

Article

A demographic study of natural heritage visitation intentions in tourism in Győr-Moson-Sopron County, in Hungary

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Abstract: At the beginning of the 21st century, sustainability is today's most important issue, but it is achieved only in those areas where there is environmental awareness. Natural heritage is a part of heritage tourism in terms of the grouping of attraction types. The conceptualization of heritage and cultural heritage itself is not uniform in the national and domestic literature, with some considering heritage tourism to be synonymous with cultural tourism and others interpreting it as a connotation. This study aims to present the natural heritage of Győr-Moson-Sopron County (Hungary). Quantitative research was used to analyze the topic ($N = 666$), the sample is not representative and the selection of respondents was random. Data were collected between 1 September 2023 and 31 October 2023 using electronic questionnaires shared on Google Drive. Data were processed using SPSS 25.0 and MS Office Excel in addition to the descriptive statistical data (modus, median, standard deviation), correlation, and cross-tabulation analyses. In the framework of quantitative research, respondents' travel willingness to visit tourist attractions, their specific expenditures, and their intention to participate in various events were conducted. The following questions are addressed in the study, whether all three national parks (Fertő-Hanság, Pannontáj-Sokoró and Szigetköz) are equally popular among tourists, whether the educational level of tourists influences the visitation of Lake Fertő, whether the respondents' place of residence and the Danube floodplain influence the visitation of the lake and whether the age of the respondents influences the visitation of the 700-year-old oak in Hédervár. The significant finding of the study is that the mean of non-young people's visitation is higher than that of young people in all three national parks.

Keywords: heritage; Hungarian; sustainability

1. Introduction

Heritage refers to values from the past, from times gone by, that one generation considers worth preserving and passing on to the next. Heritage is part of the cultural traditions of a society and part of the identity of a community. The literature divides heritage into two groups, one cultural and one natural. Cultural heritage can be further grouped into tangible and intangible elements. For example, tangible heritage may be an artifact or built heritage, while intangible heritage may include performing arts, music, customs and traditions

According to UNESCO, 46.85% (573) of the world's cultural and natural heritage sites (1,223) are located in Europe and North America. In Asia and the Pacific 24.2% (296), in Latin America and the Caribbean 12.26% (150), in Africa 8.59% (108), and in the Arab States 7.85% (96). 39 sites are a mixture of these two, for a total of 1,223. It is important to note that the geographical delimitation has been done by UNESCO, defining the regions according to the activities of tourists (UNESCO, 2024). Hungary is geographically very rich, designated a biosphere reserve in 1979, a national park in 1985, and part of the World Heritage in 1995, which is nearly 20000 ha. protected area

consists of four parts. The most well-known part is the vast cave system that extends to Slovakia (Garami, 2000). The largest saltwater lake in Europe, located in Győr-Moson-Sopron County, most of the lake belongs to Austria and has been a World Heritage Site since 2001.

The Fertő-Hanság National Park was established in 1991 to preserve and present the natural values of Vas and Győr-Moson-Sopron County for posterity, from the guardhouse through the waters of the Fertő and Szigetköz to Gönyű (Bodnár, 2006).

The Szigetköz Landscape Protection Area was established in 1987 on an area of 9158 hectares, which includes the floodplain of the Great Danube, the Moson Danube, and some protected forest, marsh, and swamp areas. In 1996 it became Szigetköz Nature Park, which aims to bring together people who are fully committed to the Szigetköz and who are willing and able to take action in the fields of regional and rural development, environmental protection, and tourism (<https://szigetkoz-naturpark.hu/>). The Pannontáj-Sokoró Nature Park has been called Pannontáj-Sokoró since 1 April 2006, covers an area of 62, 670 hectares and includes 29 municipalities. In addition to nature conservation objectives, there are also rural development, tourism, and economic objectives (<https://naturparkok.hu/pannontaj-sokoro-naturpark/>) similar to the Szigetköz Nature Park. The natural heritage of the county of Győr-Moson-Sopron has not been included in the research areas so far, Telbisz, et al. 2020 investigated the motivations of tourists of the Aggtelek Caves, while Szepesi, et al., 2020 researching the potential of geotourism in North-East Hungary. After presenting the theoretical background, the natural treasures of Győr-Moson-Sopron County will be analyzed in the primary research. After the descriptive statistics are presented, the hypotheses are tested and the results are presented. Conclusions are drawn from the results of the study, followed by recommendations, and finally, possible future directions of the research are presented.

2. Literature review

Heritage means things on the one hand such as works of art, cultural achievements, and folklore that have been passed on from earlier generations: our literary heritage, these ancient buildings are part of the national heritage, and on the other hand, property that has been or may be inherited by an heir (Oxford Advanced Learner's Dictionary, 1989). According to Unesco „Natural Heritage: (a) natural features consisting of physical and biological formations or groups of such formations, which are of outstanding value from the aesthetic or scientific point of view; (b) geological and physiographical formations and precisely delineated areas, which constitute the habitat of threatened species of animals and plants of outstanding value from the point of view of science or conservation; (c) natural sites or precisely delineated natural areas of outstanding value from the point of view of science, conservation or natural beauty”.

The concept of natural heritage is defined in several ways in the literature, for example, the Australian Natural Heritage Charter defines natural heritage as:”

- Natural features consisting of physical and biological formations or groups of such formations, which demonstrate natural significance,

- geological and physiographical formations and precisely delineated areas that constitute the habitat of indigenous species of animals and plants, which demonstrate natural significance, and/or
- natural sites or precisely delineated natural areas which demonstrate natural significance from the point of view of science, conservation or natural beauty” (Australian Heritage Commission, 2002, p. 8).

