
TRAVEL AND TOURISM COMPETITIVENESS OF V4 COUNTRIES: THE CASE OF SUSTAINABLE TOURISM

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Abstract

The Travel and Tourism Competitiveness Index is a relatively well-established indicator of comparing the competitiveness of the world's travel and tourism countries. It is used to a large extent by the academic community. Although its modifications occur and it has several weaknesses, it can still be considered one of the best indices in-country competitiveness. This paper aims to assess and compare TICI in V4 countries, focusing on environmental sustainability. Based on the methods used, we found that the V4 countries, whose values from 2019 we examined in this study, achieve in most cases similar values and rankings among the countries of the world. The most prominent natives occurred in the sub pillars of natural resources, cultural resources, and pillar infrastructure. Significant differences were also noted in some areas related to environmental sustainability; in our opinion, this sub pillar should be given more emphasis given the current measures in the field of sustainable tourism; this could also omit the inclusion of other indicators, which will be more linked to tourism.

Keywords: competitiveness, tourism, V4 countries, travel, sustainability

JEL Classification: L88, C34, C67

Introduction and theoretical background

Competitiveness in tourism is a relatively widely discussed area at both the scientific and practical levels. A wide academic sphere perceives the importance of competitiveness, which deals with the determinants of tourist attendance at the national, regional and destination levels (Kovács et al., 2021). In this study, we will look at the development of selected indicators of the V4 countries in terms of the

Travel and Tourism Competitiveness Index (TTCI), which is published periodically every two years by the World Economic Forum (Calderwood and Soshkin, 2019; Zsigmond et al., 2021). Based on Bălan et al. (2009) is, the competitiveness of the travel and tourism industry is defined taking into consideration a set of reference elements related to the significant dimensions of the industry, such as the business environment, infrastructure, laws and regulations, and resources available. Kayar and Kozak (2010) examined selected TTCI factors before the 2009 crisis. The investigated 13 key factors that affect destination competitiveness and compares the competitiveness levels of EU countries. Their study focuses on detecting influential determinants of destination competitiveness. Using TTCI, 28 countries were clustered according to their competitiveness scores. Cluster analysis and multidimensional scaling techniques were employed to analyse the findings. Many authors are trying to explain the results of TTCI in selected regions in the world. Nazmfar et al. (2019) analysed tourism competitiveness in middle east countries by using TTCI. Their model was performed to analyse the Promethee model and comparative analysis based on data in 2015 and 2017. Pérez León et al. (2020) researched tourism destination competitiveness in the Caribbean Region. The application aims to fill the absence of Caribbean destinations in international rankings. They analysed 33 destinations and 27 indicators, grouped into the four sub-indexes of the TTCI. The application was based on Goal Programming and Data Envelopment Analysis. Their results demonstrate the proposal's explanatory power in building composite indicators to measure the competitiveness of destinations. Based on Vásquez and Llorach (2020), Latin America is also a prosperous and competitive region in travel and tourism. They performed the analysis of the pillars; Mexico ranks first globally, and in the region in Natural Resources, Malta and Jamaica have the same score in T&T Prioritization. They had shown that the region and its countries have managed to position themselves competitively worldwide. Also, Russia has been analysed by Klimova et al. (2018). According to their study, both the positive and negative influencing factors are allocated for a position of Russia in the rating of TTCI. It is noted that despite the ambiguity of the estimates provided by the World Economic Forum, only a complex assessment of the Russian tourism tendencies will allow defining new trends in its development in the competitiveness of Russia.

