CEE-16: A CLUSTER ANALYSIS BASED ON TOURISM COMPETITIVENESS AND CORRELATIONS WITH MAJOR DETERMINANTS

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Abstract
The purpose of this paper is to identify the main groups of CEE-16 countries in terms of tourism competitiveness. Competitiveness, as part of the supply side, is addressed in view of the supply-demand correlations, and we consider the attractiveness of tourist destinations from the tourists' perspective as the link between the two sides. For the analysis are selected exactly the 16 countries participating in the 16+1 platform initiated by China in 2011, tourism being one of the components of sectoral cooperation in this framework. We demonstrate that tourism infrastructure (its upgrading and development) is one of the main determinants of tourism competitiveness, even surpassing in importance the tourism assets. In this context, the "China factor" might play a significant role for the CEE-16 in terms of spurring competitiveness, as it is not antagonistic, but complementary with other determinants of competitiveness, including the EU funds. From the perspective of attractiveness, 16+1 cooperation can boost Chinese tourists' arrivals in the region. In order to test these hypotheses, as part of the methodology, the authors calculate a specific travel and tourism competitiveness index (STTCI), starting from the main objectives of the 16+1 cooperation platform, namely prioritization, openness, environmental sustainability, transport infrastructure and specific infrastructure for tourism services. The authors correlate this STTCI with other qualitative indicators and obtain two categories of clusters among the CEE-16 countries. In Romania's case, one can remark the following paradox. The cumulative amount of investment in tourism during 2000-2017 is the largest among the CEE-16 countries, corresponding to its tourism assets and the necessity to connect them; however, Romania lags behind most of the analyzed countries in terms of qualitative indicators such as revealed comparative advantage, direct productivity and multiplier effect of GDP. Therefore, the cluster it belongs to does not reflect its real tourism assets.

Keywords: CEE, CEE-16, China, 16+1, Romania, tourism competitiveness, tourism indicators, cluster analysis

JEL Classification: L83, C83, F02

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Introduction

With the launch of the 16+1 initiative in 2011 and the organization of the first summit of the group in 2012 in Warsaw, new pathways to cooperation were opened in the China-CEE relation, in tourism also. Thus, at the November 2013 forum in Bucharest, Hungary offered to host a cooperation platform in the tourism field, in 16+1 format, and the official opening of the Center for the coordination of activities in this sector (TCC) took place in May 2014 in Budapest. Among the factors contributing to the launch of TCC at the 16+1 level, we can mention: (1) The transformation of China in the most significant importer of tourism services at an international level, starting with 2013, and the potential of China on the travel market, considering that currently only 10% of Chinese have a passport, and less than 10% of the population visit destinations outside China (China Tourism Academy, 2017); (2) The growing shares of China in world tourism investments; (3) The support shown by China to large scale partnerships in tourism, as it launched in September 2017 the World Tourism Alliance (WTA), with 89 founding members among the national tourism associations, agencies and tourism organizations and well-known researchers in countries like the US, France, Germany, Australia, the Republic of South Africa, Japan and Brazil (China National Tourism Administration, 2017); (4) The high potential of CEE regarding tourism development, the region having tourist destinations with a long tradition in tourism; (5) The still reduced level of the Chinese tourist entries in the CEE, despite having notable success in countries like those in the Visegrád Group; (6) The possibility of the presentation of the CEE countries as a compact destination, which would give them increased visibility in China and could boost Chinese tourists arrivals in CEE, through the promotion of offers of tours in these countries, as well.

Through the 16+1 platform, despite the heterogeneity of the group, China targets first the prioritization of some cooperation sectors, among which tourism is included. Secondly, it suggests the introduction of the principles of openness, inclusion and mutual understanding, the basis of mutual trust, which in turn influences the process of growth and leads to the intensification of tourist flows in both senses. In the third place, through sustainable development, correlated with the efficient development of the transport infrastructure and of specific infrastructure for tourism services, a virtuous cycle is created, suggestively expressed in Figure no. 1.

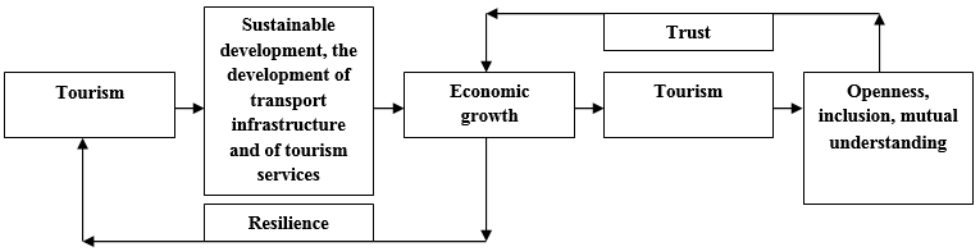

Figure no. 1: Correlations between the priorities, principles and effects of cooperation in the 16+1 format at the level of tourism and economic growth

Tourism assets, the qualitative features and the way in which they are promoted, the visa policies in the destination countries, the safety of the travel, the transport connections are just some of the criteria considered by Chinese tourists when choosing destinations. It is worthy to note that in 2016: (1) the most popular destinations among Chinese tourists were: Thailand,

South Korea, Japan, Indonesia, Singapore, SUA, Malaysia, The Maldives, Vietnam, The Philippines, Cambodia, Russia, Australia, Mauritius, Italy, United Arab Emirates, Sri Lanka, Great Britain, Egypt, Germany (of the 20, only four being European countries); (2) individual travels represented 60% of the total; (3) women had a 56% share of the total; (4) as an age group, tourists born in the '70s and '80s were the majority (China Tourism Academy, 2017).

The *tourism and travel* sector has an important contribution to the economic growth of the host countries which is precisely why we deem the analysis of tourism competitiveness in the destination countries and the role of cooperation partnerships in competitiveness to represent priority research topics. Starting from a series of indicators, indexes and variables (such as: the Tourism Competitiveness Index; The share of the tourism services exports in the total; The volume of expenditures in international tourism/ the imports of tourism services; The volume of receipts from international tourism/ the exports of tourism services; The direct contribution and the total contribution of tourism to the GDP; The direct contribution and the total contribution of tourism to employment), we propose a specific travel and tourism competitiveness index (STTCI), which we correlate with other qualitative indicators. Through the lenses of the STTCI, Romania is behind most CEE-16 countries, which is why the presentation of the CEE countries as a compact destination for the Chinese market would benefit Romania and would represent an incentive for the improvement of qualitative indicators of our country on the long term.

Thus, tourism cooperation in the 16+1 format offers opportunities from both perspectives of tourist destinations, namely competitiveness (supply side) and attractiveness for tourists (the demand side), according to the conceptual model of Vengesayi (2003). But while the previous model does not include in analysis the intentional and planned interaction between the two sides, the 16+1 format provides a specific platform for interaction, whereby the host country's tourism competitiveness can be enhanced. It is a first element of novelty that this research brings to the literature. A second one is the cluster analysis of CEE countries in the field of travel and tourism competitiveness, since previous studies on this issue (Kristić, Jovanovic and Stanišić, 2014; Kristić, Radivojević and Stanišić, 2016) do not include such an analysis.

