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Bardejov Spa: the analysis of the visit rate in the context of historical periods of its development from 1814 to 2016

Abstract. The purpose of the paper is to evaluate the impact of historical events on the visit rate of the Bardejov Spa in various periods of its development (in the years 1814-2016). It gives a comprehensive view of the spa tourism in the Bardejov Spa. The paper summarises the history of the spa, its natural sources, treatment and indications. The conducted regression analysis has shown that an increase in the number of visitors was influenced by reconstruction, construction, development of indications for treatment and visits by well-known historical figures, as shown by the offsetting regression line with an increasing value of the year variable and the visit rate variable.

Keywords: Bardejov Spa; Visit Rate; Spa Tourism; Spa Treatment

JEL Classification: I10; L83

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Аналіз статистики числа відвідувачів курорту Бардейовські купелі в контексті історичних періодів розвитку з 1814 р. до 2016 р.

Анотація. Метою роботи є оцінка впливу історичних подій на число відвідувачів курорту Бардейовські Купелі. У роботі наведено коротку історію курорту, а також названо його природні лікувальні джерела та показання до їх використання. Проведений регресійний аналіз показав, що збільшення числа відвідувачів курорту стало наслідком проведення робіт з реконструкції та будівництва інфраструктури курорту, збільшення кількості показань до використання його природних лікувальних джерел, а також популярності серед відомих людей.

Ключові слова: Бардейовські Купелі; число відвідувачів; спа-туризм; санаторно-курортне лікування.

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Анализ статистики числа посетителей курорта Бардеевские Купели в контексте исторических периодов развития с 1814 г. по 2016 г.

Аннотация. Целью данной работы является оценка влияния исторических событий на число посетителей курорта Бардеевские Купели. В работе приведена краткая история курорта, а также названы его природные лечебные источники и показания к их использованию. Приведенный регрессионный анализ показал, что увеличение числа посетителей курорта обусловлено проведением работ по реконструкции и строительству инфраструктуры курорта, большим количеством показаний к использованию его природных источников, а также популярностью среди известных людей.

Ключевые слова: Бардеевские Купели; число посетителей; спа-туризм; санаторно-курортное лечение.

1. Introduction

The geological development of the Western Carpathians has created preconditions for varied and rich sources of natural healing thermal and mineral waters in our territory. Since their first settlement, residents of this area have used these treasures to treat various diseases (Petraccia et al., 2006; Zálešáková 2013) [1-2]. According to the water register at the Ministry of Health of the Slovak Republic, 1,657 mineral springs are documented in our territory, 112 of which are recognised as suitable for the purpose of filling in containers and medical care. Mineral waters are considered to be those containing 1 gram of dissolved solids or 1 gram of carbon dioxide in 1litre of water in the place of their spring. On the territory of the Slovak Republic, each spa town has a unique composition of natural healing waters. The Act of the National Council of the Slovak Republic No. 538/2005 Coll. on natural healing waters, natural healing spas, spa sites and natural mineral waters, and amendments to laws provides legislative regulation for spas. According to Regulation No. 538/2005 Coll., the spa enterprise is characterised as «the territory of the municipality or part of the territory of the municipality where natural healing sources, natural healing spas, spa sanatoriums and other facilities necessary for providing of spa treatment are located, and which is recognized under this law». According to Bodiš et al. (2016) [3], Slovakia can be proud of dozens of unique spa resorts whose treatment effects have reached good reputation not only in our country but also throughout Europe. Nowadays, tourism has undoubtedly become essential to both national and international economies, and each country is currently trying to face the challenges imposed by this industry. In the paper, we summarise data from the Bardejov Spa history covering the area of natural healing sources, spa treatment and indications, facilities, services, architectural development of spa houses and hotels, a visit rate, whose development is included in individual historical stages. The aim of the thesis is to clarify the impact of historical events, in particular periods, on both increases and decreases in the visit rate of the Bardejov Spa and give a comprehensive view of the main periods of tourism development of the Bardejov Spa.

