

Identification of the Level of Development and the Current State of the Tourism in Slovak Regions

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Abstract

Every region has its unique natural, cultural, and historical wealth, as well as infrastructure, a range of attractions, and business opportunities that can attract a large number of visitors. Developing the potential of tourism in regions is important for stimulating economic growth, job creation, and improving the quality of life for local residents. Its development in regions involves mapping and analyzing available resources, opportunities, and competitive environments. The purpose of this article is to quantify the level of regional tourism development, assess its potential in Slovak regions, and identify their current disparities. For the purposes of this study, we will evaluate the potential of Slovak tourism regions using commonly used indexes - indicators of tourism intensity. The results of the analyses have demonstrated significant disparities among the individual tourism regions. We see that the development in different tourism regions varies greatly, and in some cases, there are pronounced disparities in terms of their development, visitor interest intensity in each region, and the economic benefits of tourism in the regions. These findings have served as the basis for proposing solutions that address the development issues in regions through the impacts of tourism.

Keywords

tourism in Slovakia, tourism potential, measuring the intensity of tourism

JEL classification: C20, L83, R12

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Introduction and theoretical background

Travelling is increasingly in the spotlight in today's modern era, and we can observe a growing interest in it worldwide. Due to the increased interest in travel, it is necessary to develop the tourism potential in different regions. According to Gúčík et al. (2004) and Mariot (2015), the tourism potential can be perceived from two fundamental perspectives: geographical and economic. From a geographical perspective, it refers to the ability of a territory to provide conditions for the development of tourism, which can be categorized into natural potential and potential created by societal activities. From an economic perspective, the tourism potential refers to the capacity, structure, and utilization of tourism infrastructure. Tourism is an important economic sector for many regions, contributing to economic prosperity and growth. However, for successful tourism development in a region, it is necessary to consider and understand various prerequisites and factors that influence it. According to author Kasagrandá (2013), these prerequisites can be based on geographical location, cultural heritage, infrastructure, as well as marketing and managerial skills. According to authors Pásková and Zelenka (2002), the tourism potential is the cumulative value of all tourism assumptions assessed based on a scoring scale, reduced by the negative value of factors that hinder tourism development.

The tourism potential represents the competitive intensity. By increasing the intensity of tourism in a region (such as overnight stays, visitation, per capita revenue), driven by higher demand, a larger market volume, and multiple suppliers, the regional significance of the tourism industry and its competitive intensity in the region increase (Keller & Bieger, 2007). The tourism potential can be analysed based on indicators of tourism intensity, which measure the volume of tourism (number of visitors, number of overnight stays, number of beds in accommodation facilities, or number of accommodation facilities) in relation to the population in a selected locality, destination, or tourism region (Dumbrovská & Fialová, 2014).

According to the territorial planning document issued by Ministry of Economy of the Slovak Republic in year 2005 – Regionalization of tourism in the Slovak Republic, the tourism potential can be evaluated in the medium-term horizon (up to 5 years), which is determined by natural conditions and created facilities, and in the long-term horizon (5 years and more), which is determined by natural-geographical conditions and historical attractions. The value of the regional potential is expressed in a point score. Individual tourism activities are assessed based on established criteria and categorized into levels (1 to 4) according to quantitative and qualitative factors.

The supply, which is an important factor in measuring the tourism potential, can be evaluated, for example, through the so-called valorisation of the territory. According to the author Jarábková (2010), environmental valorisation refers to the ability of the external environment to provide recreational and regenerative effects to individuals. When assessing conditions for tourism development, two approaches are commonly used: territorial and functional. For a comprehensive

assessment of valorisation, it is necessary to adopt a specific evaluation system, typically employing a classification of five levels of suitability.

The suitability of a resort for tourism development is also addressed in the works of Konečná (1999, quoted in Jarábková, 2010). The main criteria for evaluating the suitability of an area for tourism, as considered by the author Durydiwka (2013), include natural, infrastructural, and demographic factors, encompassing both inherent and created factors. Until the 1960s, research on tourism development indicators and potential assessment in a given locality, destination, or tourism region primarily focused on analysing visitor arrivals, the number of beds in accommodation facilities, average length of visitor stays, and the number of employees in the service sector.