1. Review of the scientific literature

Landesmann (2000) revealed the fact that in the last decades, economic transformations and structural changes represented crucial issues not only for CEE, but also for the entire European area. Starting with the unraveling of socialism in the former Soviet Union and in its satellite states, the bases of a new economic structure were laid in Europe, finalized with the extension of the EU, with important economic, political and administrative consequences.

The transition process was based on three main elements (Gros and Steinherr, 2004). In the first place, prices and markets, including foreign trade, were liberalized. In the second place, most of the state's assets were privatized and a new private entrepreneurial culture appeared. In the third place, reforms were made so as to transform the communist institutional framework of the economy in an efficient one, demanded by market economies. This included all the main domains of social and economic activity, tourism included.

The relation between economic growth and tourism development was examined in depth in the economy of tourism literature, by numerous authors (Brida, Lanzilotta and Pizzolon

2016; Brida and Cortes-Jimenez, 2016; Gunduz and Hatemi-J, 2005; Kim, Chen and Jang, 2006, Mérida and Golpe, 2014; Tugcu, 2014). The main research argument is represented by the connection between tourism and economy, more specifically in determining if and to what extent the development of tourism contributed to the overall economic development. In other words, researchers tried to explore and define the causal relation between global economic growth and economic growth in certain countries and regions.

Romao and Nijkamp (2017) demonstrated how innovation, productivity and specialization of factors of production influence competitiveness, extending the analysis to 237 European regions (NUTS 2 level) for a period of 8 years.

Costea, Hapenciuc and Arionesei (2017) analyzed the level of tourism competitiveness in CEE countries starting from the 2017 travel and tourism competitiveness index (TTCI) score, their analysis focusing on the general air transport infrastructure index, by comparing Romania and Bulgaria. Ivanov and Webster (2014) have demonstrated the impact of tourism competitiveness on the economic growth, based also on TTCI, in a cross-section analysis of 131 countries. Mendola and Volo (2017) have developed different methodologies for assessing tourism competitiveness indicators, starting from the evaluation of the effectiveness of the currently available composite indicators.

Regarding the effect of tourism on commerce, several hypotheses were elaborated, but they were not introduced in a standard international trade model. In the first place, the preference hypothesis is highlighted by Marrocu and Paci (2011), who show that tourism flows can represent an important source, free of information costs, regarding preferences on the external market, which can help local firms produce new products on these international markets. Brau and Pinna (2013) stated that tourism involves an exchange of information with a double content: about local products and about foreign tastes. In this sense, Quinn (2009) analyzes the way in which the exposure to foreign products and cultures through the mass media and tourist visits affects consumer preferences for foreign products. In the second place, the hypothesis of the transaction costs is argued by Kulendran and Wilson (2000), who indicate that business tourism directly promotes a flow of exports and /or imports in subsequent periods. Moreover, regular tourists can identify business opportunities which could lead to the continuation of international transactions. In the third place, the hypothesis of the large sized market is also present in the case of tourism. Khan et al. (2005) stated that tourism could encourage international trade, since tourists buy food, souvenirs, transport services and so on in the foreign country, many of which need to be imported.

To quantify the real impact of tourism on the economy, more and more authors support the use of multipliers. The World Trade Organization (WTO) defined the multiplier effect as being "*the supplementary volume of income made by a unit of tourist expenditures, which shall be used in the economy*" (Minciu, 2004). Another variant of calculation of the tourism multiplier starts from the evaluations of the World Travel and Tourism Council (WTTC) on the impact of tourism in the economy, where the categories of impact on the GDP and employment are highlighted, mentioning the direct impact and the total impact (direct impact+indirect impact+induced impact).

Sadler (1975) analyzed the costs and benefits generated by tourism in the economies of developing countries. Liu et al. (1984) demonstrated the importance and the types of side effects produced by the income generated from tourism. Ivanov and Webster (2007) studied the contribution of tourism to economic growth in three EU member countries, namely

Cyprus, Greece and Spain. Rita (2000) highlighted in his study the importance of tourism as an engine for economic growth and employment generator.

Mihalic (2015) analyzed the process of restructuring the tourism industry in CEE countries in the context of the transition to a market economy and the impact of some of these countries' joining the European Union. The author proposed a research on five successive stages of change: (1) the transition to a new post-communism image – Europeanization, rebranding; (2) the transition to the free market / capitalism; (3) product change – diversification of the services offered; (4) orientation towards sustainability dimensions; (5) the re-internationalization of tourism markets.

Hall (1998) underlined an overlooked role of tourism – the one played in the post-socialist restructuring in Central and Eastern Europe. Baláz (1998) confirms in his paper the fact that after 1989 tourist flows to and from the countries in Central Europe increased significantly, including flows with far-away countries like Japan, the consequences being the entering of these destinations in the international tourist flows and, also, the integration of regional tourism in world economy. Rusu and Roman (2018) proposed an econometric analysis of competitiveness factors in 10 CEE countries (Bulgaria, Czech Republic, Estonia, Hungary, Lithuania, Latvia, Poland, Romania, Slovenia and Slovakia), where the dependent variable was considered the Global Competitiveness Index, and the independent variables the seven macroeconomic indicators and related to business environment characterization.

2. Research methodology

The current article combines qualitative and quantitative analysis, the latter involving two main stages: Collection and processing of data; the empirical analysis and the cluster analysis.

In stage I – *Collection and processing of data* – the most recent statistical data, relevant for the objectives of the article, for the 16 countries were gathered and interpreted, thus:

- The Index of Tourism Competitiveness (index, scale 1-7, elaborated by the World Economic Forum, 2017 edition)
- The share of tourist services exports (% in total exports, 2017, WTTC);
- The volume of expenditures in international trade / the imports of tourist services (billion dollars, real terms, 2017, WTTC);
- The volume of receipts from international trade / the exports of tourism services (billion dollars, real terms, 2017, WTTC);
- The direct contribution of tourism to the GDP (% of GDP, 2017, WTTC);
- The direct contribution of tourism to employment (% of employment, 2017, WTTC);
- The total contribution of tourism to GDP (% of GDP, 2017, WTTC);
- The total contribution of tourism to employment (% of employed population, 2017, WTTC).