Thanks to its cross-cutting nature and multiplier effect, tourism has become a strong economic sector with a growing share of GDP, with an effective increase in sustainable employment and an impetus in progress of economically undeveloped regions. The share of tourism in GDP in the European Union is about from 4% to 6%, while the relevant share in Slovakia is 2.7% (as of 2016). Tourism is one of the richest sources of employment as human work cannot be replaced in this area. It creates from 6% to 7% of all jobs and induces other 2% to 3% in supply services. On the basis of the information provided by the Statistical Office of the Slovak Republic, the

total number realised in mass accommodation facilities was 14,138,420 in 2016, compared to 10,367,330 in 2010.

In 2016, there were 21 spa towns in Slovakia with 31 spa treatment providers and 80 accommodation facilities in total. The total capacity was 12,339 beds and 6,344 rooms. Over the last 10 years, there has been no significant change in this indicator (bed capacity in 2005 was 11,804 beds). The number of visitors to spa facilities in 2016 was 316,046 (Figure 1) with a number of overnight stays of 2,741,550. Revenue from accommodation was EUR 61,280,137, while EUR 45,431,728 of it came from domestic visitors. In 2009, it was EUR 43,908,192. The share of spa tourism in the total number of visitors to tourist accommodation facilities in Slovakia was 6.3%; the share in the total number of overnight stays in tourist accommodation facilities in Slovakia represents 19.4% [4]. The overview of spa resorts and their operators is presented in Table 1.

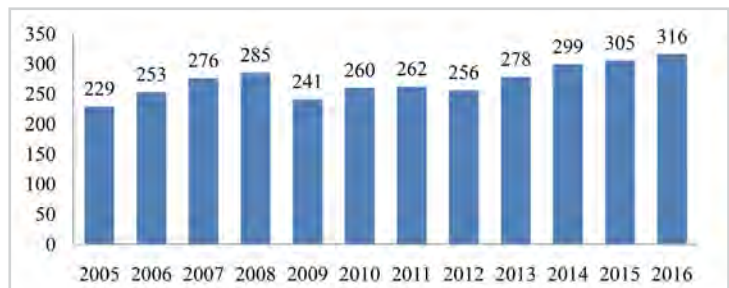


Fig. 1: **The number of guests of spa tourism accommodation facilities in Slovakia for the years 2005 to 2016, thousands**
Source: Own research based on data by Statistical Office of the Slovak Republic 2016

2. Brief Literature Review

The first historical findings of Slovak spa towns include the records dated back to the 13th century (1244), on Trenčianské Teplice and Sliach. According to J. Mulík [5], the documents from 1247 (time of Bela IV) about the Bardejov Spa also belong to those records. However, the properties and content of the water from that time are devoid of deeper knowledge. According to A. Rebro (1979) [6], the spa treatment began to develop in our country at the beginning of the 16th century. Knowledge of mineral springs and their use is evidenced by old folk names of places, such as *Štiavnička* and *Šťava* (the name of the village comes from a Slovak word-formation base «štiav» that means acidic water), or *Teplice* and *Teplička* (the name of the village comes from a Russian expression «Thoplica» for warm water that does not freeze even in winter). During that period, the first record on the use of mineral especially thermal waters was created, namely a document by J. Wernher from 1549 «About the Wonderful Waters of Hungary». Another register on the use

of thermal and mineral springs in the Austro-Hungarian Empire from 1763 was also preserved. J. Mulík (1969) [7] adds that the occurrence of mineral springs was proved by Matej Bel with his first map of the territory of Slovakia, as of 1715. The map captured geographical signs and the occurrence of mineral waters - acidulous mineral waters, as well as bath signs - thermae. The map was published in 1723 by the Bearer of Old and New Hungary (Hungariae antiquae et novae prodromus).

Nowadays, spa tourism is generally understood as care provided to patients by spas and aimed at treating physical and psychological problems of humans. According to J. Oriška [8], spa tourism is «a type of tourism that requires the existence of spa facilities using natural healing resources such as healing waters, peloids, gases, emanations and climatic conditions». The use of natural healing resources has curative effects on the human body, stimulates changes in the body reactivity leading to adaptation to changed life situations such as aging, diseases or stress. Spa tourism also represents preventive health and therapeutic activities under the medical supervision by specialists (Zálešáková, 2008) [9].