As four pillars construct the TTCI, many studies focus on one pillar and its sub-indices. Dwyer et al. (2000) dealt with the price competitiveness of 19 tourism destinations. Using Australia as a base country, the paper compares the prices of a bundle of tourist goods and services. Two major categories of prices were distinguished. Recent studies aim at the description of many factors such as cultural resources. Kumar and Dhir (2020) claimed that many authors had highlighted the need to examine the association between a destination's culture and its competitiveness. Their study offers a cultural explanation of travel and tourism competitiveness by investigating the relationship between destination competitiveness, as measured by TTCI, and national culture. Their findings indicate that national culture's individualism, long-term orientation, and indulgence dimensions significantly influenced the TTCI. Their study advises the importance of developing culturally congruent policies to improve competitiveness. According to Bazargani and Kili (2021), the relevance of tourism to the prosperity of nations has long been acknowledged. Their study considered the global perspective of the nexus between TC and tourism performance. The heterogeneous effect is based on the regions and income groups of the countries and the measures of tourism performance. Infrastructure is a universal driver of tourism performance, while policy conditions, enabling environment, and natural and cultural resources are also critical determinants of tourism performance. Based on their findings, countries

worldwide promote the tourism sector's performance, policymakers and stakeholders in the travel and tourism industry should give adequate attention to the improvement of the countries competitiveness. There are attempts to reconstruct the TTCI or propose new index forms. Fernández et al. (2020) claim that destination competitiveness is a multidimensional concept, but multiple factors make its measurement a problematic task. They use all of the simple variables included in the 2017 TTCI, proposing a new methodology for constructing this synthetic index, which solves the problems of aggregation of variables expressed in different measures, arbitrary weighting and duplicity of information. They observe the most influential dimensions in tourism competitiveness. Air transport infrastructures, cultural resources and ICT readiness are the key dimensions that explain the significant disparities.

Moreover, some studies attempted to incorporate innovative approaches, for example, the DEA method. The study of Martín et al. (2015) aims to create a composite index of the travel and tourism competitiveness to rank 139 countries worldwide, and their method was based on the virtual efficiency DEA model. An analysis of the competitiveness by geographical area and income was analyzed. A similar method was also implemented by Perez Leon et al. (2021) and Wu (2011). A more comprehensive and actual study focused on competitiveness in tourism was proposed by de Paula Aguiar-Barbosa et al. (2021), in which authors recommend deepening the analysis in each category of conceptual elements of tourism competitiveness. They advise developing research on new models and monitors of tourism competitiveness that meet its renewed concept and integrate dimensions to consider the perspective of supply, demand, tourists and residents, and not excluding the economic bias concerning the social aspect. Tourism competitiveness has practically no variables related to social; most of the surveys are carried out from the supply or demand perspective, leaving the resident distant from the process. They propose a new version of tourism competitiveness not based on productivity but the social aspect.

Because many authors respect the TTCI index and emphasize the regional aspects of TTCI indices, in this study, we will focus on assessing and comparing TTCI in V4 countries with a specific focus on environmental sustainability.

Material and methods

This section will propose our research methods and methodology that will lead this study to meet its objective. The source of data for this study was the TTCI index values for 2019 published on the website of the World Economic Forum - The Travel & Tourism Competitiveness Report 2019 (World Economic Forum, 2019).

We assess four countries that belong to the V4 political grouping - Slovakia, the Czech Republic, Hungary and Poland. All four main pillars and 14 sub pillars will be evaluated in this study. Because there is a strong accent on improvement in terms of environmental protection, we decided to examine in more detail the sub pillar of environmental sustainability, which contains the following nine indicators:

- The stringency of environmental regulations
- Enforcement of environmental regulations
- Sustainability of T&T industry development
- Baseline water stress
- Threatened species
- Forest cover change - since the loss of forest is only 0.1 in all countries not included
- PM 2.5 concentration