So as to achieve the research objectives, the mentioned statistical data were processed, computing:

- The balance of tourism = Receipts – Expenditures (1)
- The Index of the Apparent Comparative Advantage (Revealed) at a global level

$$= \frac{\%\text{ of exports of tourism services in country X in total country exports}}{\%\text{ of exports of tourism services at world level in total exports}} \quad (2)$$

- The Revealed Comparative Advantage Index (RCA) at a regional level

$$(\text{CEE countries}) = \frac{\%\text{ of exports of tourism services to country X in total country exports}}{\%\text{ of exports of tourism services of CEE countries in total CEE exports}} \quad (3)$$

Since WTTC does not explicitly offer the absolute volume of exports, so as not to distort the results, the regional share was calculated by the authors starting from the volume and share of exports of tourism services in total exports of each country.

$$\text{Volume of exports for country x} = \frac{\text{volume of tourism exports for country X (bn.USD,real)}}{\text{share of tourism exports for country X (\%)}} \quad (4)$$

- The multiplier effect of tourism in GDP, as a rapport between the total contribution to GDP and the direct contribution to GDP:

$$\text{The GDP multiplier} = \frac{\%\text{ total of tourism in GDP}}{\%\text{ direct of tourism in GDP}} \quad (5)$$

- The multiplier effect of tourism on employment, as a rapport between the total contribution on employment and the direct share in employment (E):

$$\text{The E multiplier} = \frac{\%\text{ total of tourism in E}}{\%\text{ direct of tourism in E}} \quad (6)$$

- The direct productivity of the tourism sector, as a rapport of efficiency between the direct contribution to GDP and the share in the employed population:

$$\text{Direct productivity} = \frac{\%\text{ direct of tourism in GDP}}{\%\text{ direct of tourism in employment}} \quad (7)$$

- The total productivity of the tourism sector, as a rapport of efficiency between the total contribution to GDP and the share in employment:

$$\text{Total productivity} = \frac{\%\text{ total of tourism in GDP}}{\%\text{ total of tourism in employment}} \quad (8)$$

- The specific score of tourism competitiveness, based on a weighted average of 6 key sub-indices which form the travel and tourism competitiveness index (TTCI), computed by the Word Economic Forum. An average weighted score was computed, considering the following dimensions: the prioritization of the tourism sector, the international openness, the environmental sustainability, the transport infrastructure (air, land, naval) and the infrastructure specific to tourism services.

In the second stage – *The empirical analysis and the cluster analysis* – the primary and the aggregate indicators were analyzed and interpreted, the following main components being then selected to perform the cluster analysis: the regional RCA, the specific TTCI score, the GDP multiplier, the E multiplier, the direct efficiency, the total efficiency.

To make the cluster analysis, the *Statistica* software was used, following a series of steps: the introduction of the data, the data standardization, the grouping of countries based on a technique of hierarchical aggregation (Ward), based on the city block distances (Manhattan). The results were illustrated graphically (dendogram), and then interpreted.

3. Results and discussion

3.1. The competitiveness of the tourism-travels sector

The new index of tourism competitiveness (TTCI), computed by the World Economic Forum for 2017 (using a methodology revised in 2015), positions Croatia first in the group of CEE countries, followed by Estonia and The Czech Republic. However, at world level, Croatia occupies only the 32nd position out of the 136 countries analyzed and is at an important distance from the value recorded by Spain, a country which is for the 2nd consecutive year on the first position (5.43). Starting from the difference of indices between Croatia and Bosnia-Herzegovina, the worst ranked of the CEE countries (place 113 worldwide), of 1.3 points, and referencing the CEE group as a whole, we can group the 16 states as follows:

- Countries which are competitive in tourism (3.98-4.42): Croatia, Estonia, The Czech Republic, Slovenia, Bulgaria, Poland, Hungary;
- Countries with an average level of tourism competitiveness (3.55-3.98): Latvia, Lithuania, Slovakia, Romania, Montenegro;
- Countries which are poorly competitive in tourism (3.12-3.55): Macedonia, Serbia, Albania, Bosnia-Herzegovina.

We can notice that EU member countries are exclusively among the countries at least averagely-competitive, to which we can add Montenegro, the best ranked of non-EU member countries (Figure no. 2).

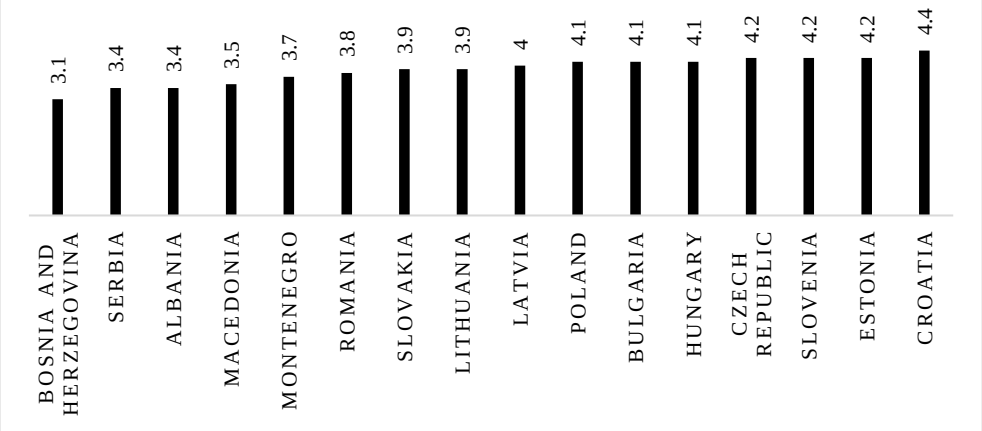

Figure no. 2: The index of tourism competitiveness at the level of CEE-16 in 2017

Source: Figure made by the authors based on data from the World Economic Forum, 2017.

The following table highlights the components of the TTCI index. Through the lenses of the sub-index of *tourism prioritization*, the following conclusions can be drawn. The prioritization of the tourism sector in the countries analyzed reaches its maximum value in Estonia (5.5), other 6 countries scoring above the 4.4 average. The other 9 countries record an index inferior to the average. In relation to *international openness*, most countries analyzed (11) score above the 3.5 average, being grouped between 3.7 and 4.2, with the maximum reached by Hungary, Croatia and the Czech Republic. We can notice that below the average we can find non-EU countries: Macedonia (2.6), Montenegro, Albania, Bosnia and Herzegovina, Serbia (each with a minimum of 2.4). *The environmental sustainability* reveals the ecological dimension of competitiveness. Through the lenses of this sub-index, 9 of the countries analyzed score over the 4.5 average, Slovenia being first (5.1). In the case of the *air transport infrastructure*, we can notice an obvious underperformance, through the average of 2.5, respectively through the grouping of the 16 countries in the interval 1.7-3.1. In the case of the level of development of *land transport and harbor infrastructure*, the value dispersion is slightly higher, from the highest value recorded by the Czech Republic (4.9), to the minimum reached by Bosnia-Herzegovina (2.5). The average value of the sub-index *tourism specific infrastructure*, which measures the capacity of the tourism specific infrastructure, is of 4.7, only 6 countries recording a superior level. Croatia reaches a record level of 6.3, the second position being occupied by Bulgaria, with 5.8.

