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Evaluation of competitiveness of selected geotourist destinations in Slovakia – case study from the Malá Fatra and Central Spiš area

The article deals with the model of evaluation of competitiveness of selected geotourist destinations in Slovakia, especially the area of Central Spiš and Malá Fatra mountain range. It solves the problem of evaluation of the competitiveness by the proposed model that is based on explicitly defined factors – comparative indicators of development trends in the analysed geotourist destinations. At the same time it offers a comprehensive methodological approach to creation and modeling of potential strategies of support to the geotourist destinations competitiveness. The conclusions point to the fact that the proposed assessment model of geotourist destinations is included in subjective evaluation models that may be extended by additional evaluation factors or to objectify their importance by participation of several experts.

Keywords: competitiveness, geotourist destination, indicators, Central Spiš, Malá Fatra

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Introduction

Evaluation of the competitiveness of geotourist destinations is a complex issue because geotourism is considered to be a constantly evolving form of tourism based on discovering geotourist objects and processes with emphasis on the aesthetic and historic value (Kmeco, 2012), including recognition of technical, cultural and historical sites related to mining activity – mining works, mining museums, etc. (Rybár, 2010). This highlights the fact that geotourist destination is considered a target area of geotourism with a typically wide offer of geotourist attractions and infrastructure that set it apart from other tourist destinations (Pavolová et al., 2014; Štrba et al., 2015). The very competitiveness of geotourist destinations is determined by the depth of knowledge of the competitive environment and the ability to exercise their competitive advantage (Porter, 1994) which predicts the possibility of gaining ascendancy over their competitors (Mikoláš, 2005).

Generally the competitiveness of geotourist destinations can be considered a feature that allows a specific destination to succeed in "competition" with other geotourist destinations. This feature of geotourist destinations is characterized by indicators determining the ability of a particular geotourist destination to compete with other destinations and the results that were brought by the competitiveness.

Based on the above mentioned the evaluation of the competitiveness of geotourist destinations is related to the geotourist specifics of the destination, i.e. the nature and conditions of the evaluation which is determined by clearly defined comparative indicators of development trends in geotourism (e. g. Kubalíková, 2013; Štrba & Rybár, 2015). In order to create a model for the evaluation of competitiveness of geotourist destinations based on mutual interactions of evaluated indicators two areas of interest of geotourism were selected: Central Spiš and the Mala Fatra mountain range.

The choice of these geotourist destinations was based on the criteria as follows:

- similarity of natural conditions for geotourism,
- geologically significant sites,
- analogous function of the area for geotourism within the evaluation of the competitiveness of tourist destinations,
- similar geotourist offer.

General characteristics of selected geotourist destinations

Geological conditions, tectonics of the area in combination with the specific climatic conditions determined the morphology of the area of destinations that created the conditions for the emergence of both the geotourist destinations.

Malá Fatra with protected area of 4,622 ha is the core mountain range of Fatra-Tatra area which is a part of the Inner Western Carpathians (Gross et al., 1999). This geotourist destination is rich in geological profiles, reveals, significant deposits of natural materials, individual and group geomorphological forms: cliffs, towers, gorges, waterfalls, karst formations, thermal, and mineral springs. Important geological sites, also supporting the competitiveness of geotourist destinations include:

- caves - Crystal Cave,
- hydrogeological site - Domašín meander, Šútov epigenesis known also as Boroviny, Šútov waterfall, Diery,
- stratigraphic locations - Strečno and Old Castle (Starhrad)
- tectonic locations - Mních, Margita a Besná, furious rock town in the hillside of Veľký Rozsutec.
- paleontological sites - archaeological site of settlement from the Roman period at the elevation of Boroviny.

In the mountain range there are plenty of other geoobjects. From the geological profiles Divoký potok, which is an easily accessible hiking trail in the area of Podžiar - Biely Potok can be mentioned. It presents mutual stratigraphic and tectonic position of krížňanský, choč Nappe and Paleogene. From solitary morphological objects Mních in the state nature reserve Tiesňavy is unquestionably the most important not only for its aesthetics but also for the rarity of the combination of rock tower and rock window in one object (Pagáč, 1983).