Sustainability is the most important issue today, but it is possible only in those areas where there is environmental awareness. The Woodland Trust defines natural heritage as: ... this is all the natural resources and biodiversity that make up landscapes. It includes the underlying geology, soils and landforms, as well as all the flora and fauna, and the ecosystems they create. Natural heritage is part of heritage tourism in terms of the classification of types of attractions. The notion of heritage and cultural heritage itself is not uniform in national and domestic literature, with some considering heritage tourism as synonymous with cultural tourism, and others as a connotation. Maldonado et al. (2021) summarise that the two categories of the ‘World Heritage Convention’ are ‘cultural heritage’ and ‘natural heritage’. The Fertő-Hanság National Park, which was studied in this research, is also part of the World Heritage Site as the Fertő Lake Cultural Landscape. The Szigetköz is also a small area in Győr-Moson-Sopron County, but it is also a landscape conservation area, nature park, and wetland. In the Pannonhalmi Landscape Protection Area, also in the county, is the Pannontaj Sokoró Nature Park, a hilly area that is part of the Transdanubian Central Mountains. El Menchawy et al. (2011), Lowenthal (2005), Maldonado et al. (2021); and Zhang et al., (2018) have pointed out that natural heritage can be divided into three categories. These include biological and physical formations, physiological and geological formations, natural areas, or natural landscapes that are vegetated areas. This study focuses on category 3 of the listed, natural areas. Jovicic (2014) has pointed out that sustainable tourism requires the protection of natural heritage sites, including national parks, while also addressing the problem of accommodation and services for tourists. Developing tourism responsibly also means emphasizing the role of natural heritage in protecting cultural heritage and vice versa (Al shawebkeh-et al., 2023). Faganel and Trnavčević, (2012) argue that tourists want to access a particular natural heritage site, and therefore their visit helps them to develop a responsible attachment.

Studies on ecologically sensitive areas have recently become more and more important from a scientific point of view (Wu, 2018; Yang et al., 2018; Yu et al., 2015). Therefore, in this research, was focused on the analysis of the tourism demand component of the county’s protected natural areas. According to Ali et al. (2021); and Musavengane and Kloppers (2020), natural resource management involves the protection of the natural environment, while tourism development involves the conservation of the natural environment by capturing tourists through the creation of infrastructure and services. In particular, it is important to know the demand needs in order to reach service users. Alongside arid and semi-arid areas, floodplain wetlands play an important ecological role and are among the most fragile ecosystems (Yu et al., 2015). At the same time, it is recognised that outdoor recreation in natural environments is essential for physical and mental health and contributes significantly to human well-being (de Vries et al., 2013, Triguero-Mas et al., 2015). A sustainable demand meets a supply area in an unstable state. Green spaces located near high

population density urban agglomerations are important sites for outdoor recreation activities for many residents (Kabisch, 2015, Langemeyer et al., 2015). The existence and quality of infrastructure and the proximity to residential areas are the determining factors for the use of recreational sites (Ala-Hulkko et al., 2016, Kienast et al., 2012, Paracchini et al., 2014, Peña et al., 2018, Weyland and Larterra, 2014). This study investigated whether there is a correlation between the type of settlement where tourist movement originates and the visit to ecological areas. Physical characteristics such as land cover, topography, water bodies, proximity to urban areas and accessibility are among the important indicators in demand studies of nature-based recreation (Inácio et al., 2022; Nahuelhual et al., 2017; Paracchini et al., 2014; Scholte et al., 2018; Schirpke et al., 2018). Among these factors, the study has paid particular attention to the role of urban, rural and metropolitan areas in the set of outdoor spaces. Darabos et al., 2024 used factor analysis to examine demographic characteristics in terms of tourists' knowledge of gastronomic, natural, cultural, and built heritage, while Veisten et al., 2015 used cluster analysis to examine how significantly each segment differed in terms of demographic characteristics or psychographic characteristics.

3. Methodology

The objective of our study is to explore how personal preferences and attitudes influence the frequency of individuals' visits to gastronomic events. The foundational data collection for this research took place in Győr-Moson-Sopron County, from 1 September to 31 October 2023. The collected sample ($N = 666$) is not representative, as the respondents were selected randomly. The data were processed by IBM SPSS 25.0 statistical program package, in which showed descriptive statistical analysis, (count/percent), and the analysis of variance was done. As illustrated in the flow chart shown below in **Figure 1**.

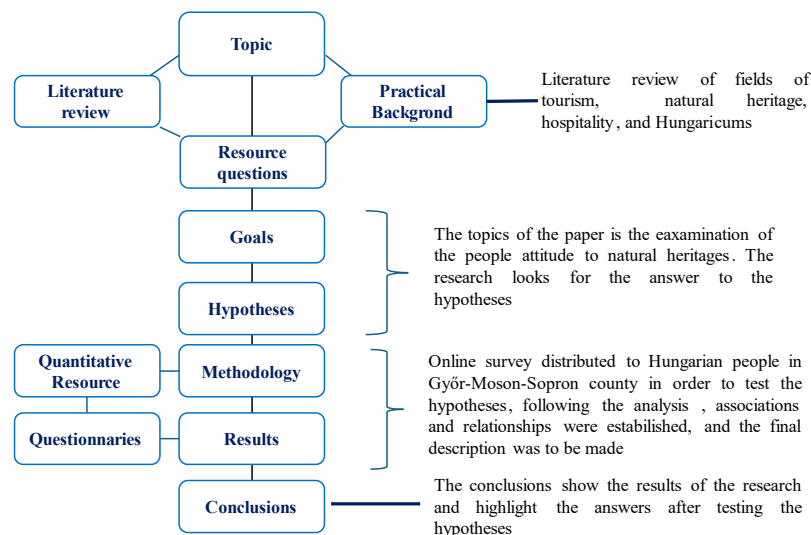


Figure 1. Research model.