In their work, Borzyszkowski et al. (2016) discuss the use of multiple methods that define the competitiveness of a destination. Among other things, it is possible to determine the level of tourism function development in a selected locality, destination, or tourism region. Literature provides a variety of different methods that allow us to accurately assess whether a particular region has a well-developed tourism function. One way to determine this level is by using appropriate indexes. The most commonly used indicators for assessing the level of tourism function are the following indexes: The Baretje-Defert tourism function index, the Schneider index, the Charvat index, or the Index of Tourism Development Level in a Region. These indexes provide a quantitative measure of the tourism function and help in evaluating the development and competitiveness of a tourism destination or region.

Successful examples of applying the mentioned indexes are primarily found in international literature. In the territory of Slovakia, authors such as Štefko et al. (2018) and Berešecá and Hudáková (2018) have analysed the intensity of tourism. In foreign countries, the application of tourism intensity indicators can be seen in various studies conducted in European Union countries (Žegleň et al., 2019), Serbia (Marković et al., 2017), or Turkey (Sezgin and Gumus, 2016). These studies demonstrate the usefulness of these indicators in assessing tourism intensity in different contexts.

Methodology

The main objective of the presented article is to quantify the level of regional tourism development, evaluate its potential in Slovak regions, and identify their current disparities. The research focuses on the regions of tourism defined in the territorial planning document issued by Ministry of Economy of the Slovak Republic (2005) – Regionalization of tourism in the Slovak Republic. The input data for applying statistical indexes and conducting subsequent analysis are obtained from information on capacity and performances of accommodation establishments of tourism in the Slovak Republic, which is acquired from the DATAcube online platform (Statistical Office of the Slovak Republic, 2023). In the research section, the processed database of input data covers the period from 2012 to 2022, with the results in 2022 significantly influenced by the negative impacts of the COVID-19 pandemic, which affected the tourism sector in Slovakia in three waves.

Reflecting on this fact, we can assume that the resulting indicator values would have achieved different – better outcomes if the COVID-19 pandemic had not occurred.

Currently, there is a large number of tourism indicators available, which can be used to assess a selected locality, destination, or tourism region based on the available statistical data. For the purposes of the presented study, we will evaluate the tourism potential of Slovak regions using the following indexes – indicators of tourism intensity:

- The Baretje-Defert tourism function index (IBD) is used as an indicator of tourism activity intensity in a selected locality, destination, or tourism region. The calculation of the Baretje-Defert tourism function index, according to Defert (1988), involves the ratio of the number of visitors to the population. The index represents the number of beds in the given locality, destination, or tourism region per 100 inhabitants. This mathematical relationship can be expressed as follows:

$$I_{BD} = \frac{\text{guest beds}}{\text{number of inhabitant}} \times 100 \quad (1)$$

- The Schneider index (I_{SCH}) measures the volume/intensity of tourism in a selected locality, destination, or tourism region. The calculation of the Schneider index involves the ratio of visitors or visitor overnight stays in all accommodation facilities in the given locality, destination, or tourism region per 100 inhabitants (Gregorová et al., 2015). The mathematical relationship for calculating the Schneider index can be expressed as follows:

$$I_{SCH} = \frac{\text{number of tourist}}{\text{number of inhabitant}} \times 100 \quad (2)$$

- The Index of Tourism Development Level in a Region (iR) provides information about the economic dependence of a selected locality, destination, or tourism region on tourism and the distribution of revenues within the local community. The calculation of this index can be expressed as the ratio of total tourism revenues in the region to the number of inhabitants in the region (Gregorová et al., 2015). The result provides a more average perspective on how much tourism income is generated per resident. This mathematical relationship can be expressed as follows:

$$iR = \frac{\text{tourism revenue}}{\text{number of inhabitant}} \quad (3)$$

The literature provides various values for interpreting the aforementioned indexes – indicators of tourism intensity. Author Warszzyńska (1985) evaluates tourism intensity using a five-level scale (0 – 4) of tourism function development, i.e., the development of tourism-related infrastructure in a selected locality, destination, or region. The following Table 1 presents the scale. The interpretation

of the resulting indicators and their subsequent visual comparison (via a choropleth map) can be carried out using the statistical software program R (2023).

Table 1: Degree and Evaluation Standard of Tourism Intensity Indicators. (Source: processed by the author according to Warszńska, 1985; Grzelak & Roszko-Wójtowicz, 2020)

	Baretje–Defert Index (IBD)	Schneider Index (ISCH)
0 – the process of tourism function development has not commenced	IBD < 0.78	ISCH < 7.8
1 – initial stage of development	IBD 0.78 – 6.25	ISCH 7.8 – 62.5
2 – additional function of tourism	IBD 6.25 – 25.00	ISCH 62.5 – 250.0
3 – equal or supplementary function of tourism	IBD 25.00 – 50.00	ISCH 250.0 – 500.0
4 – basic or one of the basic functions of tourism	IBD > 50.00	ISCH > 500.0

Results and discussion

In the following section of the presented article, we will focus on the evaluation and interpretation of statistical methods for assessing the tourism potential in Slovak regions. To achieve the goal of our article, we recalculated the selected tourism intensity indexes for the years 2012 and 2022. This allows us to present the positive or negative development of index values and assess the significance and potential of tourism in the regions by local (regional) authorities and stakeholders.