Central Spiš with protected area of 30,740 ha is from the geological point of view part of the Inner Western Carpathians with the geological structure mainly consisting of Paleogene rocks of the Tatras group (Gross et al., 1999). Central Spiš is among the most attractive tourist places not only in Slovakia but also in Central and Eastern Europe. It is characterized by unique historical and cultural monuments, natural coves of European and global significance, unique nature as well as a number of preserved folk traditions. The important geological sites, also supporting the competitiveness of geotourist destinations include:

- caves - Belianska Cave,

- hydrogeological site – Sivá brada,
- stratigraphic locations - Spiš Castle Hill,
- paleontological sites - Gánov travertine
- tectonic locations - Dreveník.

Assessment of the competitiveness of Geotourist destinations based on the development trends of tourism indicators

Competitiveness of geotourist destinations is determined by the synergy effect from combining the primary, secondary, and tertiary offer making them certain competitive advantage in the market at the same time. Both geotourist destinations have several significant sites that can be considered a primary area of offers in geotourism. These are supplemented by other objects of secondary and tertiary area of offer, e.g. accommodation and catering facilities, infrastructure etc. which significantly affect their attendance and further development in geotourism. For these reasons the trends of traditional indicators of geotourism in the territory of Central Spiš and Malá Fatra were analysed with an addition of the intensity tourism and tourist density ratios.

Both the geotourist destinations showed fluctuating development trend in the number of accommodation facilities during the analysed period of 2009 - 2013 (Fig. 1). Central Spiš with an area of approximately 2,156 km² possessed the highest number of properties in 2012 and the lowest in 2011 (a difference of 137 accommodation facilities) with an average of about 407 accommodation facilities per year over the monitored period. Malá Fatra with an area of approximately 549 km² had the lowest number of accommodation sites also in 2011 but the highest number in 2009 (a difference of 17 accommodation facilities) with an average of about 136 accommodation facilities per year. The geotourist destinations showed opposite tendency in development when comparing 2009 and 2013 as in the area of Central Spiš the number of accommodation facilities increased by 342 while in the Malá Fatra area it decreased by 13 accommodation facilities. The average annual difference between geotourist destinations was about 271 properties in favour of Central Spiš, which is related to the above mentioned area of the destinations in the analysed period.

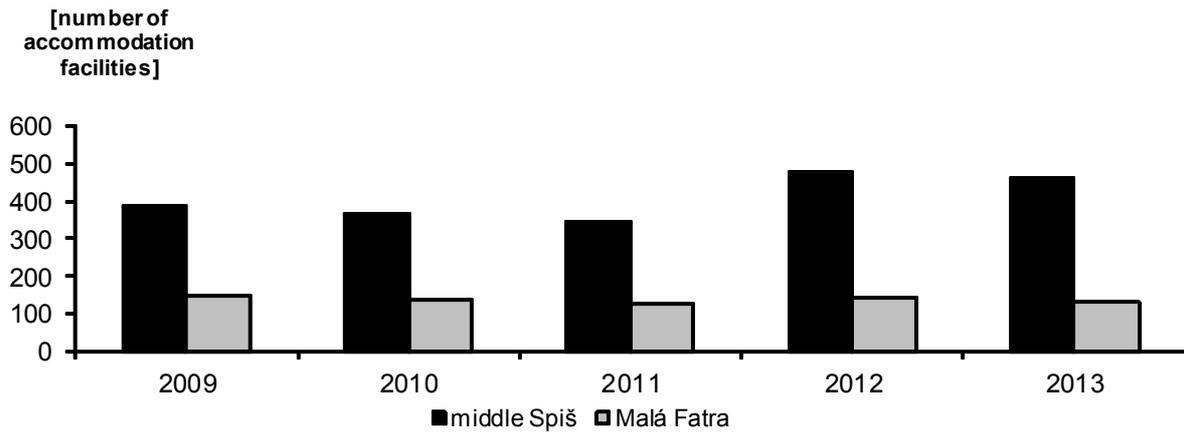


Fig. 1 Development of the number of accommodation facilities in the geotourist destinations

Source: ŠÚ SR, 2015

The number of beds, related to the development of the number of properties in both geotourist destinations, also showed a fluctuating tendency in development. Central Spiš had the highest number of beds in 2013 and the lowest in 2011 – a difference of 4,294 beds. Malá Fatra had the highest number of beds in 2012 and the lowest in 2013 (Fig. 2) – a difference of 370 beds. The average number of beds also shows significant disparity during the analysed period since Central Spiš possessed an average of 18,495 beds per year and Malá Fatra only 5,171 beds per year, representing a difference of 13,324 beds per year. This fact corresponds to the different stretches of the team with the development of the number of properties in the monitored geotourist destinations.