Source: authors' own editing 2024.

The research methodology relied on empirical data collection and computerized statistical analysis techniques. As part of the secondary research, we focused on

preserving the region's gastronomic values and their exploitation as tourist attractions. Accordingly, the primary data collection emphasized the examination of the depth of knowledge related to local gastronomic traditions and specialties. The most important goal of this study was to reveal people's tourist attitudes during their travels. In the framework of quantitative research, respondents' travel willingness to visit tourist attractions, their specific expenditures, and their intention to participate in various events were conducted. The respondents were selected using an arbitrary method. The formal questionnaire was divided into three parts. The spending of responders was measured in Ft (Hungarian currency) on a nine-point Likert scale, (from HUF 2.000 to over HUF 10.000), and the willingness their travel was measured on a four-point Likert scale. Architectural, natural, and cultural heritage, as well as participation in gastronomic events, were measured on a 4-point Likert scale. A score of one meant strongly disagree, and a score of four meant strongly agree. Issues such as decision-making, distances, and information about events, were divided into the first block (seven questions), participation in gastronomic events in Győr-Moson-Sopron County (five questions), participation in cultural attractions (eleven questions), attend on natural heritage (five questions), to see architectural heritages (thirteen questions), and leisure activities (nine questions), a total of nineteen questions were set. In addition to demographic data (age, gender, education level, residence, income), the questions of the questionnaire can be classified into three groups. In the first block, are examined respondents' gastronomic knowledge of the landscapes of the Győr-Moson-Sopron County, decision-making, obtaining information, and distances of travel. In the second block are analyzed tourist visit habits and participation in gastronomic programs in tourism. The last third part examined the prioritization of built, cultural, natural heritage, and leisure activities.

The purpose of this study is to explore and analyze people's attitudes towards the natural attractions of Győr-Moson-Sopron County and examine how attractive these attractions may be to them. The research aims to address the following hypotheses:

H1: Attendance at the Szigetköz Nature Park does not show any differences between gender

H2: There is no detectable difference between respondents' educational attainment and visitation to Lake Fertő

H3: No significant difference between the respondents' place of residence and the frequency of visits to the Danube floodplain

H4: There is no significant difference between the age of the respondents and the frequency of visits to the 700-year-old oak tree (Hédervár).

4. Results

The female population was represented by 65.9%, while the male population was represented by 34.1% of the total sample. Concerning age, the respondents were divided into three groups. Respondents belong to young Generation (16 to 39 years) represented 73.7% of the sample, middle-aged (40 to 59 years) 23.0%, elderly over 60 years 3.3%. The highest number of respondents were in high school (60.7%), followed by Master and Bachelor's degrees (21.6% included doctoral degrees) and elementary (3.3%). About the level of residence, the largest number of respondents live in urban

(63.0%), followed by the group who live in sub-urban (33.2%), followed by respondents living in the Hungarian capital, in Budapest (3.6%). Demographic data of the people included in the study are presented in **Table 1**.

Table 1. Demographic information.

Variable	Person	Distribution
Gender		
Male	227	34.1
Female	439	65.9
Age groups		
Youngsters (between 16-39 years)	491	73.7
Middle-aged (between 40-59 years)	153	23.0
Elderly (over 60 years)	22	3.3
Education level		
Higher education	143	21.6
Secondary	410	60.7
Primary	113	17.0
Residence		
Capital	24	3.6
Urban	420	63.0
Sub-urban	222	33.3

Source: Compiled from Survey Data 2024.

Table 2 shows that the most frequent response for all six dependent variables was 3 (I would visit once), with the highest mean being Lake Fertő and the lowest being the 700-year-old oak tree in Hédervár, which means that people would rather visit Lake Fertő than the oak tree.

Table 2. Descriptives statistic.

	I visited 700-year-old oak tree in Hédervár	I visited the Mosoni Danube floodplain	I visited Pannontáj-Sokoró Nature Park	I visited Szigetköz Nature Park	I visited Fertő-Hanság Nature Park	To see Lake Fertő
N						
Valid	666	666	666	666	666	666
Missing	0	0	0	0	0	0
Mean	2.44	2.66	2.38	2.76	2.98	3.11
Median	3.00	3.00	2.00	3.00	3.00	3.00
Mode	3	3	2	3	3	3
Std. Deviation	0.891	0.864	0.822	0.813	0.775	0.785
Variance	0.794	0.747	0.676	0.660	0.601	0.616

Source: Compiled from Survey Data 2024.

The survey findings reveal that Lake Fertő is deemed the most significant natural heritage site in the county, with 41.8% of respondents expressing this view. Conversely, the 700-year-old oak tree in Hédervár is considered the least important, with only 5.0% of respondents rating it as such. The floodplain of the Danube emerges

as the second most important natural heritage site, with 25.9% of respondents holding this opinion. Additionally, the 700-year-old oak tree is regarded as less important, with 7.5% of respondents indicating this. Lastly, 32.2% of respondents perceive the Fertő-Hanság National Park as the third most important natural asset, while 5.1% consider the tree in Hédervár as the least important.

H1: Attendance at the Szigetköz Nature Park does not show any differences between gender.