Using the Baretje-Defert tourism function index, we will quantitatively assess the level of tourism development in each region of Slovakia and its impact on the local economy and society. Comparing the resulting index values with other regions can provide information about the relative competitiveness and attractiveness of the given region in tourism. A higher index value (in our case, a higher degree) indicates a higher intensity and level of tourism development compared to other regions, while a lower index value (in our case, a lower degree) may indicate potential areas for improvement and development.

The analysis of trends in the Baretje-Defert tourism function index, as interpreted by Table 2, provides us with insights into the tourism development in the region. We can observe that most regions experienced an increasing index value during the analyzed period of 2012 to 2022, indicating growth and improvement in tourism conditions in those regions. However, the decreasing index value (Tatras, Spiš, Lower Považie, Poiplie, Upper Nitra, Lower Zemplín a Upper Zemplín and Šariš) highlights issues or shortcomings that may require measures for improvement.

None of the tourism regions in Slovakia reached the highest degree of tourism function development. As shown in Table 2 and Figure I, the region of Liptov achieved the highest index values and, along with the Tatras, Horehronie, and Bratislava region, fell into the category of "3 – equal or supplementary function of tourism". The regions of Turiec, Orava, and Pohronie achieved an

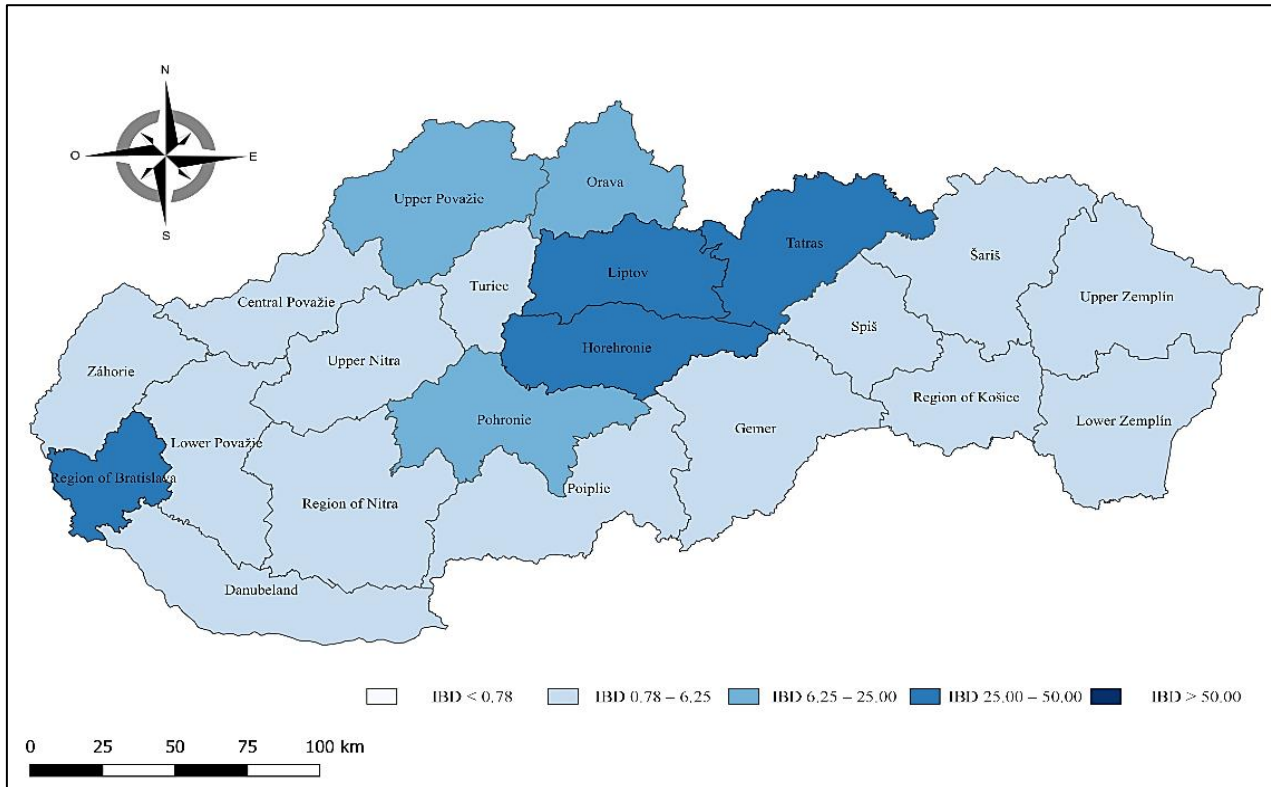
"Additional function of tourism" (degree 2). This means that tourism, along with other sectors of the national economy, holds an important position in these regions. For example, tourism can be a primary economic resource contributing to the local (regional) economy or a supplementary resource supporting other industries.