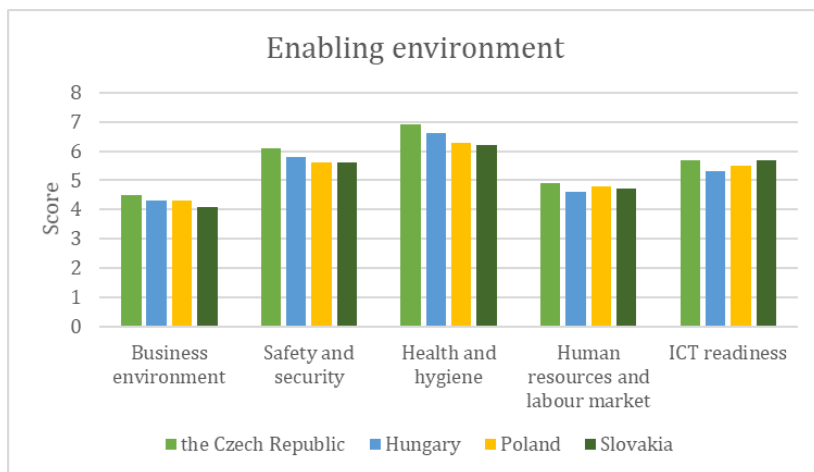
- Environment-related treaties in force
- Wastewater treatment

In the final analysis stage, we propose correlation matrixes, which will help us understand common aspects of indicators in a selected political grouping.

Results and discussion

In this section, we present the results of comparing the values of the TTCI index in the V4 countries and point out selected common but also different aspects in assessing the competitiveness of countries. In figure 1, there are presented values of pillar enabling environment.

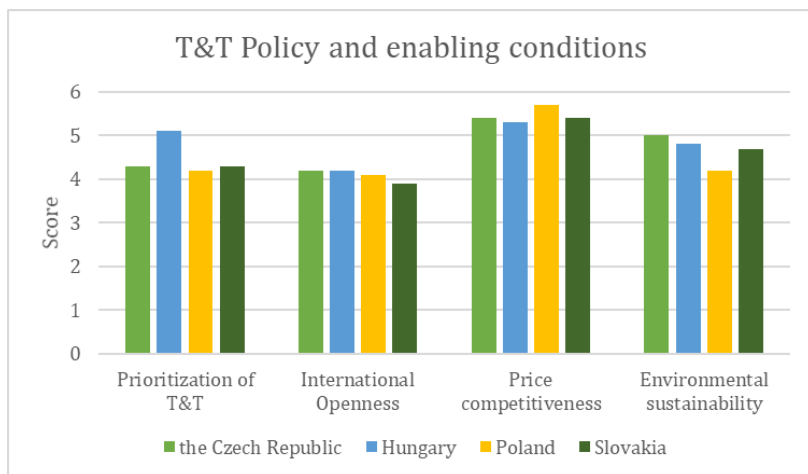
Figure 1 Development of pillar enabling environment in V4 countries



Source: own processing based on data from World Economic Forum (2019)

The pillar enabling environment shows the similarity of the V4 countries, which may also result from similar political and historical aspects. The most sophisticated area of this pillar is the area of Health and Hygiene; on the contrary, the worst area is the area of Business environment. The Czech Republic is at the top in all indicators, but the differences between the countries are not significant. In figure 2, there are presented values of pillar Travel & Tourism policy and enabling conditions.

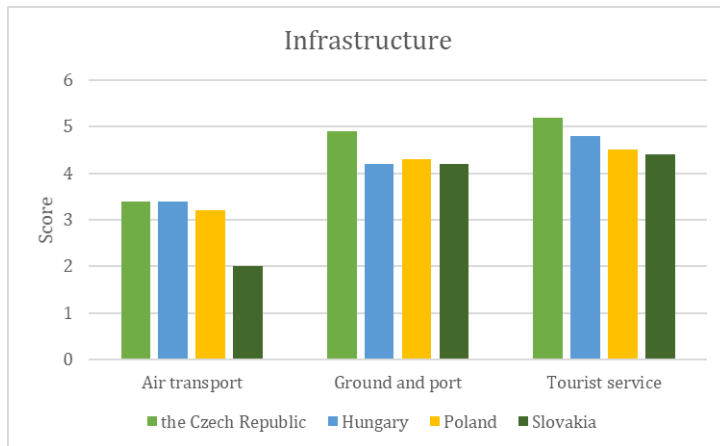
Figure 2 Development of pillar T&T policy and enabling conditions in V4 countries