The hypothesis was analysed using Cross-tab. The propensity to visit the Szigetköz Nature Park according to gender is shown in **Table 3**. The probability associated with the Chi-square ($p = 0.000$) is less than the 5% allowed, i.e., there is a 95% confidence (see **Table 4**) that there is a detectable difference between gender and the visitation of the Szigetköz Nature Park, as illustrated in Table 5 below. The mean for women (2.86) is higher than that for men (2.55), which means that women are more likely to visit this natural heritage site than men.

Table 3. Crosstabulation.

		Gender		Total	
		Female	Male		
I visited Szigetköz Nature Park	I would not visit it	Count	31	27	58
		% within I visited Szigetköz Nature Park	53.4%	46.6%	100.0%
	I might visit it	Count	75	72	147
		% within I visited Szigetköz Nature Park	51.0%	49.0%	100.0%
	Ones I would it visit	Count	256	105	361
		% within I visited Szigetköz Nature Park	70.9%	29.1%	100.0%
	If I can I visit it all the time	Count	77	23	100
		% within I visited Szigetköz Nature Park	77.0%	23.0%	100.0%
	Total	Count	439	227	666
		% within I visited Szigetköz Nature Park	65.9%	34.1%	100.0%

Source: Compiled from Survey Data 2024.

Table 4. Chi-Square Tests.

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	28.013 ^a	3	0.000
Likelihood Ratio	27.584	3	0.000
Linear-by-Linear Association	22.781	1	0.000
N of Valid Cases	666		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 19.77.

Source: Compiled from Survey Data 2024.

Table 5. Descriptives of ANOVA.

I visited Szigetköz Nature Park									
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	Between-Component Variance
					Lower Bound	Upper Bound			
Female	439	2.86	0.782	.037	20.79	2.94	1	4	
Male	227	2.55	0.832	.055	20.44	2.66	1	4	
Total	666	2.76	0.813	.031	20.69	2.82	1	4	
Model	Fixed Effects		0.799	0.031	2.69	2.82			
	Random Effects			0.166	0.65	4.86			0.048

Source: Compiled from Survey Data 2024.

H2: There is no detectable difference between respondents’ educational attainment and visitation to Lake Fertő.

This hypothesis was also analyzed using analysis of variance. The significance level of the ANOVA is 0.000, (Table 6) which means that the hypothesis has been rejected, people with different levels of education visit this natural heritage in different ways, most of all those with higher education (mean 3.29), followed by those with secondary education (mean 3.07), and then those with a bachelor’s degree, with a mean of 1.00 see Table 7.

Table 6. ANOVA.

To see Lake Fertő						
	Sum of Squares	df	Mean Square	F	Sig.	
Between Groups	19.448	2	9.724	16.536	0.000	
Within Groups	389.880	663	0.588			
Total	409.327	665				

Source: Compiled from Survey Data 2024.

Table 7. Descriptives.

To see Lake Fertő									
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	Between-Component Variance
					Lower Bound	Upper Bound			
Higher	156	3.29	0.764	0.061	3.17	3.42	1	4	
Secondary	507	3.07	0.769	0.034	3.00	3.14	1	4	
Elementary	3	1.00	0.000	0.000	1.00	1.00	1	1	
Total	666	3.11	0.785	0.030	3.05	3.17	1	4	
Model	Fixed Effects		0.767	0.030	3.06	3.17			
	Random Effects			0.220	2.17	4.06			.075

Source: Compiled from Survey Data 2024.

H3: No significant difference between the respondents’ place of residence and the frequency of visits to the Danube floodplain.

This hypothesis was also analyzed using analysis of variance. The significance level of the ANOVA is 0.028 (**Table 8**), which means that the hypothesis has been tested, people from different places of residence visit the floodplain of the Danube River Moson in different ways, most of all urban inhabitants (mean 2.78), least of all metropolitan inhabitant (mean 2.50), as is shown **Table 9**.

Table 8. ANOVA.

I visited the Mosoni Danube floodplain					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6.776	3	2.259	3.052	.028
Within Groups	489.885	662	.740		
Total	496.661	665			

Source: Compiled from Survey Data 2024.

Table 9. Descriptives.

I visited the Mosoni Danube floodplain									
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	Between-Component Variance
					Lower Bound	Upper Bound			
Capital	24	2.50	0.933	0.190	2.11	2.89	1	4	
Urban	176	2.66	0.806	0.061	2.54	2.78	1	4	
Urban II.	244	2.78	0.864	0.055	2.67	2.89	1	4	
Sub-urban	222	2.55	0.889	0.060	2.44	2.67	1	4	
Total	666	2.66	0.864	0.033	2.60	2.73	1	4	
Model	Fixed Effects		0.860	0.033	2.60	2.73			
	Random Effects			0.065	2.46	2.87			.010

Source: Compiled from Survey Data 2024.

H4: There is no significant difference between the age of the respondents and the frequency of visits to the 700-year-old oak tree (Hédervár).

This hypothesis was also analyzed using analysis of variance. The significance level of the ANOVA is 0.000 (**Table 10**), which means that the hypothesis has been tested, with the mean of people under 40 years of age being lower (2.32) than that of people over 40 years of age (2.77), as shown in **Table 11**.

Table 10. ANOVA.

I visited 700 years old oak tree in Hédervár					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	25.378	1	25.378	33.616	0.000
Within Groups	497.511	659	0.755		
Total	522.890	660			

Source: Compiled from Survey Data 2024.

Table 11. Descriptives.

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	Between-Component Variance	
					Lower Bound	Upper Bound				
					Under 40 years	490				2.32
Over 40 years	171	2.77	0.819	0.063	2.65	2.90	1	4		
Total	661	2.44	0.890	0.035	2.37	2.51	1	4		
Model	Fixed Effects		0.869	0.034	2.37	2.51				
	Random Effects			0.247	-0.70	5.58				.097

Source: Compiled from Survey Data 2024.