Tourism in these regions can generate direct income, support local businesses, stimulate visitor interest in local products, promote craftsmanship and cultural heritage, and contribute to the development and sustainability of the locality, destination, or tourism region. The remaining regions were categorized as "I – initial stage of development" and it is evident that the index values for these regions did not increase significantly during the period from 2012 to 2022. The initial stage of development represents a phase of exploring and assessing the tourism potential of a region. The stagnant development of index values in these regions suggests a lack of interest in developing the tourism potential in the region, which can stem from various reasons such as a lack of awareness, insufficient financial resources/investments, conflicts of interest, inadequate cooperation between local (regional) authorities and stakeholders, and so on.

Table 2: Values of the Baretje-Defert tourism function index in Slovak Tourism Regions (years 2012 and 2022). (Source: processed by the author according to data by Statistical Office of the Slovak Republic, 2023)

	IBD		Degree and Evaluative Standard of Tourism Intensity
	2012	2022	
Liptov	35.17	40.89	3 – equal or supplementary function of tourism
Tatras	30.00	32.22	
Horehronie	24.74	27.00	
Region of Bratislava	25.01	26.85	
Turieč	10.52	10.45	2 – additional function of tourism
Orava	9.93	9.96	
Pohronie	8.87	9.85	
Danubeland	2.53	3.86	
Upper Považie	2.98	3.38	1 – initial stage of development
Region of Nitra	2.81	2.86	
Central Považie	2.74	2.81	
Spiš	3.05	2.68	
Lower Považie	2.46	2.42	
Poľpie	2.53	2.37	
Záhorie	2.14	2.30	
Region of Košice	1.29	2.28	
Upper Nitra	2.89	2.18	
Lower Zemplín	6.35	2.14	
Gemer	1.97	2.03	
Upper Zemplín	1.85	1.77	
Šariš	1.85	1.75	

Figure 1: Value of the Baretje-Defert tourism function index in Slovak Tourism Regions
(Source: processed by the author according to data by Statistical Office of the Slovak Republic, 2023)



Our second examined criterion is tourism intensity, which refers to the level of tourism activity and interest in a given tourism region. Tourism intensity takes into account the number of visitors, accommodation facilities, tourism offerings, and other activities in the region. For the purposes of this study, we will use the Schneider index to quantify the volume/intensity of visitor interest in individual regions of Slovakia. Tourism intensity in a region can vary depending on factors such as seasonality, product portfolio, primary (natural and cultural-historical conditions and organized events), and secondary (superstructure and infrastructure) tourism offerings in the region, transportation infrastructure, marketing activities, and other factors.

Table 3 presents the trend in index values during the study period of 2012 – 2022. With the exception of three regions (Spiš, Šariš, and Gemer), all tourism regions experienced a growing trend in tourism intensity.

Table 3: Values of the Schneider index in Slovak Tourism Regions (years 2012 and 2022) (Source: processed by the author according to data by Statistical Office of the Slovak Republic, 2023)

	I _{SCH}		Degree and Evaluative Standard of Tourism Intensity
	2012	2022	
Liptov	515.26	699.2	4 – basic or one of the basic functions of tourism
Tatras	428.14	514	
Region of Bratislava	271.53	314	3 – equal or supplementary function of tourism
Horehronie	81.99	115.8	2 – additional function of tourism
Pohronie	75.95	114.8	
Region of Košice	39.68	105.5	
Orava	57.49	80.06	
Turiec	63.36	80.05	
Upper Považie	57.66	69.72	
Danubeland	37.84	66.42	
Central Považie	43.19	56.88	1 – initial stage of development
Poipšie	45.64	55.25	
Lower Považie	46.16	46.89	
Region of Nitra	39.38	43.48	
Spiš	46.28	41.32	
Upper Nitra	32.25	35.73	
Záhorie	26.39	33.83	
Lower Zemplín	19.45	30.62	
Šariš	29.36	28.28	
Gemer	28.85	27.45	
Upper Zemplín	15.43	20.31	