Source: own processing based on data from World Economic Forum (2019)

The relative proximity of the countries is also confirmed by the T&T policy and enabling conditions pillar. In the case of Travel and Tourism prioritization, Hungary has a slightly higher score, while Poland has a slightly lower score in the case of environmental sustainability. The differences are not very significant in the other indicators. The countries achieve the highest values at price competitiveness, which can be considered one of these countries' most significant competitive advantages. In figure 3, there are presented values of pillar infrastructure.

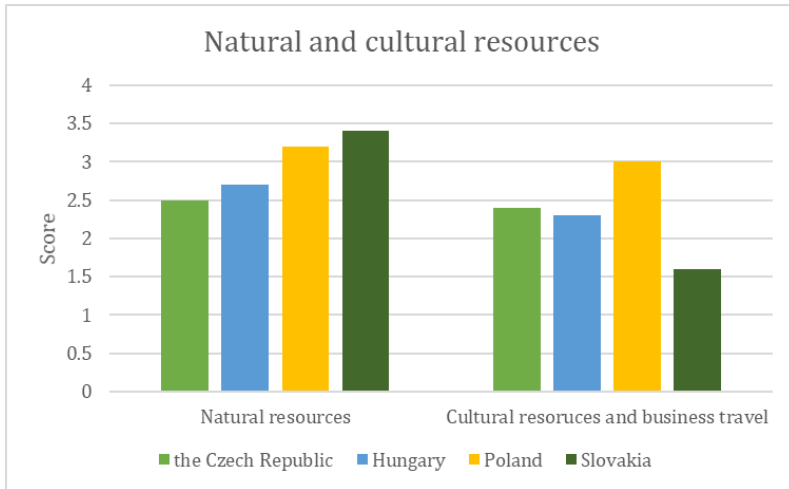
Figure 3 Development of pillar infrastructure in V4 countries



Source: own processing based on data from World Economic Forum (2019)

As far as infrastructure is concerned, the Czech Republic achieved the best score in 2019, which is relatively straightforward, especially in ground and port infrastructure and tourist service. On the contrary, Slovakia lags far behind in air transport, as the airports in Košice and Bratislava do not reach the same capacity and occupancy as the airports in the surrounding countries. It can also be stated that Slovakia achieved the worst score within this pillar. In figure 4, there are presented values of pillar natural and cultural resources.

Figure 4 Development of pillar natural and cultural resources in V4 countries



Source: own processing based on data from World Economic Forum (2019)

The most considerable differences among the V4 countries can be found in the last pillar - natural and cultural resources. While in the previous pillars, the Czech Republic led in many indicators, in the case of natural resources, it lags significantly behind Slovakia, which is the worst in the case of cultural resources and business travel. Poland achieves relatively high values in this pillar. We also provided table 1 with countries' rankings of the individual sub pillars.

Table 1 Ranking of V4 countries in specific sub pillars

Pillar	Sub pillar	Country rank			
		the Czech Republic	Hungary	Poland	Slovakia
Enabling environment	Business environment	62	88	91	105
	Safety and security	18	39	56	57
	Health and hygiene	4	7	24	29
	Human resources and labour market	43	66	53	55
	ICT readiness	32	47	40	33

	Prioritization of T&T	90	35	98	95
T&T policy and enabling conditions	International Openness	25	26	33	47
	Price competitiveness	76	88	40	71
	Environmental sustainability	15	21	81	30
Infrastructure	Air transport	51	52	56	113
	Ground and port	17	41	37	40
	Tourist service	32	49	56	61
Natural and cultural resources	Natural resources	93	81	55	48
	Cultural resources and business travel	39	43	28	73

Source: own processing based on data from World Economic Forum (2019)

Based on table 1, we can show in more detail the indicators the V4 countries excel and,

conversely, in which they are behind other countries in the world. There is an excellent level of health and hygiene in the V4 countries, but it can be stated that health care slightly lags behind the more developed EU countries. Countries also achieve good results in international openness, ground and port infrastructure and environmental sustainability. On the other hand, the V4 countries lag significantly behind other countries, especially in the business environment, prioritization of T&T, and air transport infrastructure. Table 2 presents the results of correlations between all sub pillars.