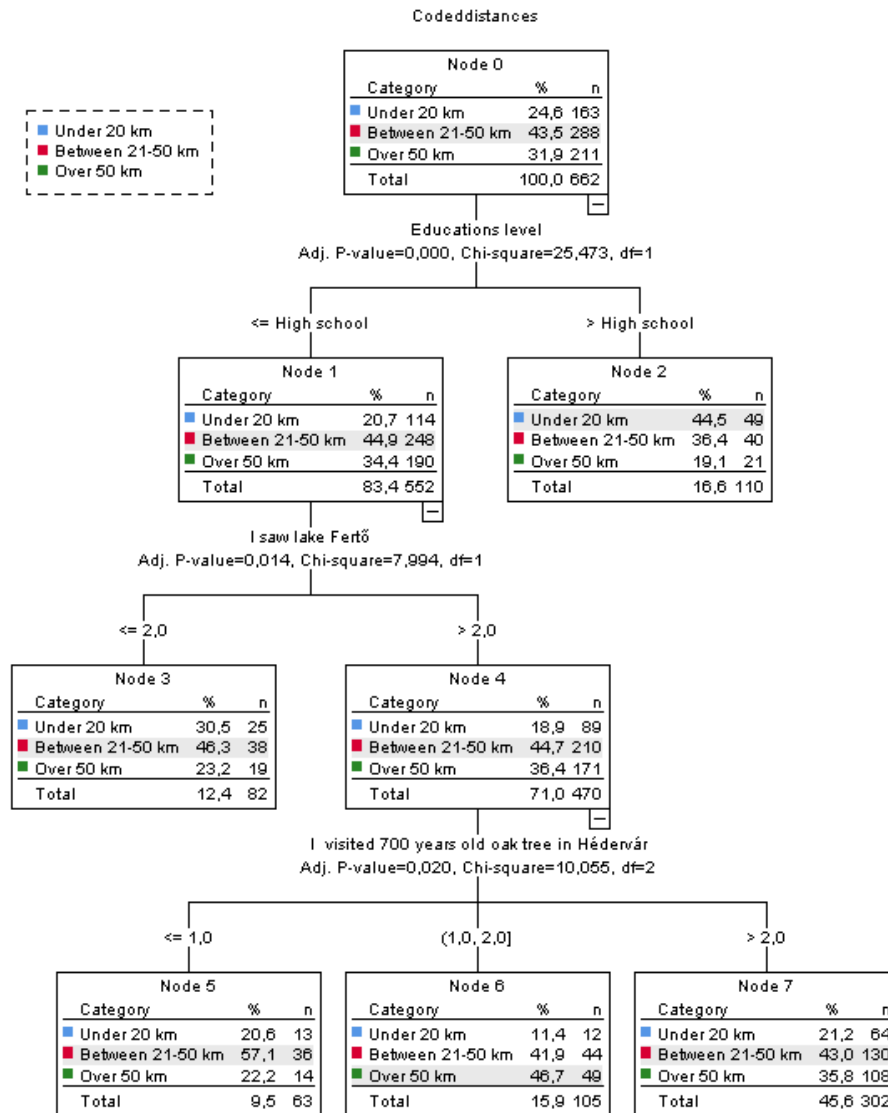


Figure 2. Decision tree.

Source: Compiled from Survey Data 2024.

Figure 2 provides an illustration of the decision tree, level 0 of the tree shows the

distribution of the whole database by the categories of the target variable. The right column shows the item numbers for each category and the middle column shows the percentage distribution. If only this result is known, it can be concluded that 24.6% (89 people) of the respondents are willing to travel less than 20 km, 43.5% (288 people) between 21 and 50 km and 31.9% (211 people) over 51 km to visit any natural heritage site. The algorithm first performs possible aggregations for each explanatory variable and the program selects the strongest effect path among the explanatory variables. In this case, education has the strongest influence on the explained variable. The initial data set was split along the categories of this variable. This is level 1 of the tree structure. In the two sub-databases (1–2) that result from the partitioning, the distributions of the categories of the target variable can be observed in the small tables representing each sub-database. This splitting resulted in a large distribution in the sample, with those with primary education accounting for more than $\frac{3}{4}$ of the sample (83.4%), while those with secondary and tertiary education account for 16.6% of the sample. Continuing the aggregation-splitting algorithm, level 2 shows an explanatory variable that examines attitudes towards visiting Lake Fertő. Two groups were created, one of respondents who were willing to travel less than 20 km, and the other set of respondents who were willing to travel more than 20 km. The Chi-square value $p = 0.014$ indicates the magnitude of the explanatory power. The next junction is at node 4, where three groups can be distinguished, 45.6% of the respondents would like to visit the 700-year-old oak tree in Hédervár. In this case, the probability associated with the Chi-square is 0.020.