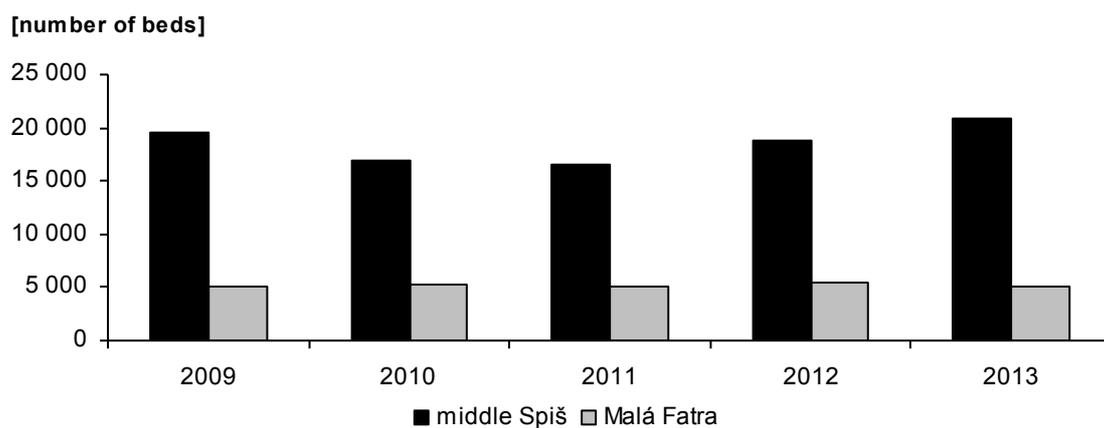


Fig. 2 Development of the number of beds in the geotourist destinations

Source: ŠÚ SR, 2015

Development of the number of visitors' overnight stays in geotourist destinations showed a number of differences. In 2009 Central Spiš showed the lowest number of overnight stays while Malá Fatra the highest (Fig. 3). When comparing the years 2013 and 2009 Central Spiš shows significant increase in the number of overnight stays (more than 1.37 million) while Malá Fatra shows a decline of more than 14.7 thousand.

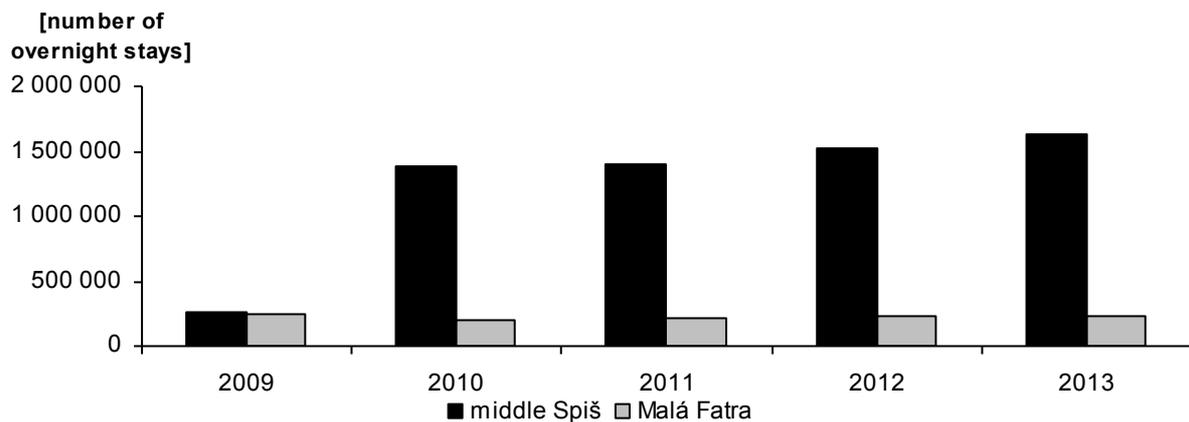


Fig. 3 Development of the number overnight stays in the geotourist destinations

Source: ŠÚ SR, 2015

Trends in the number of visitors in both the geotourist destinations had an upward trend of development with a growth of more than 111.7 thousand and 284 visitors in 2013 compared to 2009 in Central Spiš and Malá Fatra, respectively (Fig. 4).