Table no. 1: The estimative values of the specific competitiveness sub-indexes of TTCI at the level of the year 2017

	Tourism prioritization	International openness	Environmental sustainability	Air transport	Land and maritime transport	Tourism services
Albania	4.6	2.4	4.1	2	3.1	3.9
Bosnia-Herzegovina	3.7	2.4	3.9	1.8	2.5	3.9
Bulgaria	4.3	3.9	5	2.4	3.1	5.8
Croatia	4.5	4.2	4.7	3	3.9	6.3
The Czech Republic	4.2	4.2	4.9	3.1	4.9	5.1
Estonia	5.5	3.7	4.9	3	4.4	5.5
Hungary	4.9	4.2	4.7	3	4.4	4.4
Latvia	4.5	4	4.9	3.1	4	4.6
Lithuania	4.3	4	4.4	2.4	4.4	4.4
Montenegro	4.6	2.4	4.3	3	3.2	5.4
Poland	4.1	4.1	4.6	2.6	4.3	4.2
Romania	3.8	3.9	4.4	2.4	2.8	4.4
Serbia	3.6	2.4	4.2	2.4	2.8	3.9
Slovakia	4.1	3.9	4.8	1.7	4.2	4.3
Slovenia	4.8	3.7	5.1	2.5	4.8	5.4
Macedonia	4.3	2.6	3.7	2.2	3.3	4.0
Average	**4.4**	**3.5**	**4.5**	**2.5**	**3.8**	**4.7**

Note: The World Economic Forum calculates and standardizes the values on a scale from 1 (the least performant) to 7 (the most performant).
Source: Table made by the authors based on the World Economic Forum, 2017.

Considering the 6 competitiveness sub-indexes which answer specifically the objectives of the platform 16+1, a weighted average score was calculated, thus: the air transport infrastructure (10%), the land and maritime transport infrastructure (10%), the infrastructure specific to tourism services (20%), the environmental sustainability (20%), the prioritization

of tourism activities (20%), and the international openness for tourism (20%), the results being summarized in Figure no. 3.

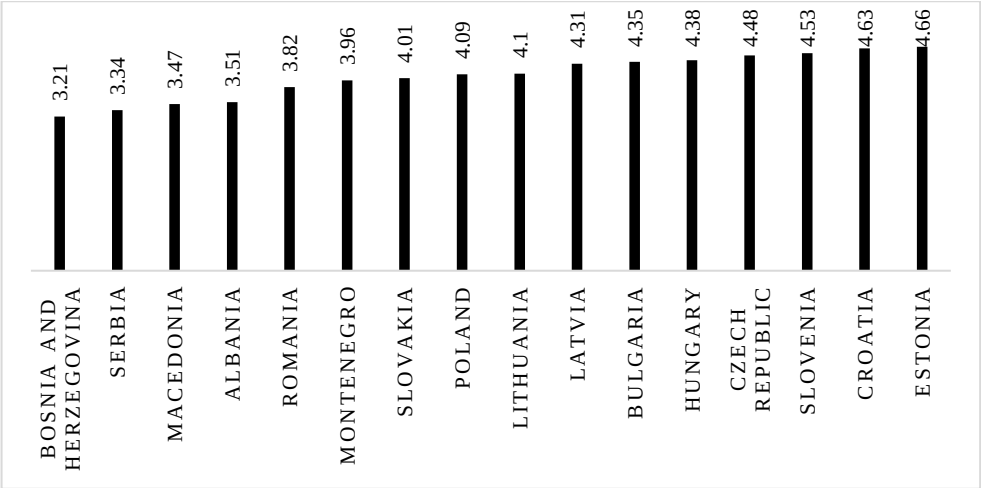

Figure no. 3: The scores of specific competitiveness at the level of the year 2017
Source: Figure and computations made by the authors based on the World Economic Forum, 2017

By analyzing the results, we can notice the following:

- The extreme values are superior to the TTCI, being comprised between 4.66 for Estonia and 3.21 for Bosnia, but the difference between them is also higher (1.45 points).

- Higher values are confirmed for the EU countries and lower values for those outside EU, the only exception being Romania, through the higher score of Montenegro by comparison;

- With two insignificant exceptions (Serbia, -0.04 and Macedonia, -0.02), all the other countries record a score higher than TTCI, favorable values being noticed in the case of Estonia (+0.43), which place it on the first position in CEE, but also in the case of Hungary, Latvia and Slovenia.

3.2. The indicators of international tourist circulation

Regarding the position of CEE countries in international tourism flows, defined as the volume of expenditures of residents on travels outside the country, the volume of receipts from foreign tourists on the national territory, respectively, the biggest importers of tourist services in the region are Poland (8.4 billion dollars), The Czech Republic (5 billion dollars), Romania and Hungary (almost 3 billion dollars each) (Figure no. 4).

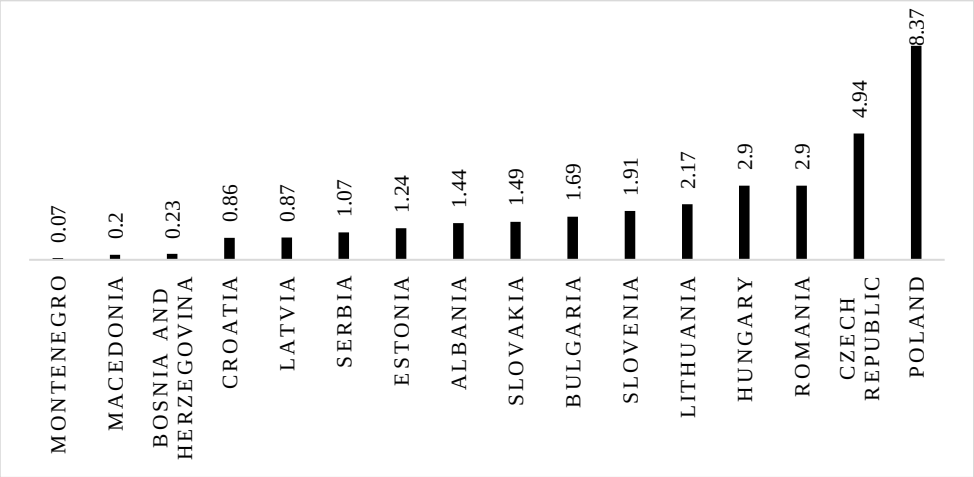

Figure no. 4: The estimative volume of expenditures in international tourism in 2017, in billion dollars

Source: Figure made by the authors based on the WTTC, 2017

Poland is also the most important exporter of tourist services of the CEE countries, with a level of receipts form international tourism estimated at 12.3 billion dollars. Croatia (almost 11 billion dollars), Hungary (8 billion), The Czech Republic (7.5 billion dollars) are also among the countries which attract successfully foreign tourists (Figure no. 5).