Even if the curative climate and healing waters are particularly important and required for spas, visitors come to spa resorts not only for health, relaxation and beautiful nature but also for entertainment and cultural enjoyment. J. Hensel et al. (1951) [10] consider a spa to be a place where natural healing effects of water, gas and mud are used for continuous therapy. These places are equipped with appropriate spa, dining and accommodation facilities, as well as medical services. D. Eliášová (2009) [11] further adds that a healing spa represents more than one medical facility, and natural curative resources are used to provide treatment and prevention. In addition, a spa offers help in regenerating health, mental and physical strengths of a human, health care to stabilise the state of health, as well as the number of activities bringing entertainment and cultural enrichment. The health insurers' limited spa care expenses place greater emphasis on the creation of wellness products by spas and on the relationships through destination management organisations that enable integration of resources for marketing activities (Derco, 2014) [12].

The 18th and 19th centuries were the Golden Age of spas in Europe. In almost every country, tourist resorts grew up around the springs and provided the template for later developments in specialised tourism urban landscapes (Warwick and Laing, 2017) [13]. Health tourism may seem a new form of tourism. However, the opposite is true. Health tourism is one of the oldest forms of tourism. Still, certain forms of health tourism have been changing and evolving, e.g. visiting retreats. Certain forms of health tourism have been discovered in many areas of the world recently. This is the real reason why such health tourism forms seem to be new. They are new to a given market but might be rather traditional in other countries (Bushell 2017) [14]. In most European countries, spa treatment is usually a supplementary element of other medical procedures (Hungary, Spain, France) and not a primary procedure, as in Poland, Slovakia and Germany (Rogers 2009) [15]. Scientific articles on mineral waters and spas in various European countries have been published in scientific journals that have been mono-thematically focused on

Tab. 1: An overview of spas in the Slovak Republic

No.	LOCATION Spa place	OPERATOR			
		Serial number	Natural healing spa	Serial number	Spa Sanatorium
1.	BARDEJOV	1.	Bardejov Spa, Bardejov Spa	1.	KLÚ MV SR Družba, Bardejov Spa
2.	BOJNICE	2.	Spa Bojnice, Bojnice		
3.	BRUSNO	3.	Spa Brusno, Brusno		
4.	ČERVENÝ KLÁŠTOR	4.	PIENINY RESORT, Malý Lipník		
5.	ČIŽ	5.	Natural Iodine Spa Číž, Číž		
6.	DUDINCE	6.	Spa Dudince, Dudince	2.	SLOVOTHERMAE, Spa Diamant Dudince, Dudince
7.	KOVÁČOVÁ	7.	Wellness Kováčová, Kováčová	3.	Specialized Sanatorium Marina, Kováčová
8.	LÚČKY	8.	SPA LÚČKY, Lúčky		
9.	NIMNICA	9.	Spa Nimnica, Nimnica		
10.	PIEŠŤANY	10.	Slovak Medical Spa Piešťany, Piešťany	4.	Military Medical Facilities, Piešťany
11.	RAJECKÉ TEPLICE	11.	Slovak Medical Spa Rajecké Teplice, Rajecké Teplice		
12.	SLIAČ	12.	Spa Sliač, Sliač		
13.	SKLENÉ TEPLICE	13.	Medical Thermal Spa, Sklené Teplice		
14.	SMRDÁKY	14.	Slovak Medical Spa Piešťany, Piešťany		
15.	TRENČIANSKE TEPLICE	15.	Spa Trenčianske Teplice, Trenčianske Teplice	5.	KLÚ MV SR ARCO, Trenčianske Teplice
16.	TURČIANSKE TEPLICE	16.	Slovak Medical Spa Turčianske Teplice, Turčianske Teplice		
17.	VYŠNÉ RUŽBACHY	17.	Spa Vyšné Ružbachy, Vyšné Ružbachy		
18.	LUČIVNÁ	18.	Spa Lučivná, Lučivná		
19.	LIPTOVSKÝ JÁN			6.	KRÚ MV SR BYSTRÁ, Liptovský Ján
20.	ŠTÓS	19.	Spa Štós, Štós		
21.	VYSOKÉ TATRY	20.	Spa Horný Smokovec, Horný Smokovec	7.	Sanitarium of Dr. Guhra, Tatranská Polianka
		21.	Spa Nový Smokovec, Nový Smokovec	8.	TATRASAN, Nový Smokovec
				9.	Sanitarium Tatranská Kotlina, Tatranská Kotlina
				10.	Military Medical Facilities, Tatranské Zruby

Source: Own research based on [2]

clinics in dermatology. Issues related to mineral water and spas were studied, for instance, by S. Vassileva in Bulgaria [16], A. Katsambis and C. Antoniou in Greece [17], A. Benedetto and L. Millikan in the United States [18], T. Titzmann and B. Balda in Germany [19], L. Andreassi and L. Flori in Italy [20], and P. Karam in France [21]. The scientific journal Orvosi Hetilap promotes balneology in Hungary (Szállási 1985) [22]. The study by A. Roanghes-Mureanu and A. Tudoric (2014) [23] focuses on the evaluation of both natural and man-made resources favourable to the emergence and development of spa resorts in Romania.