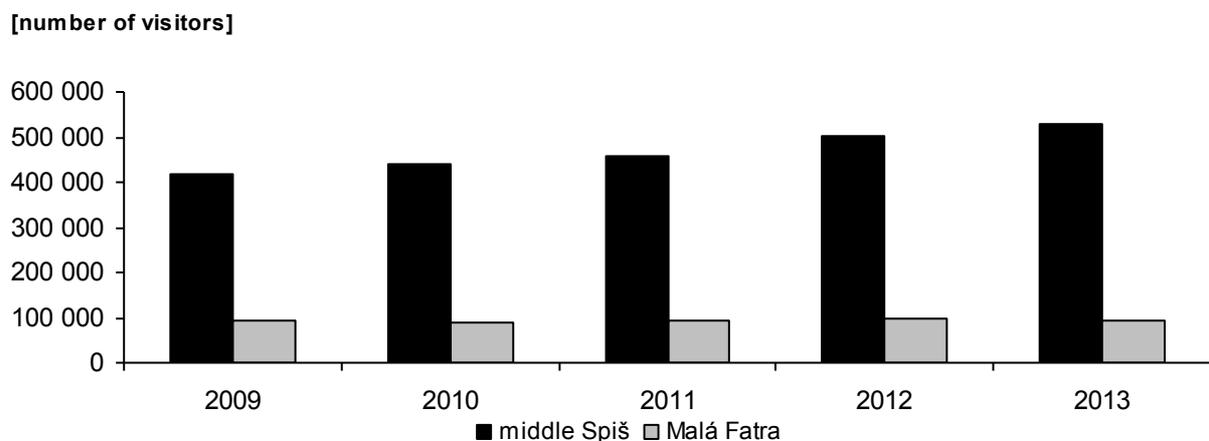


Fig. 4 Development of the number of visitors in the geotourist destinations

Source: ŠÚ SR, 2015

The development of the tourist intensity was higher in Central Spiš during the monitored period (Fig. 5). This is due to the fact that this evaluative indicator shows the number of beds per 1 inhabitant in the geotourist destinations. Despite significant differences in the area and population of both the destinations, the difference in the average value of the tourist intensity between Central Spiš and Malá Fatra was only 0.05.

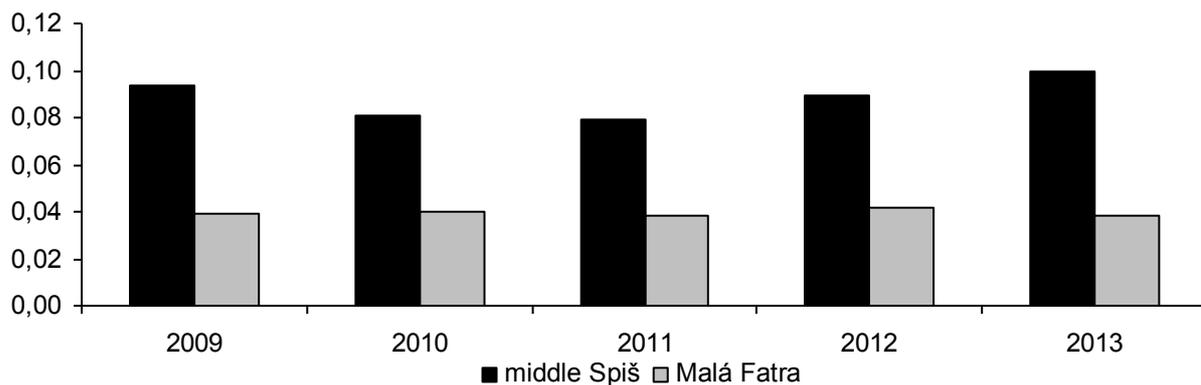


Fig. 5 Development of tourist intensity in the geotourist destinations

The development of the tourist density did not correspond with the development of the above mentioned indicators. This is determined by the fact that density is a number indicates the number of tourist beds per km² of geotourist destination. In the monitored period the tourist density showed higher values in Malá Fatra until 2012 with the greatest difference in comparison with the Central Spiš in the year 2010 – 1.73 (Fig. 6). This development corresponds to the number of beds in analyzed destinations.