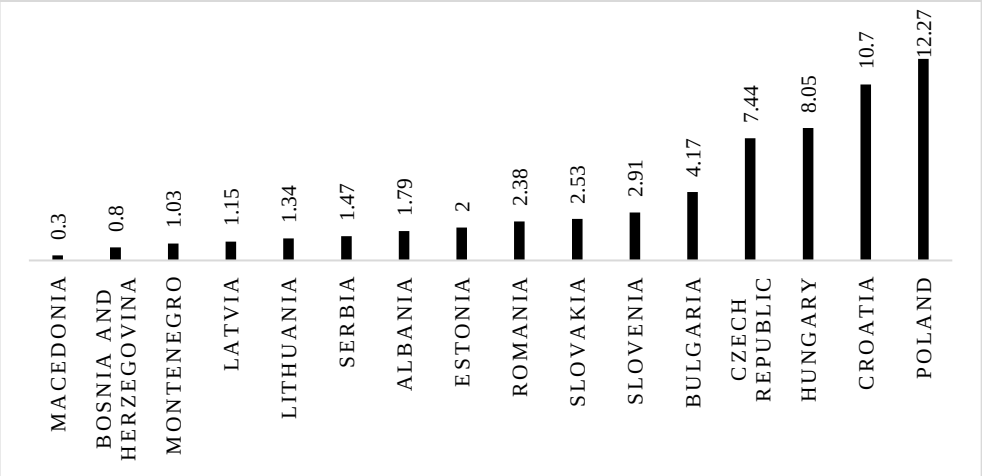

Figure no. 5: The estimative volume of receipts from international tourism in 2017, in billion dollars

Source: Figure made by the authors based on the WTTC, 2017

The balance receipts-expenditures in international tourism shows that, except for two countries (Lithuania and Romania), all the other states in Central and Eastern Europe participating to the 16+1 platform are net tourism exporters, among them we can notice

Croatia (+9.84 billion dollars), Hungary (+5.15 billion dollars) and Poland (+3.9 billion dollars) (Figure no. 6).

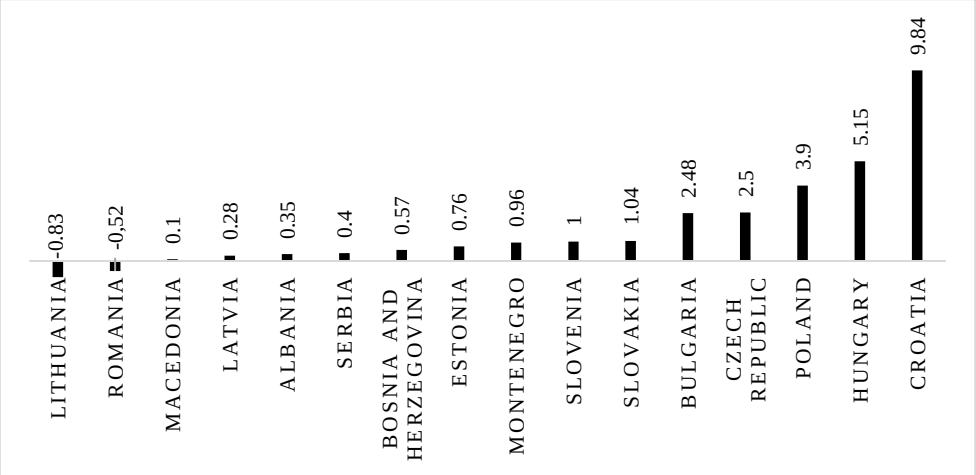

Figure no. 6: The balance of payments in tourism at the level of the year 2017, in billion dollars

Source: Figure made by the authors based on the WTTC, 2017

3.3. The contribution and impact of tourism in the economy

The contribution of tourism to the economy is measured both in rapport to the share of the sector in GDP formation, and in the share of tourism jobs in the total of employment.

The direct contribution of tourism to GDP and employment shows that the group of CEE countries is characterized by a high level of heterogeneity (Figure no. 7), thus:

- There are major differences in the direct impact of tourism on the economy: the direct share in the GDP reaches 11.3% in Croatia and Montenegro, almost ten times the level recorded in Romania (1.4%); The same situation is noticed in the case of the population directly employed in tourism activities, which varies from 10.4% in Croatia, to 1.7% in Macedonia;

- High shares of tourism are also registered in Montenegro, Albania or Hungary, while low shares characterize the sector in Serbia, Lithuania or Poland;

- We can notice important differences between the direct share of tourism in GDP and the share in employment, in Montenegro (11.3%, compared to 6.7%), but also in Croatia and Albania, in the sense of a superior impact in GDP formation; on the other hand, in Hungary, The Czech Republic or Romania, the shares of the population employed directly in the tourism activity are clearly superior to the shares in GDP formation, which can be explained through differences in terms of productivity.

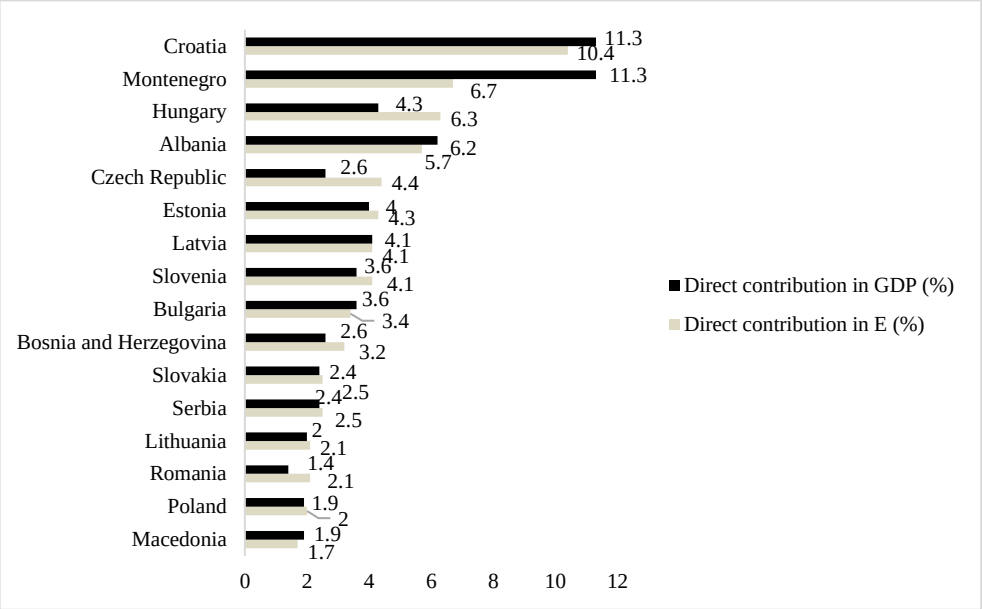

Figure no. 7: The direct contribution of tourism to the employment and GDP formation in 2017

Source: Figure made by the authors based on the WTTC, 2017

The total contribution of tourism to the economy comprises both the direct contribution and the indirect effects and the ones induced in adjacent sectors, as well as the entrainment effect (complementary services, supplementary services, transports etc.). The heterogeneity of CEE countries is confirmed on this level, as well (Figure no. 8), thus:

- We would like to signal significant differences between the maximum total share of tourism in the GDP, registered in Croatia (25.7%) and the minimum level reached in Poland (4.6%); the situation is confirmed for the labor market, as well, the extremes being also recorded in the two countries mentioned: 24.1% for Croatia and, respectively, 4.6% for Poland;

- High shares are also recorded by Montenegro, Estonia, Bulgaria and Slovenia, both in GDP formation and in employment; moreover, low shares are recorded in Serbia, Slovakia, Lithuania and Romania;

- In the case of the total contribution of the tourism sector in economy, as well, we can notice major differences between the share in the GDP and the share in employment, significant differences being the ones recorded in Montenegro (22.7% in the GDP, as compared to 14.9% in employment), but also in Serbia (6.7% in GDP, 4.9% in E); in some countries the total share of tourism in employment is higher to that in GDP, important differences being recorded in Bosnia (11.4% in E, as compared to 9.5% in the GDP), The Czech Republic (9.5% in E, as compared to 7.9% in GDP) or Romania (6.3% in E, 5.2% in the GDP).