In Table 3 and Figure 2, we can observe that the Liptov and Tatras regions achieved the highest values (similarly to the Baretje-Defert tourism function index values) and fell into the category of "4 – basic or one of the basic functions of tourism". In this case, tourism in these regions serves several fundamental functions. For example, it contributes to economic growth and job creation, plays a socio-cultural function by facilitating the exchange of cultural experiences between visitors and the local community, and has an environmental function by promoting sustainable and environmentally responsible practices. Tourism also supports infrastructure development and improves accessibility for tourists. These functions work together to achieve sustainable development in the region.

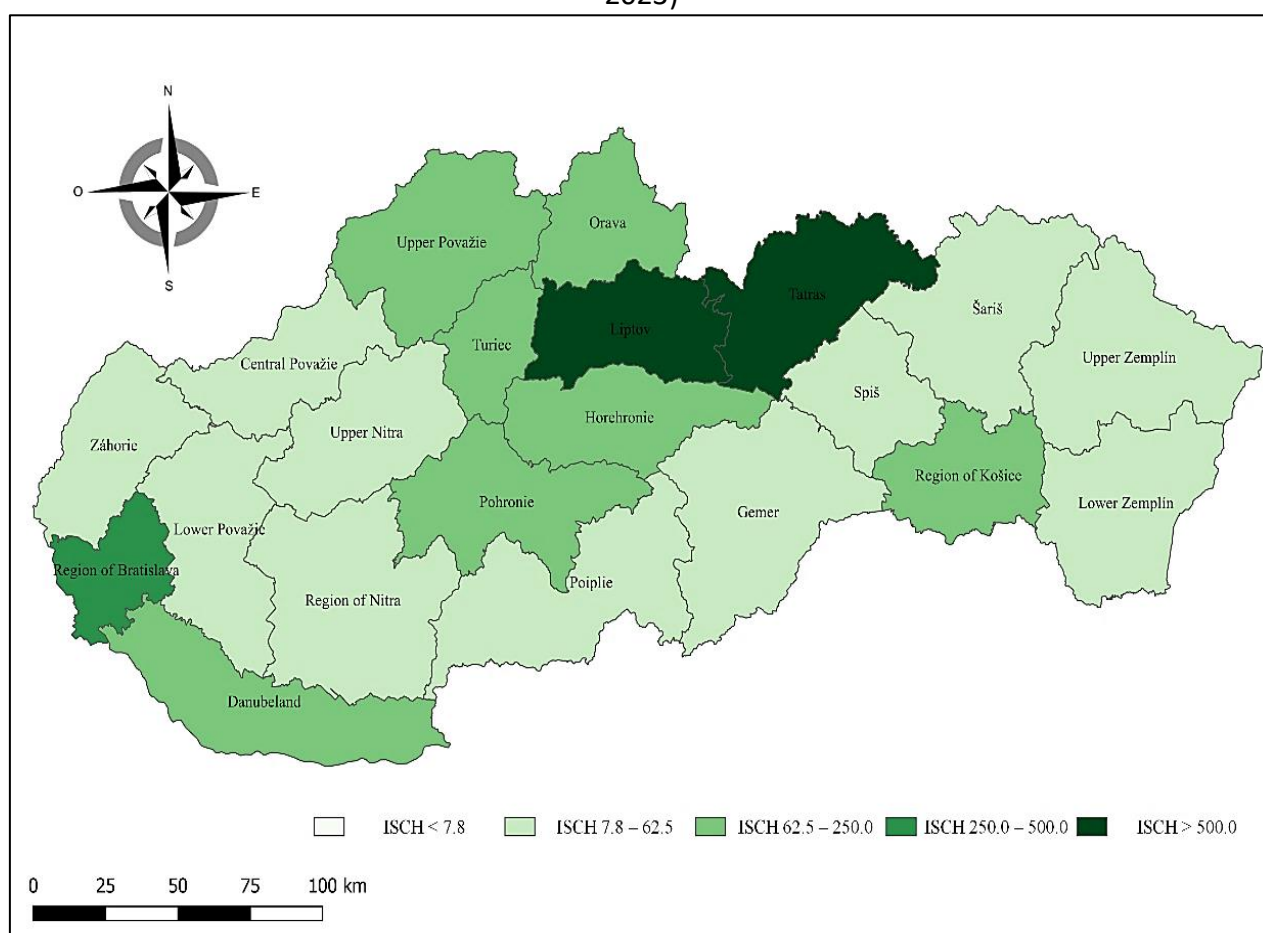
Region of Bratislava is the only one that fell into the category of "3 – equal or supplementary function of tourism". The regions of Horehronie, Pohronie, Region of Košice, Orava, Turiec, Upper Považie, and Danubeland achieved an "additional function of tourism" (degree 2). The higher volume/intensity of tourism in these regions can lead to positive impacts such as economic growth, job creation, and increased tourism revenue. It can also support infrastructure development, improve services, and strengthen the local economy. On the other hand, excessively high tourism intensity can lead to infrastructure and service overload, decreased quality of life for local residents, environmental