Table 2 Results of correlations among sub pillars

	Business environment	Safety and security	Health and hygiene	Human resources and labour market	ICT readiness	Prioritization of T&T	International Openness	Price competitiveness	Environmental sustainability	Air transport	Ground and port	Tourist service	Natural resources	Cultural resources and business travel
Business environment	1.0000													
Safety and security	0.8639	1.0000												
Health and hygiene	0.9037	0.9814	1.0000											
Human resources and labour market	0.6325	0.4917	0.4082	1.0000										
ICT readiness	0.0000	0.1842	0.0000	0.6742	1.0000									
Prioritization of T&T	0.0000	0.1262	0.2514	-0.7697	-0.8095	1.0000								
International Openness	0.8660	0.6983	0.8199	0.1826	-0.4924	0.4497	1.0000							
Price competitiveness	0.0000	-0.4480	-0.4260	0.4472	0.1005	-0.6655	-0.1361	1.0000						
Environmental sustainability	0.3599	0.7772	0.7123	0.0379	0.2302	0.3445	0.2770	-0.8765	1.0000					
Air transport	0.8489	0.5867	0.7202	0.2301	-0.5171	0.3542	0.9802	0.0572	0.9873	1.0000				
Ground and port	0.8489	0.8800	0.8141	0.8437	0.5171	-0.3542	0.4981	-0.0572	0.5237	0.4412	1.0000			
Tourist service	0.9087	0.9911	0.9972	0.4670	0.0727	0.1825	0.7870	-0.4016	0.7153	0.6888	0.8541	1.0000		
Natural resources	-0.8742	-0.9230	-0.9781	-0.2457	0.2071	-0.4255	-0.8972	0.4579	-0.6641	-0.8009	-0.6832	-0.9599	1.0000	
Cultural resources and business travel	0.5693	0.0799	0.2021	0.3825	-0.3793	-0.1212	0.6162	0.6876	-0.5420	0.7594	0.2071	0.1899	-0.2557	1.0000

Source: own processing based on data from World Economic Forum (2019)

The results of the correlation analysis suggest that some indicators are relatively strongly correlated between countries. Significant positive correlations include business environment vs health and hygiene, safety and security, international

openness. Then there is the tourist service and health and hygiene. On the contrary, relatively significant negative correlations are price competitiveness vs environmental sustainability, tourist service vs natural resources, ICT readiness vs prioritization of T&T and many others. We also proved that correlations among selected countries considering all sub pillars are high, proving the similarity of V4 countries concerning the TTCI index. See table 3.

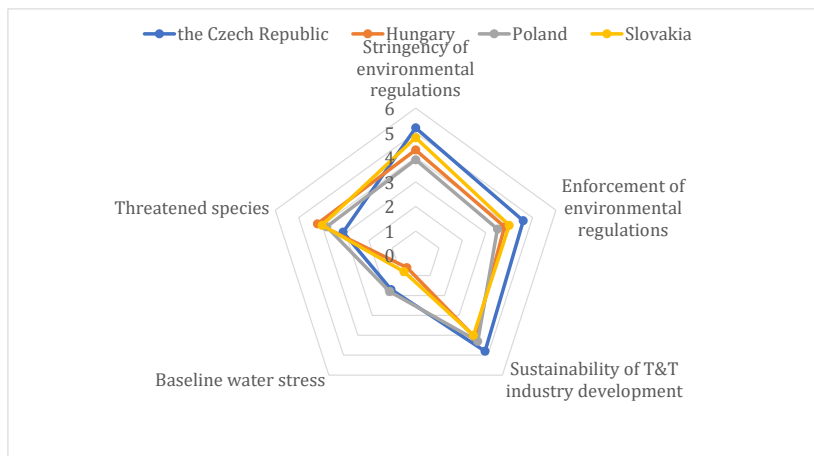
Table 3 Results of correlations among V4 countries