5. Conclusion

The study aimed to find out the tourist attractiveness of the natural treasures of Győr-Moson-Sopron County, their familiarity with the Hungarian people, and their intentions, for example, how far they are willing to travel to get to know them. The relevant literature was presented, followed by empirical (quantitative) research. The most important finding of the study is that the average number of visits by non-young people to all three national parks is higher than that of young people. The average for the Pannontáj-Sokoró Nature Park is 2.85 for non-young people and 2.59 for young people, the average for the Szigetköz Nature Park is 2.75 for non-young people and 2.55 for young people, while the average for the Fertő-Hanság Nature Park is 3.16 for non-young people and 2.91 for young people. There is a significant difference by gender, as the average for women is higher than for men in all three nature parks. For Szigetköz, the average for women is 2.86, while for men it is 2.55. For Pannontáj-Sokoro, the average for women is 2.41, while for men it is 2.33. In the Fertő-Hanság National Park, the average for women is 3.06, while the average for men is 2.82. Lake Fertő and its surroundings show no significant differences in demographic data by gender, residence, or age group. For gender, $x^2 = 4.454$ $d = 3$ sig. 0.216, residence: $x^2 = 13.855$ $d = 9$ sig. 0.128, age group $x^2 = 12.204$ $d = 6$ sig. 0.058. There is no significant difference in the intention to visit natural heritage sites, neither by the place of residence of the respondents' (by county) nor by the distance from their place of residence.

The most important finding of the study for policymakers is that the

characteristics of tourists (middle-aged women) need to be understood in order to be sustainable. It is also essential to select and maximize the different program packages in the marketing of the offer, in order to distribute the traffic and avoid mass tourism. The present research has found that visiting the Danube floodplain as a natural attraction is the greatest motivation for the older age group, followed by middle-aged tourists and finally young people. The selected symbol of the Szigetköz, the Hédervár oak, is also the most attractive for older people. This age group is a target group for slow tourism, as they have enough time and the time spent in nature is not a burden on their budget. The design of program packages should take into account amenities and the availability of recreational facilities. The shallow eutrophication area of the Fertő valley is a vulnerable ecological area, in agreement with the findings of (Yu et al., 2015), and is therefore the focus of the present research. There is evidence that the World Heritage Site and National Park is also an object of tourist interest. In terms of education, it was shown that the most significant demand to visit Lake Fertő is from people with higher education. For the target group, it is important to have a valid, experiential knowledge of the ecological state of the landscape. It is also worth noting that education and the provision of responsible, ecologically oriented information for young people is not negligible. Paracchini et al. (2014), Inácio et al. (2022), Nahuelhual et al. (2017), Scholte et al. (2018), Schirpke et al. (2018) all consider the proximity to the city indicator as a key indicator of nature-based recreation. Kempniak et al. 's (2017) model suggests a set of factors that positively contribute to the visitor experience at heritage sites, which is consistent with the findings of this study, with the vast majority of respondents' one-off visits being followed by more in the future. The results of the present study show that the recreational use of the Danube floodplain is preferred by people coming from the city. For urban citizens, enjoying the unspoiled natural environment is a greater motivation than for the rural population or even for people coming from Budapest. With the digitalization of tourism, well-designed and transparent digital platforms connect different services (Darabos and Horváth, 2022). However, the coordination of tourism products and marketing activities makes seasonal characteristics less and less important (Darabos and Printz-Markó, 2018).

A new finding of the research is that the recreational program of the Danube floodplain is therefore most recommendable to older urban citizens. The motivation of those who completed the questionnaire was analyzed in terms of intention to visit. The results of the study suggest that there are no significant differences between the counties of Hungary, with only the Pannontáj-Sokoró Nature Park (0.041) and Fertő-Hanság National Park (0.011) being significant. In terms of awareness, 55.7% of the respondents would visit the Fertő-Hanság National Park, 54.2% the Szigetköz National Park and 50.8% Lake Fertő. The distribution for the same variables (If I can I visit it all the time) is 23.6%, 15%, and 32.6% respectively.

The key to sustainability is protecting the landscape, the improvement of heritage sites involves a balanced approach to enhancing the visitor experience, maintaining authenticity, and ensuring long-term conservation. Innovations in digital engagement, sustainable infrastructure (clear signage, ramps, and guided pathways to make the heritage sites more navigable, and accessible for all visitors), including people with disabilities, and immersive technology, as well as strong conservation practices, can help these sites thrive while preserving their cultural and historic essence.