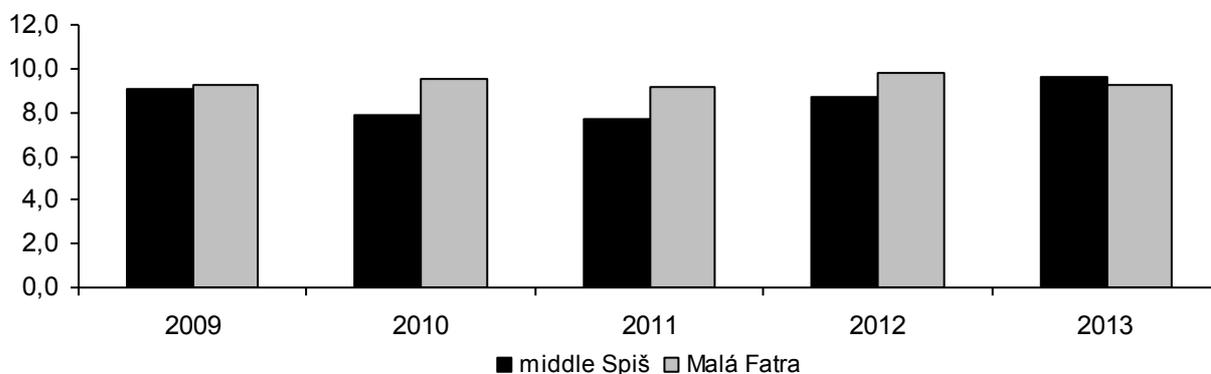


Fig. 6 Development of tourist density in the geotourist destinations

Model solution of geotourist destinations competitiveness evaluation

Evaluation of the competitiveness of geotourist destinations, as a result of the synergy effect of internal interactions of complex offer, is based on clearly defined comparative indicators of development of tourism. Therefore, the evaluation process is based on the prioritization of these comparative indicators. It also points to the importance in the actual assessment of the specific numerical value α_i with acceptance of the conditions $\sum \alpha_i = 1$.

Tab. 1 Prioritization of comparative indicators

Comparative indicators	accommodation facilities	beds	overnight stays	visitors	tourist intensity	tourist density	protected areas	area of geotourist destination	sum	α_i
accommodation facilities	X	0,5	0,0	0,0	0,5	0,0	1,0	0,5	2,5	0,09
beds	0,5	X	0,5	0,0	0,5	0,5	0,5	0,5	3,0	0,11
overnight stays	1,0	0,5	X	1,0	0,5	1,0	1,0	1,0	6,0	0,21
visitors	1,0	1,0	0,0	X	0,5	0,5	0,5	1,0	4,5	0,16
tourist intensity	0,5	0,5	0,5	0,5	X	0,0	0,5	1,0	3,5	0,13
tourist density	1,0	0,5	0,0	0,5	1,0	X	1,0	0,5	4,5	0,16
protected areas	0,0	0,5	0,0	0,5	0,5	0,0	X	1,0	2,5	0,09
area of the geotourist destination	0,5	0,5	0,0	0,0	0,0	0,5	0,0	X	1,5	0,05
sum (M, α_i)									28,0	1,00

In identifying prioritization the below mentioned methodological approach in which variables were compared with each other by attributing values 0, 1, and 0.5 shall apply:

- construction of a square matrix $m \times n$, $m = n =$ number of comparative indicators
- the diagonal of matrix created does not contain numerical values
- we attributed the value 1 in the case the variable under consideration is more important than the one with which we compared it,
- we attributed the value 0 in the case the variable under consideration is less important than the one with which we compared it,
- we attributed the value 0.5 in the case both the variables under consideration are of the same importance,

- creation of partial sums $\sum m_i, i = 1-8,$
- summarization $\sum m_i = M,$
- quantification $\alpha_i = M/\sum m_i.$

Points from the cardinal extent $KM \in \langle 1.7 \rangle$ have been attributed to the indicators for the needs of assessment of the competitiveness of both the geotourist destinations as follows:

- 1 - the indicator does not exceed 10% of the average annual value over the analysed period,
- 2 - the indicator does not exceed 20% of the average annual value over the analysed period,
- 3 - the indicator does not exceed 35% of the average annual value over the analysed period,
- 4 - the indicator does not exceed 45% of the average annual value over the analysed period,
- 5 - the indicator does not exceed 55% of the average annual value over the analysed period,
- 6 - the indicator does not exceed 65% of the average annual value over the analysed period,
- 7 - the indicator exceeds 65% of the average annual value over the analysed period.