3. The purpose of the paper is to assess an impact of historical events during various periods on increased and decreased visit rates regarding the Bardejov Spa.

Methods and data. Regression analysis represents a summary of statistical methods and procedures used to study and estimate relationships between two (or more) variables. Such a relation of one quantity to the other or the dependence of one quantity on the other is possible to express from the simultaneously observed and measured data. Their aim is primarily to estimate parameters, mean values of the dependent variable, or prediction of future values.

The variable *Y*, called the dependent variable or explained, is the variable whose dependence on other variables we investigate. Variable *X*, called an independent variable or explaining, is the variable anticipated to cause changes and to estimate the values of the dependent variable *Y*. When observing the relationship between the two variables, there is a simple pair regression whose predicted dependence is expressed by the function $y = f(x)$.

To understand the regression model, it is necessary to explain the individual values:

- the p-value (significance level); if the p-value is < 0.05, the H0 hypothesis is rejected and we accept the hypothesis H1

which shows that there is a statistically significant linear relationship between the variables. If the p-value is ≥ 0.05 , the H_0 hypothesis cannot be rejected, and it is not between variables, there is no statistically significant relationship existent.

- to determine the accuracy of the model, the coefficient of determination is $0 \leq R^2 \leq 1$; the greater the number is, the more variability of the dependent variable the model elucidates, or shows how much variability the regression model (by considered regression dependence) has been able to explain.

The visit rate for individual years is also evaluated by a line graph, which is a graphical representation of our two variables X and Y . The individual point values are in the graph depicted by red crosses, while the blue line in the graph, called the equalizing regression line, graphically represents an estimate of our model. The line is linear and growing, meaning that with increasing values of the variable Y values of variable X also increase.

4. Results

Based on the study of historical materials about the Bardejov Spa, including spa treatment, construction of accommodation facilities and especially its visit rate, we have prepared an overview of the historical development of the spa, which we have divided into individual stages. We have considered history, visit rates, treatment, indications, reconstructions, constructions and social life which condition the increase or decrease in the number of guests. In the phase of study of historical sources, we have summed up all the available information into individual stages which we have divided into the first golden period, the period of stagnation, the second golden period, the period between World War I and World War II, the development of the Bardejov Spa from nationalisation and development in the years 2000 to 2015, separately 2016. For the purpose of calculating the regression analysis using the Gretl statistical program we have chosen the following historical stages from the above-mentioned. The first regression analysis, concerning the years from 1814 to 1898, includes the first golden period, the period of stagnation until the second golden period of the Bardejov Spa. *Hypothesis 1:* It is assumed that the reconstruction of the Bardejov Spa premises, the construction of the center, the quality improvement of the services and the spa treatment in the years from 1814 to 1898 increased the number of guests of the Bardejov Spa.

For the second half of the periods, i.e. the period of spa development from nationalisation and development in the years 2000 to 2016, we created a second regression analysis, in which we also recorded the flow of the visit rate, yet in the years 1960-2015. *Hypothesis 2:* It is assumed that the reconstruction of the facilities of the Bardejov Spa, the construction of the center, the improvement of the services and the spa treatment in the years 1960 to 2015 increased the number of guests of the Bardejov Spa.

The value of the determination coefficient tells us how much variability we have been able to explain in these regression models. In our case, we reckon the value at 0.4985, which is 49%, and represents a high dependency. The remaining 51% of variability is caused by factors not included in the regression model and other accidental impacts. In the production of the model, we also applied HAC to eliminate the standard errors. Hypothesis 1 is affirmed (Table 2).