disruption, and loss of cultural authenticity. It can also create socio-cultural conflicts and have negative impacts on the local community.

The remaining regions fell into the category of "I – initial stage of development". Only the Central Považie region is closer to being classified into a higher category based on its index value. The low volume/intensity of tourism in these regions means that they attract only a limited number of visitors. This can have positive effects on preserving the authenticity of local experiences but may limit the economic development of the region. In this regard, it is important to strike a balance and take measures to increase awareness of the region, promote it, and develop the product portfolio.

Figure 2: Value of the Schneider index in Slovak Tourism Regions

(Source: processed by the author according to data by Statistical Office of the Slovak Republic, 2023)



The third criterion examined is the Index of Tourism Development Level in a Region, which represents the share of the population in the selected locality, destination, or tourism region in the total volume of tourism revenue. Tourism revenue is an important indicator of tourism development in the region, as it represents economic income into the region and contributes to its economic growth. It provides financial resources for infrastructure investments and improves the quality of services for

the local population. It also serves as a monitoring tool for assessing tourism performance and allows for comparison with other regions, which is also the case in our study.

Table 4 interprets the trend in the values of the Index of Tourism Development Level during the observed period of 2012 to 2022. The values in the table could be interpreted as the share of monetary units per capita in the region from the total volume of tourism revenue generated by visitor activities such as accommodation, catering, transportation, attractions, and other tourism-related services.

Table 4: Values of the Index of Tourism Development Level in Slovak Regions (years 2012 and 2022) (Source: processed by the author according to data by Statistical Office of the Slovak Republic, 2023)

	iR		
	2012	2022	2012/2022 in %
Region of Bratislava	18.53	17.03	- 8.09
Danubeland	3.01	5.37	78.41
Záhorie	2.47	2.66	7.69
Lower Považie	6.20	6.80	9.68
Central Považie	6.61	5.58	- 15.58
Region of Nitra	3.54	3.13	- 11.58
Upper Nitra	2.78	2.61	- 6.12
Upper Považie	5.34	4.64	- 13.11
Turiec	9.91	10.64	7.37
Orava	3.87	5.94	53.49
Liptov	29.08	44.31	52.37
Poľpie	4.89	6.30	28.83
Gemer	1.21	2.02	66.94
Horehronie	7.56	9.51	25.79
Pohronie	7.70	10.65	38.31
Tatras	22.64	33.86	49.56
Spiš	2.04	2.20	7.84
Region of Košice	3.35	4.32	28.96
Šariš	1.86	2.21	18.82
Upper Zemplín	0.79	1.39	75.95
Lower Zemplín	1.42	2.40	69.01