Assessment of the competitiveness of both the geotourist destinations was based on an index of competitiveness - IK, $IK = \sum \alpha_i \cdot KM.$ Based on the quantification IK it is possible to say that higher competitiveness has Malá Fatra with $IK = 5.893$ (Tab. 2).

Tab. 2 Determination of the value of the competitiveness index

Indicator	α_i	Central Spiš		Malá Fatra	
		KM	$\alpha_i \cdot KM$	KM	$\alpha_i \cdot KM$
accommodation facilities	0,09	4	0,357	6	0,536
beds	0,11	6	0,643	4	0,429
overnight stays	0,21	7	1,500	6	1,286
visitors	0,16	4	0,643	7	1,125
tourist intensity	0,13	6	0,750	7	0,875
tourist density	0,16	6	0,964	4	0,643
protected areas	0,09	7	0,625	7	0,625
area of geotourist destination	0,05	7	0,375	7	0,375
IK			5,857		5,893

The above assessment of competitiveness is one of the subjective methods directly determined by internal interactions of comparative indicators and by imputing their importance as evidenced by the graphical representation of competitiveness index ranked for both the destinations (Fig. 7). The quantification of the IK is based on a modified process methodology which is based on the attribution of a value from the interval $\langle 0, 7 \rangle$ to the comparative indicator in the following way:

- construction of a square matrix $m \times n$, $m = n =$ number of comparative indicators
- the diagonal of matrix created does not contain numerical values
- the value 7 was attributed to only one of all the comparative indicators while lower values were attributed to other indicators,
- creation of partial sums $\sum m_i$, $i = 1-8$,
- summarization $\sum m_i = M$,
- quantification $\alpha_i = M / \sum m_i$. with the acceptance of conditions that the values α_i are not identical,
- allocation of points from $KM \in \langle 1,7 \rangle$ to comparative indicators under the original method (Tab. 2).
- quantification of IK, $IK = \sum \alpha_i \cdot KM$.

The following partial conclusions can be suggested based on the aforementioned assessment methodology of competitiveness which basis is formed by variation of internal interactions in the form of quantification α_i , i.e. the importance of individual indicators (Fig. 7, Fig. 8):

- Central Spiš reached the highest competitiveness at the first variation with $IK = 6.174$, with the highest importance indicator of geotourist destination area and the lowest importance indicator of accommodation facilities; nevertheless, Malá Fatra at the second variation with $IK = 6.124$, with the highest importance indicator of protected areas and the lowest accommodation facilities,
- Central Spiš reached the lowest competitiveness at the last variation with $IK = 5.629$, with the highest importance indicator of accommodation facilities and the lowest of geotourist destination area; nevertheless Malá Fatra at the last but one variation with $IK = 5.640$ with the highest importance indicator of number of beds and the lowest of geotourist destinations area,
- in general it can be stated that Central Spiš in comparison with Malá Fatra showed higher competitiveness at variations of evaluations IK_2 , IK_3 , IK_6 , and IK_8 , with the highest priority in the indicators: beds (IK_2), overnight stays (IK_3), tourist density (IK_6) and area of destination geotourist (IK_8),
- Malá Fatra in comparison with Central Spiš showed higher competitiveness in variations of evaluations IK_1 , IK_4 , IK_5 , and IK_7 , with the highest priority: accommodation facilities (IK_1), visitors (IK_4), tourist intensity (IK_5), and protected territories (IK_7).