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References

- Al shawebkeh, R., AlHaddad, M., Akif al_fugara, Arar, M., Alhammad, R., Mohammad alshraah and Motaz alhanouri. (2023). Toward sustainable urban growth: Spatial modeling for the impact of cultural and natural heritage on city growth and their role in developing sustainable tourism. *Alexandria Engineering Journal*, 69, 639-676.
<https://www.sciencedirect.com/science/article/pii/S1110016823000996?via%3Dihub>
- Ala-Hulko, T., Kotavaara, O., Alahuta, J., Pekka, H., & Hjort, J. (2016). Introducing accessibility analysis in mapping cultural ecosystem services, *Ecological Indicators*, (66), pp. 416-427.
<https://www.sciencedirect.com/science/article/pii/S1470160X16300280>
- Ali, A., Aidi, M., & Roussel, Y. (2021). Natural resources depletion, renewable energy consumption and environmental degradation: A comparative analysis of developed and developing world. *International Journal of Energy Economics a Policy*. 11(3). pp. 251-260. <https://www.mendeley.com/catalogue/2166f8a2-e2a0-36fd-8959-6cf2873e905b/>
- Ali, Q., Yaseen, M. R., Anwar, S., Makhdam, M. S. A., & Khan, M. T. I. (2021). The impact of tourism, renewable energy, and economic growth on ecoresources: A panel data analysis. *Resources Policy*, 74, 102365.
<https://www.sciencedirect.com/science/article/pii/S0301420721003743?via%3Dihub>
- Bodnár, L. (2006): *Nemzeti parkok a Kárpát-medencében [National Parks in the Carpathian Basin (in Hungarian)]*, Bodnár és Társa Geográfus Bt. Kiadó, ISBN 963 229 233 2, p. 72.,77.
- Darabos, F., & Horváth, Á. (2022). Fejlesztések, avagy covid- tűzoltás turizmus módra 3 vidéki város tekintetében. [In Hungarian: Firefighting contra covid with tourism investments in 3 Hungarian cities]. Ed: Albert, T. A., Happ, É., Printz-Markó, E. *Folytatás vagy újrakezdés a turizmusban: XII. Nemzetközi Turizmus Konferencia: Tanulmánykötet Győr, Magyarország.* p.14.
https://idforg.sze.hu/images/10_Turizmus%20Konferencia/Tanulm%C3%A1nyk%C3%B6tetek/Folytat%C3%A1s%20vagy%20%C3%BAjrakezd%C3%A9s%20a%20turizmusban_Tanulm%C3%A1nyk%C3%B6tet_2021.pdf
- Darabos, F., & Printz-Markó, E. (2018) Tasks of the Product-Mix in the Marketing Strategy of the Village Called Nyúl PEOPLE: *INTERNATIONAL JOURNAL OF SOCIAL SCIENCES* 4:2 pp. 1088-1106.
<https://grdspublishing.org/index.php/people/article/view/589>
- Darabos, F., Kundi, V., & Kőmíves, C. (2024). Tourist Attitudes toward Heritage of a County in Western Hungary. *Sustainability*, 16(13), 5739. <https://www.mdpi.com/2071-1050/16/13/5739>
- De Vries, S., Van Dillen, S. M., Groenewegen, P. P., & Spreeuwenberg, P. (2013). Streetscape greenery and health: stress, social cohesion and physical activity as mediators. *Social science & medicine*, 94, 26-33.
<https://pubmed.ncbi.nlm.nih.gov/23931942/>
- El Menchawy, A., Aly, S. S., & Hakim, M. A. (2011). The impact of urban sprawl on the heritage areas through the urban fabric of cities. *WIT Transactions on Ecology and the Environment*,150.
<https://www.witpress.com/Secure/elibrary/papers/SDP11/SDP11026FU1.pdf>
- Faganel, A., & Trnavčević, A. (2012). Sustainable natural and cultural heritage tourism in protected areas: case study. *Annales: Series historia et sociologia*, 22(2), 589-600. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2549615
- Garami, L. (2002). *Treasure trekking. Athenaeum 2000 Könyvkiadó Kft. Budapest.* p. 31.
<https://www.woodlandtrust.org.uk/publications/2015/01/wood-wise-natural-and-cultural-heritage/>
- Inácio, M., Gomes, E., Bogdzevič, K., Kalinauskas, M., Zhao, W., & Pereira, P. (2022). Mapping and assessing coastal recreation cultural ecosystem services supply, flow, and demand in Lithuania. *Journal of Environmental Management*, 323, 116175.
<https://www.sciencedirect.com/science/article/pii/S0301479722017480?via%3Dihub>
- Jovicic, D. Z. (2014). Key issues in the implementation of sustainable tourism. *Current Issues in Tourism*, 17(4), 297-302.
<https://www.tandfonline.com/doi/full/10.1080/13683500.2013.797386>
- Kabisch, N. (2015). Ecosystem service implementation and governance challenges in urban green space planning—The case of Berlin, Germany. *Land use policy*, 42, 557-567. <https://doi.org/10.1016/j.landusepol.2014.09.005>
- Kempiak, J., Hollywood, L., Bolan, P., & McMahan-Beattie, U. (2017). The heritage tourist: An understanding of the visitor experience at heritage attractions. *International Journal of Heritage Studies*, 23(4), 375-392.
https://pure.ulster.ac.uk/ws/portalfiles/portal/11603982/RJHS_A_1277776.pdf