As the regression model shows, the increase in the visit rate in individual years was really affected by reconstructions, constructions, development of treatment and indications, and visits of well-known historical figures. This is also evidenced by the equalizing regression line with the rising values of the variable (year) and the values of the variable (guests, visit rate), which you can see in the regression line (Figure 3). The growth of the visit rate in each period was affected by the following development. In the visit rate

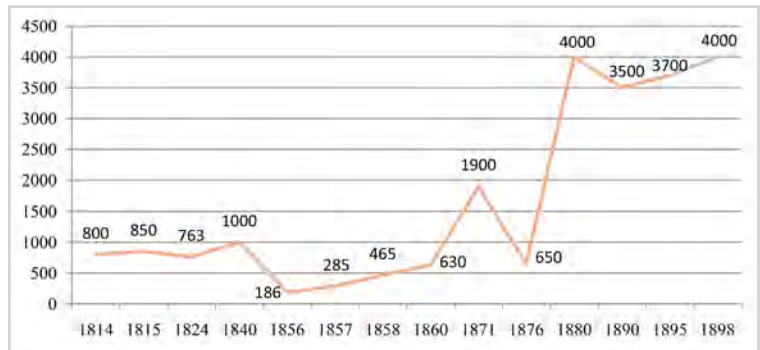


Fig. 2: The visit rate (people) of the Bardejov Spa in the years 1814 to 1898
Source: Own processing based on [4; 6]

graph of the Bardejov Spa (Figure 2), it is possible to identify increases or decreases in the number of guests who stayed overnight at the spa in the periods of the first golden period (1814), and stagnation (1848) to the period of the second golden period of the Bardejov Spa, ending in 1898.

The number of visitors at the beginning of the first golden period was also growing thanks to Professor Kitaibel who developed an analysis of curative springs and suggested indications for particular diseases. That brought the rapid spread of awareness of Bardejov curative waters, as can be seen in the number of guests in 1814, when 800 guests visited the Bardejov Spa, and even more in 1815. Not only medical care was offered at that time at the spa but also a variety of cultural and sports activities to make the patients' stay enriching and entertaining. New summer residences were built; spa hotels became more and more luxurious. As we can see in the chart, the visit rate was constantly rising. The great popularity of the spa during the period mentioned above was also influenced by the visit of Austrian Princess Maria Lujza and later Russian Tsar Alexander I. As there is no record to clarify why the number of guests dropped to 763 in 1824, we can only deduce that this could be explained by the fact that the Bardejov Spa had become more luxurious, and consequently less affordable for inhabitants of the surrounding towns, as the treatments and stays at the spa were quite expensive. Still richer cultural and social life and the construction of the Institute for Cold Water Therapy increased the number of guests at the Bardejov Spa to 1,000 in 1840.

From the regression line (Figure 3), we can see a decrease in the visit rate because the following years were not very prosperous for the Bardejov Spa. According to the data we obtained, the number of visitors in the period of the Hungarian Revolution was not recorded. We only know that the Hungarian Revolution and the arrival of Russian soldiers affected the Bardejov Spa. The entire Pánska Street was destroyed, and there was no efficient investment into the spa development. Moreover, as a consequence of improvements in the railway network abroad, many richer visitors preferred treatment beyond our borders. The fire in 1856 destroyed many houses and the number of spa guests was reduced to only 186. However, this situation lasted for a short time, and in the course of three following years, the number of visitors increased, to 285 guests in 1857, to 465 guests in 1858 and in to 630 visitors 1860.

Spa tourism grew significantly thanks to low service charges, which could be afforded even by less wealthy people, and due to new diseases which began to be treated in the spa (Cassens et al., 2012) [24]. The number of guests increased to 1900, as evidenced by the year 1871. Since there are no reports why the number of guests was so rapidly reduced to 650

Tab. 2: The regression analysis of the visit rate of the Bardejov Spa for the period from 1814 to 1898

	Coefficient	Standard deviation	P-value
Constant	-68,044.9	19,600.1	0.0046
Year	37.4648	10.5545	0.0040
Determination coefficient	0.498513		