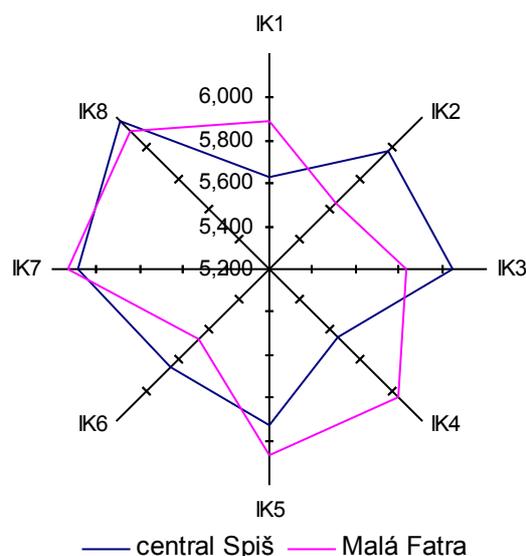


Fig. 7 Competitiveness indexes of geotourist destinations

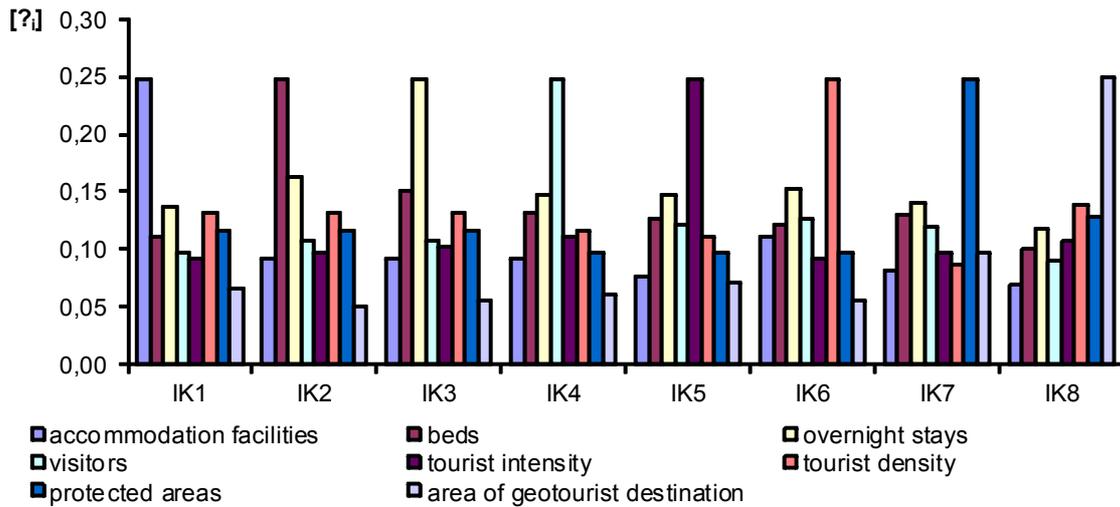


Fig. 8 Quantification of the importance of comparative indicators in the variations of competitiveness evaluation

From the results of the quantitative analyses of development trends of explicitly defined comparative indicators of both the geotourist destinations it is possible to state that:

- competitiveness is determined by the synergy of interrelations of primary, secondary and tertiary offer of geotourist destinations,
- competitiveness of geotourist destinations depends on the geotourist offers specifics,
- evaluation of the competitiveness based on clearly quantifiable comparative indicators of tourism is primarily influenced by their prioritization,
- evaluation of competitiveness is a very delicate process to quantify the importance of indicators by α_i ,
- the results of the competitiveness of Central Spiš and Malá Fatra were affected by the development trends of analysed comparative indicators and subjective approach to the assessment process which can be objectified by participation of several experts.

Conclusion

Evaluation of the competitiveness of geotourist destinations, based on explicitly pre-defined quantifiers in terms of indicators of tourism development trends, is a rather complex issue. The overall assessment process, which was not based on economic indicators, was implemented in two interactive levels: quantification of prioritization of comparative indicators by α_i ($\sum \alpha_i=1$), which reflects mutual interaction and importance in the assessment, and evaluation of indicators from a predefined interval of evaluation. Through the model variations of evaluation the competitiveness of geotourist destinations – Central Spiš and

Malá Fatra the fact that the process is directly determined by the selection of comparative indicators of tourism in the interaction to their complex geotourist offer is confirmed, as evidenced by the performance of the indexes of competitiveness. This fact pointed out that, in cases where the highest priority was attributed to e.g. beds, overnight stays, tourist density, and area of geotourist destination, Central Spiš showed a higher competitiveness where these figures were significantly higher compared to Malá Fatra during the reported period.

Model approach to the process of evaluation the competitiveness of geotourist destinations based on clearly defined indicators reflecting particular offer can be objectified by participation of several experts. The very model of competitiveness assessment, including prioritization of the implemented methodology of comparative indicators, can be supplemented by other indicators in order to achieve also its complexity.

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