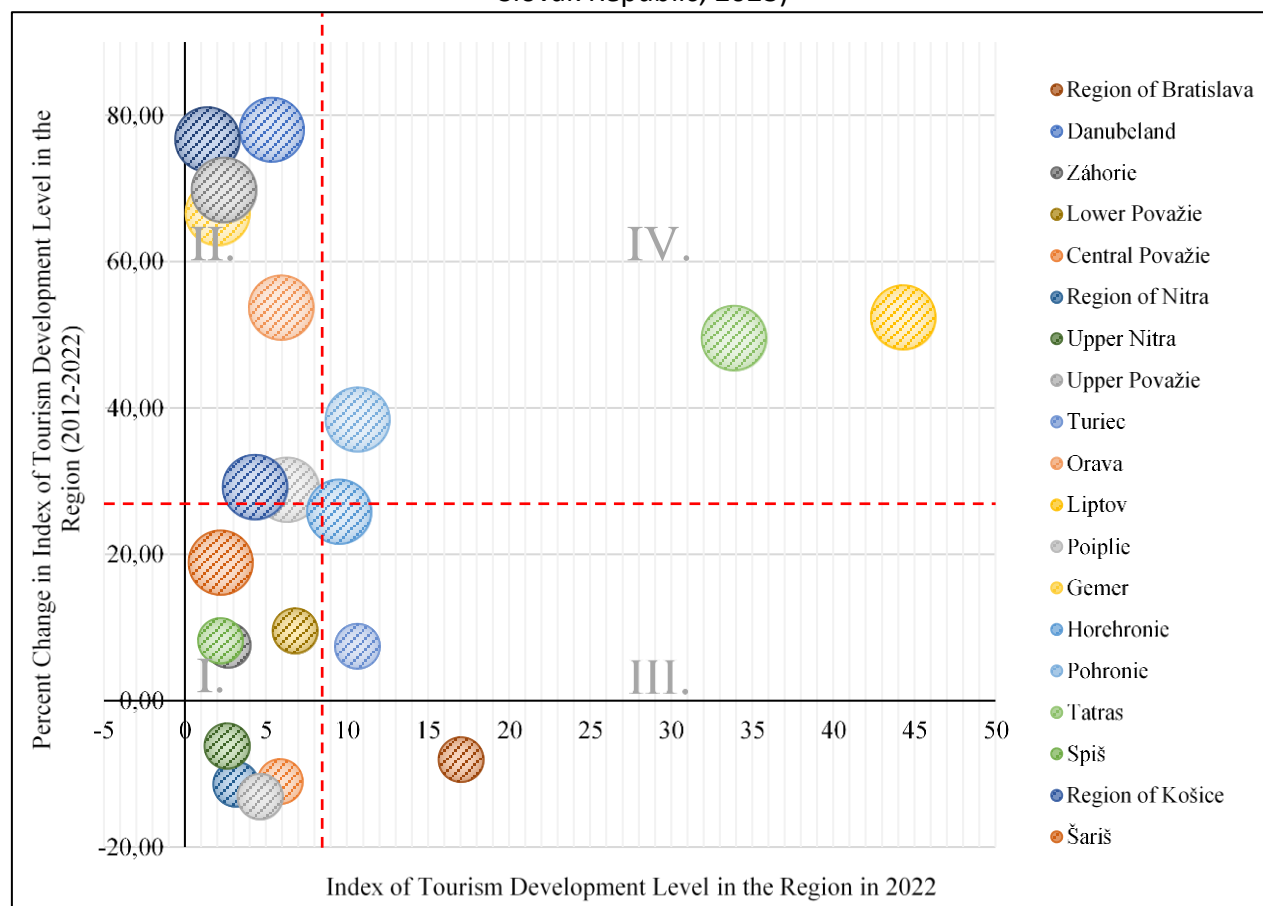
These values can be useful in evaluating the economic benefits of tourism for the local community, in tourism planning and management, and in assessing the socio-economic impact of the industry in a given region. A higher value of the share of tourism revenues per capita in the region indicates that each resident receives a larger portion of the income generated by tourism. In order to evaluate the results of the indicators, we calculated the Slovak average of the share of tourism revenues per capita, which amounts to 8.74 EUR. We can observe that six tourism regions exceed the Slovak average – Liptov (44.31 EUR/CIT), Tatras (33.86 EUR/CIT), Region of Bratislava (17.07

EUR/CIT), Pohronie (10.65 EUR/CIT), Turiec (10.64 EUR/CIT), and Horehronie (9.51 EUR/CIT). A higher share of tourism revenues per capita can bring several advantages to a region, such as increased economic well-being of residents, job creation, and investments in infrastructure and services. It can support the growth of local businesses and improve the standard of living. On the other hand, a higher share can also indicate a greater dependence of the region on tourism, which may pose risks in case of seasonal and off-season fluctuations, economic instability, or overburdening of the region by visitors and their activities.