Source: Own processing by using Gretl statistical program

in 1876, we can only conclude that it was caused by stagnation in the renovation of the spa and ownership changes. Following the year 1880, the second golden period of the Bardejov Spa began. Through Bardejov financial incentives, the construction of the spa colonnade, the wooden pavilion and many other improvements, which improved the reputation of the spa, began. Thanks to a wide range of services, the spa was able to flourish having more than 4,000 guests. As J. Mulík mentions [7], inconsistent criteria and reports distort the visit rate of that time. Therefore, it is not known why the number of visitors dropped to 3,500 in 1890. One of the reasons was an increase in stay and procedure charges, which was not affordable to everyone. The turning point for the rise in the number of guests was the construction of the Deák Spa Hotel which enhanced the total capacity of the spa. The construction of the Bardejov - Prešov railway line in 1895 brought an important progress as well as new guests, whose number reached 3,700. The visit of Empress Elisabeth of Austria, another prominent European ruler, and the construction of the Dukla and Astoria hotels also contributed to a good reputation of the spa which can be seen in the number of guests, which was 4,000 in 1898.

The visit rate of the Bardejov Spa in the years from 1960 to 2016 is presented in Figure 4.

Based on the results obtained from the second regression model, we can conclude that there was a higher growth in the guest rate by an average of 287. The P-value is 0.0001 which is also less than 0.05, and hence the hypothesis H0 (H0 = 0) is rejected and we accept the hypothesis H1 (H1 ≠ 0). As a result, there is a statistically significant linear relationship between these variables (the year rate and the visit rate), so we can say that the visit rate years was also impacted by the development (reconstructions, constructions, indications, treatment) in individual. In this case, the value of the determination coefficient is estimated at 0.742904, which is 74%, and represents a high dependency. The remaining 26% of the variability are caused by factors not included in the regression model and other accidental impacts. We have used HAC to correct standard errors, and Hypothesis 2 has also been confirmed (Table 3).

Based on the shape of the regression line (Figure 5), we can conclude that the study of the historical sources and the regression analysis calculation has confirmed the dependence: the abovementioned historical facts (construction and reconstruction of buildings, visits of prominent personalities, etc.) influenced the visit rate of the Bardejov Spa in periods of the development of the spa from nationalisation and the spa development in the years from 2000 to 2015. The equalizing regression line in the graph shows the estimate of our model. The line is growing, thus we can say that with the rising values of the variable (year) the values of the variable (guests, visit rate) increase, too. It is important to note that the number of guests to the spa was affected by two laws, namely the Act on Nationalisation of Spas and Springs of 1948, when the reconstruction and restoration of damaged buildings for year-round operations started, and Act No. 43 on Spas and Springs. The approval of the spa statute for the Bardejov Spa in 1955, significant for continuing construction and development of the spa, was of great importance, as well. The spa grew in popularity. As a re-

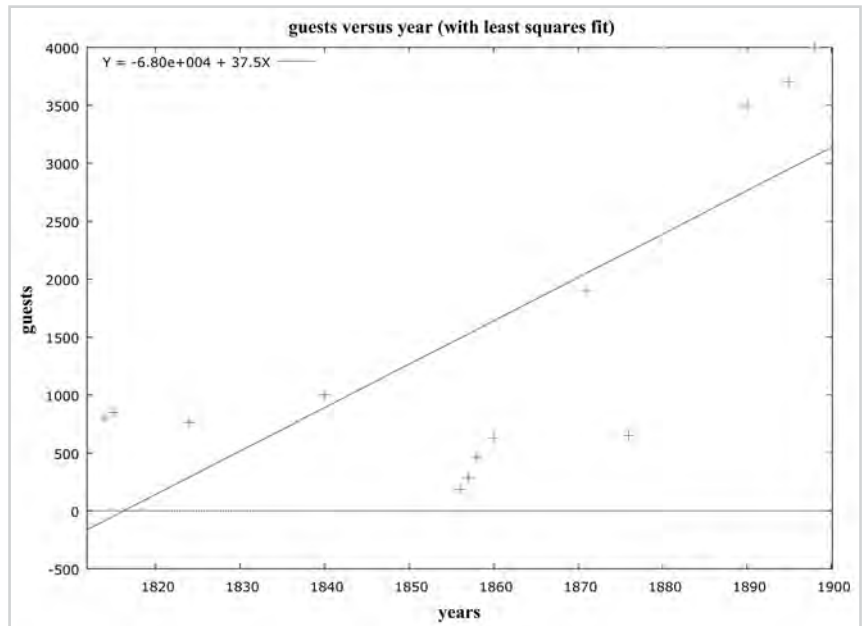


Fig. 3: The regression line of the visit rate of the Bardejov Spa in the years from 1814 to 1898