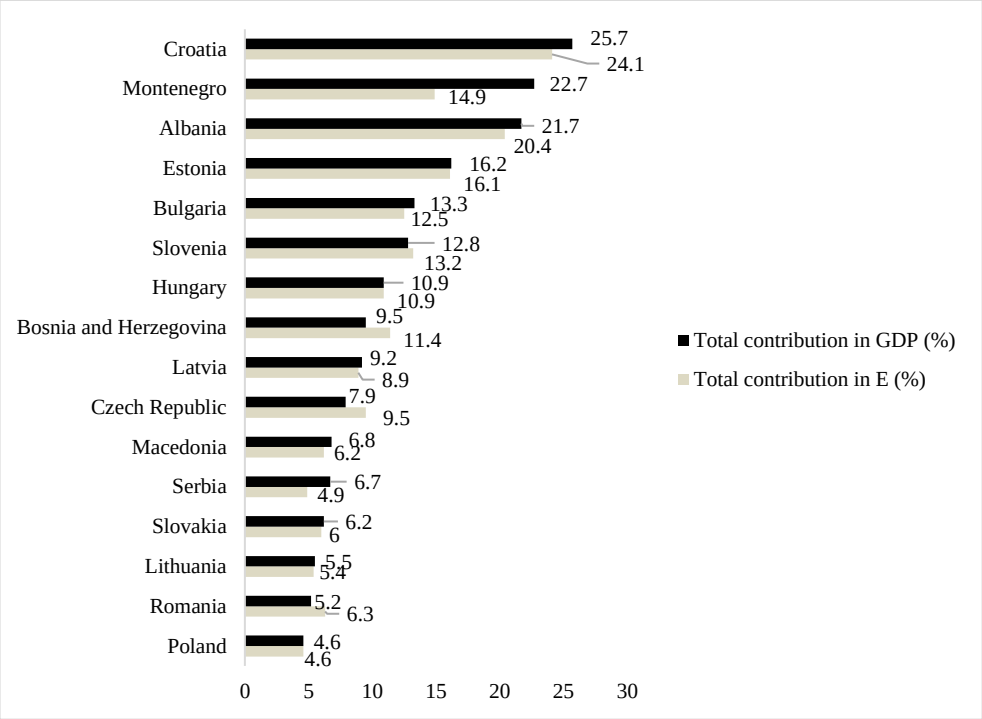

Figure no. 8: The total contribution of tourism to the employment and GDP formation in 2017

Source: Figure made by the authors based on the WTTC, 2017

Considering the entrainment effect of tourism and the contribution of the sector to GDP formation and to the labor market, it is necessary to look at the tourism multiplier, as a rapport between the total contribution of the industry to the economy and its direct contribution (Figure no. 9). As the theoretical value of the multiplier is set at 3, we can state the following:

- For the GDP multiplier, 8 of the 16 countries record a value superior to the reference one, the strongest entrainment effects generated by tourism being felt in Estonia, Romania and Bulgaria;

- For the employment multiplier, only 6 countries perform well, Estonia, Bulgaria and Macedonia being the top ranking countries; Romania and The Czech Republic are the countries in which, although the GDP multiplier is superior to the reference value, the effect on the labor market is definitely inferior;

- There are significant differences between the maximum value of the multiplier (4.05 for GDP, respectively 3.74 for employment) and its minimum level (2.01 for GDP, 1.73 for employment);

- In only 4 of the 16 cases, the jobs multiplier is superior to the GDP multiplier – in two of the countries where the entrainment effect is superior to the reference value - Macedonia and Albania, respectively in two countries with an inferior value – Croatia and Montenegro.

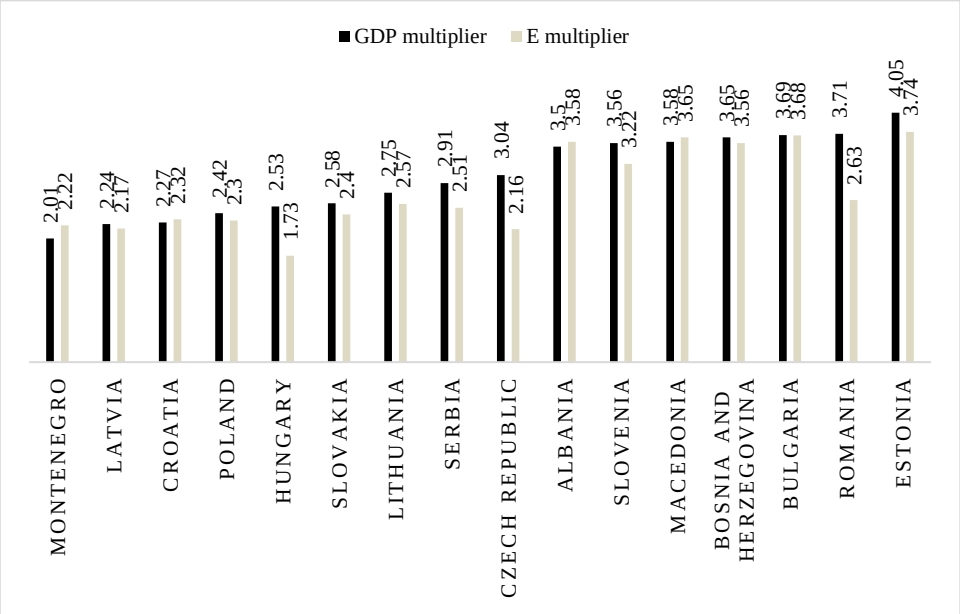

Figure no. 9: The multiplier effect of tourism at the level of the year 2017
Source: author's computations, statistical data WTTC, 2017

Starting from the differences noticed regarding the impact on the GDP and the impact on the labor market, the rapport was computed between the share of tourism in the GDP and the share of tourism in employment, and the resulting values were compared to the unitary value:

- Regarding the direct productivity of the tourism sector, as a rapport of efficiency between the direct contribution to the GDP and the one in employment, 7 of the 16 countries record supra-unitary values, the highest level being of 1.69 (Montenegro); The Czech Republic, Hungary and Romania are among the countries where the efficiency of the industry is low;

- The total productivity of the tourism sector, as a rapport of efficiency between the total contribution to the GDP and the one in employment, is supra-unitary in most countries (12 of 16), which shows that the entrainment effect discussed previously is important in GDP formation (Figure no. 10).