The following Figure 3 interprets the matrix of the Index of Tourism Development Level over the observed period of 2012 to 2022. The average values plotted on the horizontal and vertical axes create four quadrants that allow us to categorize the examined regions into four levels of tourism development, ranging from the least developed regions (I.) to the most developed regions (IV.). From the graph, we can identify two dominant tourism regions – Liptov and Tatras – whose index values in 2022, as well as their trend over the observed period, exceeded the threshold of the Slovak average. The Pohronie region also falls into this quadrant. Next, we have a quadrant labeled as level III., which includes the regions of Horehronie, Turiec, and the Region of Bratislava. In the quadrant with level II. of tourism development, we find regions that experienced a significant increase in index values during the observed period but have a lower ratio of tourism revenues per capita compared to the Slovak average. These regions include Danubeland, Upper Zemplín, Lower Zemplín, Gemer, Orava, Poiplie and Region of Košice. Regarding the resulting values of the Index of Tourism Development Level, both examined values of which fall below the Slovak average, the least developed regions fall into quadrant I. In this case, the regions of Šariš, Lower Považie, Spiš, Záhorie, Upper Nitra, Region of Nitra, Upper Považie and Central Považie belong to this quadrant.

Based on the analysis of individual regions and their mutual comparison, we have quantified the level of regional tourism development using the indexes – indicators of tourism intensity. In conclusion of this section, we can state that there are significant disparities among the various tourism regions. We observe that the development in each tourism region is highly diverse, and in some cases, significant disparities exist in terms of their level of development, visitor interest intensity in the regions, and the economic benefits derived from tourism. Of course, the issue may lie within the region itself, such as insufficient diversity and variety of offerings for visitors, or it may stem from the external environment of the region, such as lack of support from the state or low levels of promotion, and so on. This leads to a loss of competitiveness for the region, and the development of tourism in such a region is limited compared to other regions. The presented results indicate that the majority of tourism visitors concentrate only in well-known regions, despite the fact that each Slovak tourism region has its specific elements and uniqueness, as well as untapped potential that is often not fully utilized.

Figure 3: Matrix of Index of Tourism Development Level in the Region and values changes in 2012 – 2022 (Source: processed by the author according to data by Statistical Office of the Slovak Republic, 2023)



Conclusion

Regional development and the potential of tourism in regions are closely interconnected concepts. According to Mariot (2015), each tourism region has its own characteristics, resources, and opportunities that can provide a basis for tourism development and building. The goal of regional development and the utilization of tourism potential is to achieve sustainable growth, where natural and cultural heritage is preserved, an equitable economic benefit is provided to the local community, and environmental and social aspects of tourism are respected. This process begins with mapping and evaluating the tourism potential in the regions. It is a systematic and comprehensive approach that involves multiple steps. One of these steps is evaluating the level of regional tourism development using statistical methods. For the purposes of this study, we decided to assess the potential of Slovak tourism regions using three indexes – indicators of tourism intensity. In terms of infrastructure development in the tourism region, the regions of Liptov, Tatras, Horehronie, and the Region of Bratislava were categorized as having an “equal or supplementary function of tourism” (degree 3). Comparing the regions using the Schneider index, which symbolizes the volume/degree of tourism intensity in the region, we observed significant differences among the regions. Currently, there are four

categories of regions in Slovakia, with the highest degree of tourism intensity observed in the regions of Liptov, Tatras, and the Region of Bratislava. Regarding the index of tourism development degree, once again, the regions of Liptov and Tatras clearly dominate, falling into the quadrant with the highest degree of development (quadrant IV.). Within the degree of tourism development in Slovakia, we also observe a negative trend in the values during the study period of 2012 – 2022, with a decline in values in Central Považie, Upper Považie, the Region of Nitra, the Region of Bratislava and Upper Nitra.

Based on the analysis of individual regions and their mutual comparison, we can state that despite their differences, the regions share common characteristics that hinder or slow down their development in terms of tourism. The costliest problem is the lack of funding and support from the state in the regions. Another significant issue is the frequent changes in legislation, which demotivate entrepreneurs from investing and engaging in the tourism sector in the respective regions. We observe employment challenges in the tourism industry, where employees are not sufficiently appreciated and motivated. This has led to a decline in the number of employed individuals in tourism and a shortage of professionals in the field, resulting in insufficient knowledge sharing. Additionally, weak collaboration between the public and private sectors is another problem. To improve the current situation in the regions, we propose the following measures:

- Creating region-specific development programs for each individual tourism region.
- Establishing cooperation between the different regions.
- Full utilization of the primary (natural and cultural-historical conditions and organized events) and secondary (infrastructure and superstructure) tourism offerings in the region.
- Utilizing existing and new forms of tourism.
- Intensive promotion at trade fairs.
- Implementing artificial intelligence and introducing innovative elements in the field of tourism.

Assessing the potential of tourism in the region should serve as the foundation for creating and implementing a strategic tourism development plan. We believe that this study can serve as one of the key documents in the formulation of tourism strategies in the Slovak regions.

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