	Czechia	Hungary	Poland	Slovakia
Czechia	1			
Hungary	0.9631	1		
Poland	0.94544	0.93056	1	
Slovakia	0.91452	0.91859	0.93656	1

Source: own processing based on data from World Economic Forum (2019)

Because the world focuses actively on environmental issues, we analyse the individual sub pillar – environmental sustainability; results could be observed in figures 5 and 6.

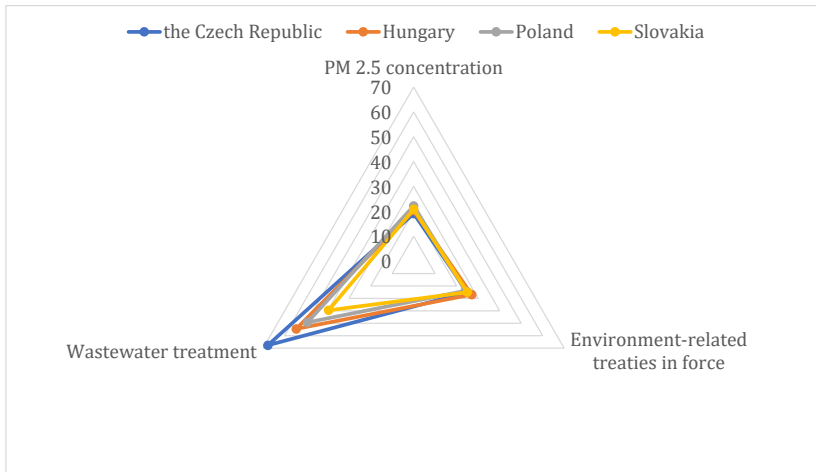
Figure 5 Comparison of indicators related to environmental sustainability sub pillar – part 1



Source: own processing based on data from World Economic Forum (2019)

Based on the above, it can be stated that the Czech Republic stands out the most of these countries. The Czech Republic has the most stringent environmental measures from the V4 countries, while the weakest measures are in Poland, as with the enforcement of environmental regulations. Similarly, the Czech Republic is significantly better in terms of endangered species, with the lowest score.

Figure 5 Comparison of indicators related to environmental sustainability sub pillar
 – part 2



Source: own processing based on data from World Economic Forum (2019)

Poland achieves the highest values of PM 2.5 concentration (22.2) and the least by the Czech Republic (19.1). The highest percentage of wastewater treatment is again achieved by the Czech Republic (67.8), while Slovakia lags the most (39.6).

Conclusion

Based on the above results, it can be stated that in most indicators, the V4 countries are similar in the area of the TCI index, and thus both regional and historical or political proximity of these countries is observed. The most significant differences are in natural resources, which the country cannot easily influence and is a great gift of nature. However, the country must be able to take care of these resources, as is the case with cultural resources, where while Slovakia excels in natural resources, it lags in cultural resources. There are also significant differences, especially in the area of infrastructure. As for the selected correlations between individual sub pillars, they can help us understand between specific influences that indicate the interconnectedness of these indicators. Namely, they are connected.

In terms of the environment, sustainable tourism is a highly topical field of research and therefore, a closer examination of phenomena in a wider geographical area, or political grouping could significantly contribute to current research. Even at the level of the V4 countries, it was proved within the selected indicators that the natives are significant in some cases. Therefore, this study can be considered as opening a discussion to a deeper examination of measures that have a real impact on sustainable tourism.

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