Source: Own processing by using Gretl statistical program

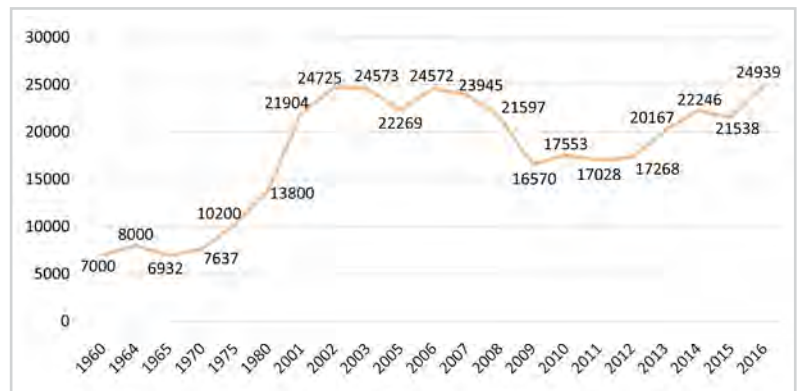


Fig. 4: The visit rate of the Bardejov Spa in the years from 1960 to 2016

Source: Own processing based on [4; 6]

sult, 7,000 visitors were treated in the spa in 1960. Guests arrived mainly from the western part of Czechoslovakia, and in 1964 the number of visitors rose to 8,000. Even though the number of guests fell in the following years, it started to rise again thanks to the doctor František Radáč who contributed to the building of the service centre, the colonnades, the cinemas, the balneotherapy health centre and the indoor pool. The construction of the Hotel Minerál and the opening of a spa open-air museum conducted to an increase in the number of guests to 7,637 in 1970. The completion of the Ozón Hotel raised not only the number of visitors (10,200 in 1975) but also the accommodation capacity of the Bardejov Spa. Vibrating social life, lively spa tourism, and high-quality health care showed results in the rise of the number of guests, and, with the accommodation capacity of 1,100 beds, it reached 13,800 guests in 1980. Since we have not been able to find any data for the years 1990 to 2000, we can only deduce that the visit rate increased, as well as in the following years: there were 21,904 guests in

Tab. 3: The regression analysis of the visit rate of the Bardejov Spa for the period from 1960 to 2015

	Coefficient	Standard deviation	P-value
Constant	-554,536	72,802.5	0.0001
Year	286,507	36,8691	0.0001
Determination coefficient	0.742904		

Source: Own processing by using Gretl statistical program

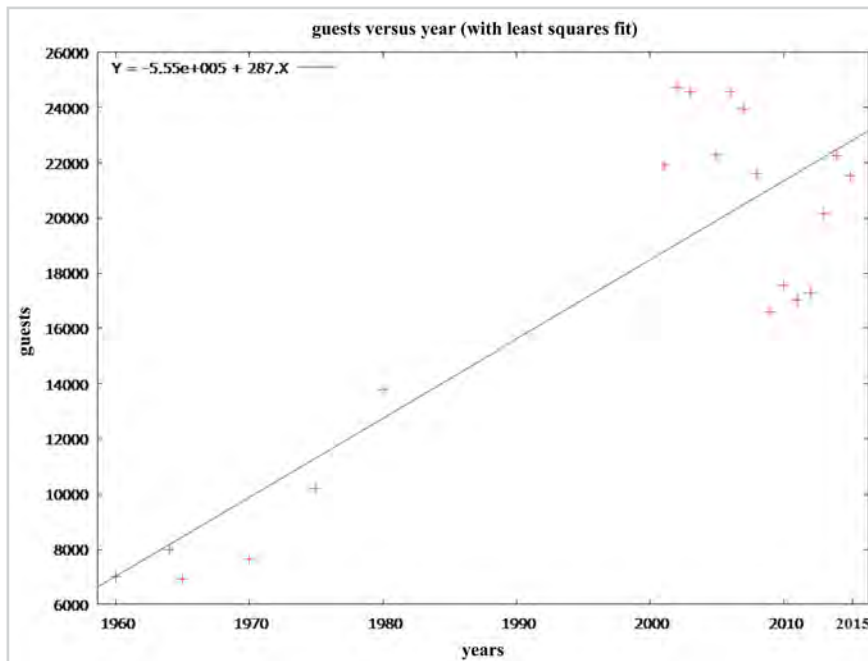


Fig. 5: The regression line of the visit rate of the Bardejov Spa in the years from 1960 to 2015

