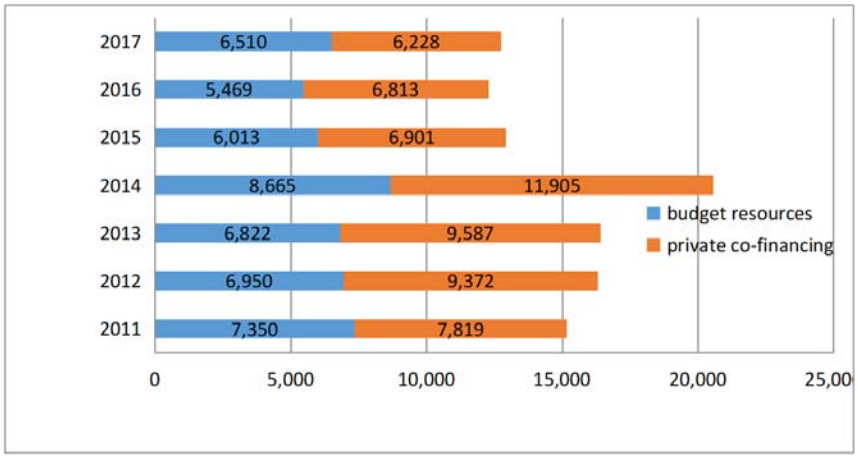
On the other side, the highest rank of the firm-level technology absorption was one hundred sixth grade as well as the availability of latest technologies – eighty-eight, both obtained in 2017. They show a similar very low average annual growth. The first mentioned factor – 0.42%, but the second one - 0.38%.

Finally, FDI and technology transfer is characterized by an average annual deterioration (-0.41)**.** At present, there is not only a general shortage of

export-oriented FDI in higher-technology industries, but the weak correlation between them (Dumitrasco, 2015).

There is in decline the financing of the projects the technology transfer from internal sources of the country in the last years in compare with 2011-2014 (Figure 2).

Figure2. Financing the projects of technology transfer in the years 2011-2017, thousand Moldovan lei



Source: Elaborated by the author based on the Report on the activity of Supreme Council for Science and Technological Development and the main scientific results obtained in the sphere of science and innovation in 2017

In period 2011-2017 the Agency for Innovation and Technology Transfer of the Academy of Sciences of Moldova managed the innovation and technology transfer projects, financed from the state budget and private sources in proportion 50% to 50% of the total cost of the project. The mandatory condition for the implementation of the innovation and technology transfer projects was the implementation of a new innovation or technology for the Republic of Moldova. Innovation and technology transfer projects is a tool to stimulate innovation in SMEs by partially taking over the risks of this innovation by the government authority. At the same time, innovation and technology transfer projects represent a form of transmission of new technologies from the research institutions to the innovation firms, their multiplication, and application at the level of industry, having as affect the development of domestic innovation firms by producing new competitive products on the internal and the external markets.

Reducing of financing of the projects the technology transfer is explained by the limitation of resources from the state budget as well as difficulty to find co-financing from the side of the private firm because of the low university-industry collaboration in R&D, as it was mentioned earlier.

5. **Conclusions**

This study showed that the Republic of Moldova has disadvantageous indicators of innovation and business sophistication competitiveness. The areas of business sophistication and innovation are characterized by a low availability of scientists and engineers, and university-industry collaboration in R&D, an unfavorable situation in the government procurement of advanced technology products as well as insufficient company spending on R&D and quality of scientific research institutions.

At the same times, some indicators dealing with quality of individual firm's operations and strategies have demonstrated the growth rates, including production process sophistication, the success of companies in using of marketing; capacity to commercialize new products; company spending on R&D; firm-level technology absorption; willingness to delegate the authority. The study found also while efforts by the firms have tended to arise, they are not supported enough by the measures of state policy regarding the quality of a country's overall business networks. First of all it concerns to the government support of the cluster development (latest positions in the world in 2014-2016), the expanding of participation in value chains (0% annual growth), the quantity of local suppliers (-0.85% annual average fall); government procurement of advanced technology products (-0.65% annual average decline).

Nature of competitive advantage based on the cheap labor force enters into the stage of disappearance. In plus, the availability of scientists and engineers also tends to decline. Hence it should be adopted necessary measures of state politics in the field of education and the labor market.

The study found the low level of FDI inflows into the higher-value manufacturing and tradable sectors, that tend to decline. While internal sources of the country from the state budget and domestic firms are limited. To change this situation for the better is also required the state intervention.

So, the competitiveness of the economy of Moldova is largely predetermined by the development of state institutions and the financial market which study found between one of the most problematic indicators.

In contrast, access to Information communication technologies (ICT)is relatively high in Moldova. About 50% of populations are the Internet users. According to Internet bandwidth, Moldova has a competitive advantage. Fixed-broadband internet subscriptions also demonstrate high records.

The advanced ICT services may attract future FDI, as several foreign companies are already successful in these sectors in the economy of the Republic of Moldova. The country should also use the entering' opportunities: either through joining existing value chains or by finding niches in the ICT services.

In the regional aspect study displayed that the economy of Serbia has demonstrated similar Moldova's records in technological readiness as well as they are comparable in the factors of innovation, business sophistication competitiveness.

Finally, the study identified that the Republic of Moldova has lowest indicators of the innovation and sophistication competitiveness in comparison with other countries of Southeast Europe, but the economy of Moldova follows the EU economies on the technological readiness.

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