- Kienast, F., Degenhardt, B., Weilenmann, B., Wäger, Y., & Buchecker, M. (2012). GIS-assisted mapping of landscape suitability for nearby recreation. *Landscape and Urban Planning*, 105(4), 385-399. <https://doi.org/10.1016/j.landurbplan.2012.01.015>
- Langemeyer, J., Baró, F., Roebeling, P., & Gómez-Baggethun, E. (2015). Contrasting values of cultural ecosystem services in urban areas: The case of park Montjuïc in Barcelona. *Ecosystem Services*, 12, pp.178-186. <https://doi.org/10.1016/j.ecoser.2014.11.016>
- Lowenthal, D. (2013). Natural and cultural heritage. In *The Nature of Cultural Heritage, and the Culture of Natural Heritage* (pp. 79-90). Routledge. <https://doi.org/10.4324/9781315869674>
- Maldonado-Erazo, C. P., Álvarez-García, J., Río-Rama, M. D. L. C. D., & Durán-Sánchez, A. (2021). Scientific mapping on the impact of climate change on cultural and natural heritage: A systematic scientometric analysis. *Land*, 10(1), 76. <https://www.mdpi.com/2073-445X/10/1/76>
- Musavengane, R., & Kloppers, R. (2020). Social capital: An investment towards community resilience in the collaborative natural resources management of community-based tourism schemes. *Tourism Management Perspectives*, 34, 100654. <https://www.sciencedirect.com/science/article/pii/S2211973620300210?via%3Dihub>
- Nahuelhual, L., Vergara, X., Kusch, A., Campos, G., & Droguett, D. (2017). Mapping ecosystem services for marine spatial planning: Recreation opportunities in Sub-Antarctic Chile. *Marine Policy*, (88), pp. 211-218. https://www.researchgate.net/publication/316026183_Mapping_ecosystem_services_for_marine_spatial_planning_Recreation_opportunities_in_Sub-Antarctic_Chile
- Natural Heritage conceptual. Australian Heritage Commission (2002) *The Australian Natural Heritage Charter for the Conservation of Places of Natural Heritage Significance* (2nd ed), Canberra, Australian Heritage Commission in association with Australian Committee for the International Union for the Conservation of Nature (ACIUCN). <https://catalogue.nla.gov.au/catalog/351916>
- Natural Heritage definition. (2015). Wood Wise. *NATURAL & CULTURAL HERITAGE*. Woodland Trust, Woodland Conversation News, Winter 2015.
- Nieuwenhuijsen, M. J. (2015). Natural outdoor environments and mental and physical health: relationships and mechanisms. *Environment international*, (77), pp.35-41. <https://www.sciencedirect.com/science/article/pii/S0160412015000239?via%3Dihub>
- Oxford Advanced Learner's Dictionary Current English. (1989). Fourth Edition. Oxford: Oxford University Press. p.584.
- Paracchini, M. L., Zulian, G., Kopperoinen, L., Maes, J., Schägner, J. P., Termansen, M., & Bidoglio, G. (2014). Mapping cultural ecosystem services: A framework to assess the potential for outdoor recreation across the EU. *Ecological indicators*, 45, 371-385. <https://doi.org/10.1016/j.ecolind.2014.04.018>
- Peña Alonso, C., Pérez-Chacón, E., Hernández-Calvento, L., & Ariz, E. (2018). Assessment of scenic, natural and cultural heritage for sustainable management of tourist beaches. A case study of Gran Canaria island (Spain), (*Land Use Policy*), 72 (1) pp. 35-45. https://www.researchgate.net/publication/321917915_Assessment_of_scenic_natural_and_cultural_heritage_for_sustainable_management_of_tourist_beaches_A_case_study_of_Gran_Canaria_island_Spain
- Schirpke, U., Meisch, C., Marsoner, T., & Tappeiner, U. (2018). Revealing spatial and temporal patterns of outdoor recreation in the European Alps and their surroundings. *Ecosystem services*, 31, pp. 336-350. <https://www.sciencedirect.com/science/article/pii/S221204161730270X?via%3Dihub>
- Scholte, S. S., Daams, M., Farjon, H., Sijtsma, F. J., van Teeffelen, A. J., & Verburg, P. H. (2018). Mapping recreation as an ecosystem service: Considering scale, interregional differences and the influence of physical attributes. *Landscape and Urban Planning*, 175, 149-160. <https://www.sciencedirect.com/science/article/pii/S0169204618300860>
- Szepesi, J., Ésik, Zs., Soós, I., Németh, B., Sütő, L., Novák, T. J., Harangi, Sz. & Lukács, R. (2020). Identification of Geoheritage Elements in a Cultural Landscape: a Case Study from Tokaj Mts, Hungary, *Geoheritage*, 12:89, <https://link.springer.com/article/10.1007/s12371-020-00516-w>
- Szigetköz Natur Park. Available: <https://szigetkoz-naturpark.hu/rolunk/> (accessed on 13 August 2024)
- Telbisz, T., Gruber, P., Mari, L., Kőszegi, M., Bottlik, Zs. & Standovár, T. (2020). Geological Heritage, Geotourism and Local Development in Aggtelek National Park (NE Hungary), *Geoheritage*, 12:5, <https://link.springer.com/article/10.1007/s12371-020-00438-7>
- Triguero-Mas, M., Dadvand, P., Cirach, M., Martínez, D., Medina, A., Mompert, A., & Veisten, K., Haukeland, J. V., Baardsen, S., Degnes-Ødemark, H., & Grue, B. (2015). Tourist Segments for New Facilities in

- National Park Areas: Profiling Tourists in Norway Based on Psychographics and Demographics. *Journal of Hospitality Marketing & Management*, 24(5), <https://www.tandfonline.com/doi/full/10.1080/19368623.2014.911713>
- Weyland, F., & Laterra, P. (2014). Recreation potential assessment at large spatial scales: A method based in the ecosystem services approach and landscape metrics. *Ecological indicators*, 39, 34-43. <https://doi.org/10.1016/j.ecolind.2013.11.023>
- World Heritage List Statistics. Available at: <https://whc.unesco.org/en/list/stat>, (Downloaded 19. September 2024)
- Wu, L. (2018). The relationships between environmental sensitivity, ecological worldview, personal norms and pro-environmental behaviors in Chinese children: Testing the value–belief–norm model with environmental sensitivity as an emotional basis. *PsyCh Journal*, (7), pp.111-121. <https://onlinelibrary.wiley.com/doi/10.1002/pchj.217>
- Yang, Z., Li, W., Pei, Y., Qiao, W., & Wu, Y. (2018). Classification of the type of eco-geological environment of a coal mine district: A case study of an ecologically fragile region in Western China. *Journal of Cleaner Production*, 174, 1513-1526. <https://www.sciencedirect.com/science/article/pii/S0959652617327075?via%3Dihub>
- Yu, L., García, A., Chivas, A. R., Tibby, J., Kobayashi, T., & Haynes, D. (2015). Ecological change in fragile floodplain wetland ecosystems, natural vs human influence: The Macquarie Marshes of eastern Australia. *Aquatic Botany*, <https://www.sciencedirect.com/science/article/pii/S0304377014001065?via%3Dihub>
- Zhang, Y., Zhang, H., & Sun, Z. (2018). Effects of urban growth on architectural heritage: The case of Buddhist monasteries in the Qinghai-Tibet plateau. *Sustainability*, 10(5), 1593, <https://www.mdpi.com/2071-1050/10/5/1593>