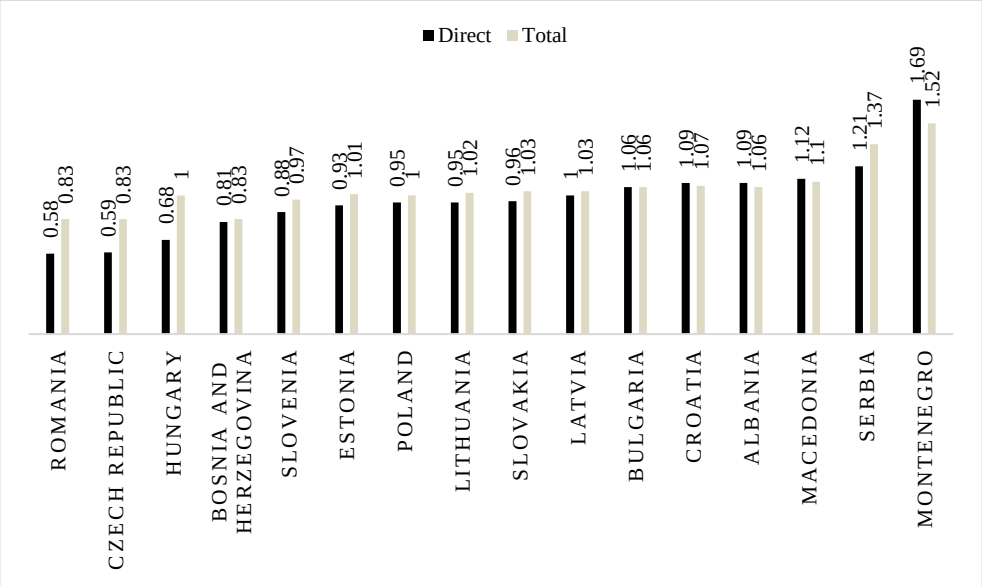

Figure no. 10: The estimation of the efficiency of the tourism industry in 2017
Source: Computations and graphic made by the authors based on the WTTC, 2017

3.4. The comparative advantage

To evaluate the comparative advantage in international tourism, we considered the share of the exports of tourist services in the total exports of CEE countries. Thus, we can notice countries with a high dependence on the exports of tourism services (Montenegro, Croatia, Albania); countries with significant shares of exports of tourism services (Bosnia-Herzegovina, Bulgaria, Estonia), but also countries where the contribution of the tourism sector to international trade is extremely low (Slovakia, Romania) (Figure no. 11).

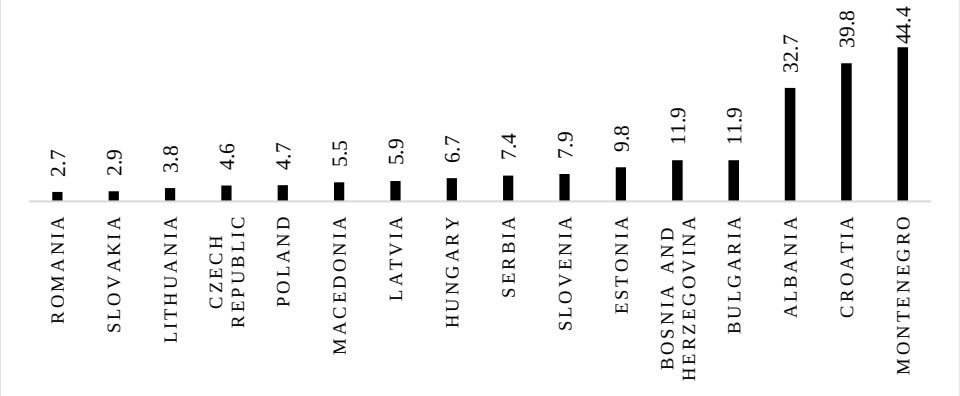

Figure no. 11: The share of exports of tourism services in total exports in 2017
Source: Computations and graphic made by the authors based on the WTTC, 2017

A clearer image on comparative advantage is given by the computation of two indices: The Index of the Apparent Comparative Advantage on a global scale and, respectively, the Index of the Apparent Comparative Advantage at a regional level. Thus, we can notice that, among the 16 countries, only 3 have a comparative advantage at world level, thus having a strong comparative advantage in the region also: Montenegro, Croatia and Albania (Figure no. 12).

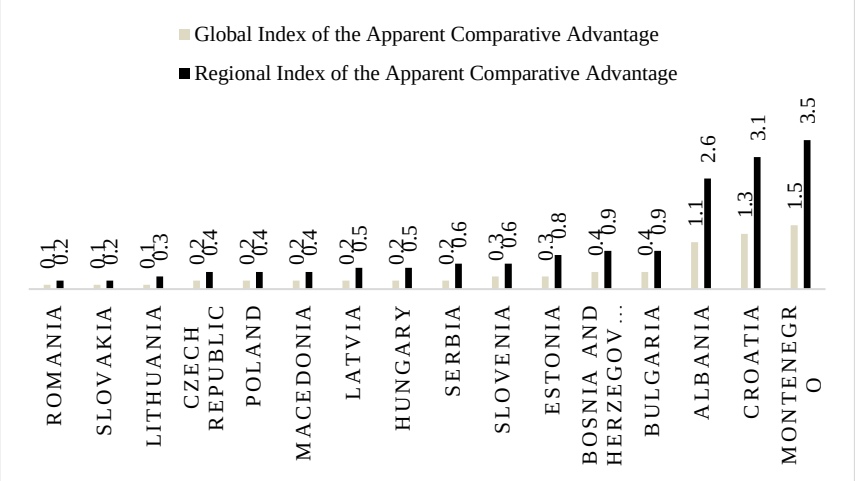

Figure no. 12: The index of the apparent comparative advantage (revealed) in 2017
Source: Computations and graphic made by the authors based on the WTTC, 2017

3.5. The cluster Analysis

The graphical representation of the cluster analysis, applied to the 16 countries and 6 indicators (regional RCA, the specific TTCI score, the GDP multiplier, the E multiplier, the direct efficiency and the total efficiency), is the following:

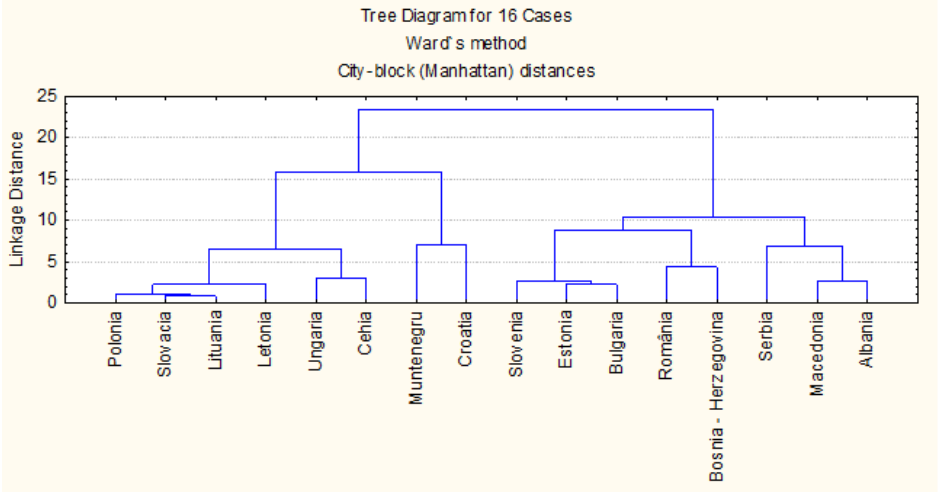

Figure no. 13: The dendogram of the cluster analysis

Function of the aggregation distance we can obtain several classification variants. For a large limit-distance, we can notice the "break-up" of the group of 16 countries in 2 main sub-groups:

- Poland, Slovakia, Lithuania and Latvia + Hungary and The Czech Republic;
- Montenegro and Croatia.

Of the second group, other 3 subgroups are highlighted:

- Slovenia, Estonia and Bulgaria;
- Romania and Bosnia-Herzegovina;
- Serbia + Macedonia and Albania.

With the diminishing of the limit distance, we can notice the formation, in turn, of clusters with a higher degree of homogeneity, highlighted in the dendogram. The componence and the main features are illustrated in table no. 2.

Table no. 2: The componence and the features of clusters

Cluster	Cluster components	Characteristics
1	Poland Slovakia Lithuania Latvia	Low multiplier effect Medium efficiency Comparative disadvantage Medium score for competitiveness, *with a plus for Latvia*
2	The Czech Republic	Score for specific competitiveness above average Very low multiplier effect on the labor market Low efficiency comparative disadvantage *Differences between components: Multiplier effect on the GDP above average for The Czech Republic*
3	Montenegro	High comparative advantage Average specific competitiveness score High efficiency Low multiplier effect
4	Croatia	Average efficiency Low multiplier effect High comparative advantage High specific competitiveness score
5	Slovenia Estonia Bulgaria	Comparative disadvantage Average efficiency High multiplier effect High specific competitiveness score
6	Romania Bosnia-Herzegovina	Low efficiency High multiplier effect (*except Romania for the labor market*) Low specific competitiveness score *Differences between components:* Comparative disadvantage for Romania
7	Serbia	Comparative disadvantage High efficiency Low-average multiplier effect Low specific competitiveness score

Cluster	Cluster components	Characteristics
8	Macedonia Albania	High-average efficiency High multiplier effect Low specific competitiveness score *Differences between the components:* Comparative disadvantage for Macedonia, Very high comparative advantage for Albania

By corroborating the dendogram with the cluster features, the following conclusions can be drawn:

- Cluster 1 is the most homogeneous one, grouping countries with similar features in the aspects analyzed, and this could be a strong argument for their collaboration in the tourism sector;

- Regarding other "pairs" of countries – Hungary-The Czech Republic, Macedonia-Albania, Estonia-Bulgaria or Romania-Bosnia, only in the first two cases we can see possible collaborations, considering the geographical criterion.

- Clusters 1-5 group countries with a specific competitiveness score above average, while clusters 6-8 are defined by unsatisfactory results in this respect;

- Clusters 3 and 4 (which comprise a country each) are characterized by a high comparative advantage, while clusters 5, 6 and 8 by a strong multiplier effect.

Despite previous results, the possibility of presenting CEE countries as a compact destination cannot be excluded, which would confer them increased visibility in China and could be an incentive for Chinese tourist arrivals in CEE, all the more since China supports cooperation with all the countries in the CEE-16 group.

The results show differences between CEE countries in terms of competitiveness and impact of tourism, confirming other studies (Costea, Hapenciuc and Arionesei, 2017; Rusu and Roman, 2018). One explanation might be that the changes generated by the transition process that inevitably involved the tourism industry in CEE countries have been differently assimilated, thus demonstrating the existence of stages of change, as Mihalic (2015) shows in his study.

Conclusions

The 16 CEE countries which collaborate with China in the 16+1 format are characterized by a high degree of heterogeneity. If EU member countries have a somewhat higher competitiveness degree than the others, they are, in turn, strongly differentiated by the other features targeted in the analysis.

From the point of view of competitiveness, Estonia, Slovenia, The Czech Republic, but also Croatia and Bulgaria could be China's most attractive partners in developing cooperation relations in the tourism sector. If we consider the multiplier effect of tourism, Slovenia, Estonia, Bulgaria, Romania, Bosnia-Herzegovina and Macedonia can offer opportunities for tourism investments, while Croatia, Montenegro and Albania can be targeted for their comparative advantage.

Even in clusters, we can notice important differences between countries, which increase the degree of heterogeneity and can hinder the access to common policies in tourism according to the 16+1 platform. However, this very heterogeneity and diversity can be an asset in the

cooperation relations with China. Aside from the principles of openness, inclusion and mutual understanding, China encourages partner countries to propose concrete cooperation projects. Moreover, the possibility of presenting CEE countries as a compact destination is open, which would confer them increased visibility in China and could serve as an incentive for Chinese tourists arrivals to CEE, through the promotion of tour offers in these countries, as well.

The originality of the paper derives from the multidimensional analysis of the tourism industry in the CEE countries by associating indicators for characterizing tourism competitiveness, assessing the impact of tourism in the economy (contribution to GDP, exports and the labor market), the position in international tourism tourism balance and inclusion of aggregate indicators (comparative advantage, tourism multiplier, productivity). These, as well as the proposal of a specific indicator of measuring the competitiveness of tourism, contribute to the improvement of the specialized literature.

At the same time, the competitiveness analysis of the CEE countries participating in the 16+1 cooperation format includes both the prospects for tourist destinations, namely competitiveness (supply side) and attractiveness for tourists (the demand side), through a planned interaction between the two sides, thus developing the model conceptually proposed by Vengesayi (2003). Another element of novelty is the cluster analysis of CEE countries in the field of travel and tourism competitiveness, since previous CEE studies (Kristić, Jovanovic and Stanišić, 2014; Kristić, Radivojević and Stanišić, 2016) do not include such analyze.

The main limit of the study is the lack of an analysis of the correlations between some of the indicators analyzed, as we have mentioned that other recent studies have demonstrated (Webster and Ivanov, 2014; Romao and Nijkamp, 2017; Rusu and Roman, 2018). Another assumed limit could be the formation of the proposed indicator by the already subsumed TTCI subindexes, but also their subjective weighting.

Starting from the methodologies proposed by Mendola and Volo (2017), future research directions can be developed for an in-depth analysis of the tourism competitiveness in CEE countries. Also, the average indicators of international tourism circulation (average receipts / expenditures per tourist), indices of digitization / technology characterization of the tourism industry or an investment component could be included in future analyzes and provide a wider perspective of the relationships between the selected determinants.

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