Source: Own processing by using Gretl statistical program

2001, and 24,573 guests arrived at the spa in 2003. In the following year, the amendment to the payment of some health-care fees marked the spa tourism. Consequently, the number of guests reduced to 22,269. In 2007, the number of guests rose to 23,945. Yet, the global economic crisis and the adoption of the Euro brought further decrease in the visit rate, and only 16,570 patients visited the spa in 2009 (Kireta, 2012) [25].

In 2011, another amendment to the Health Care Act was adopted, which caused some decline in the number of patients. This number leveled off thanks to the opening of the Wellness Centre and the Centre for Men's Health, and due to the introduction of elastography examination of the liver. The number of guests increased to 17,268 at the end of 2012. In 2015, the Hotel Minerál was rebuilt into a luxurious congress Hotel Alexander ****, which brought accretion of the accommodation capacity. At present, the company *Bardejovské kúpele a.s.* has the accommodation capacity of 1,196 beds in 613 rooms available in the main season. The number of employees ranges from 245 (+92 outsourcing), which makes it the second largest employer in the Bardejov District.

References

- Petraccia L., Liberati G., Masciullo S.G., Grassi M., & Fraioli A. (2006). Water, mineral waters and health. *Clinical Nutrition*, 25(3), 377-385. doi: <https://doi.org/10.1016/j.clnu.2005.10.002>
- Association of Slovak Spas (2013). *Spas*. Retrieved from <http://ask.sk/spa> (in Slovak)
- Bodiš, D., Božíková, J., & Mackových, D. (2016). Mineral Waters of the Slovak Spas - Chemical Analysis, History and Present. *Slovak Geological Magazine*, 16, 41-56. Retrieved from https://www.researchgate.net/publication/315894469_Mineral_Waters_of_the_Slovak_Spas_-_Chemical_Analysis_History_and_Present
- Statistical Office of the Slovak Republic (2016). *Official web-site*. <http://www.statistics.sk> (in Slovak)
- Mulík, J. (1981). *Spa history in Slovakia*. Martin: Osveta (in Slovak).
- Rebro, A. (1979). *Water healing and refreshing*. Martin: Osveta (in Slovak).
- Mulík, J. (1969). The history of Bardejov Spa. In I. Sedlák (Eds.), *Sariš Museum* (in Slovak).
- Orieška, J. (1994). *Technique of tourism services*. Praha: Idea servis (in Slovak).
- Zálešáková, J. (2008). Spa in Europe. *Spa*, 3, 7 (in Slovak).
- Hensel, J. et al. (1951). *Balneography of Slovakia*. Bratislava: SAVaU (in Slovak).
- Elišová, D. (2009). *Slovak Spas in the 20th century*. Bratislava: EKONOM (in Slovak).
- Dercó, J. (2014). The Slovak Spas in the Light of the Health Care System. *Tourism Planning & Development*, 11(2), 243-252. doi: <https://doi.org/10.1080/21568316.2013.864993>
- Warwick, F., & Laing, J. (2017). History of spa tourism: spirituality, rejuvenation and socialisation. In M. K. Smith & L. Puczkó (Eds.), *The Routledge Handbook of Health Tourism*. New York: Routledge.
- Bushell, R. (2017). Healthy tourism. In M. K. Smith & L. Puczkó (Eds.), *The Routledge Handbook of Health Tourism*. New York: Routledge.
- Rogers, E. (2009). *The trends of transformation of Carpathian spas in Poland and Slovakia in a free market economy*. (Doctoral dissertations). Institute of Geography and Spatial Management. Krakow (in Polish).
- Vassileva, S. (1996). Mineral water and the spas in Bulgaria. *Clinics in Dermatology*, 14(6), 601-605. doi: [https://doi.org/10.1016/S0738-081X\(96\)00090-9](https://doi.org/10.1016/S0738-081X(96)00090-9)
- Katsambas, A., & Antoniou, C. (1996). Mineral water and the spas in Greece. *Clinics in Dermatology*, 14(6), 615-618. doi: [https://doi.org/10.1016/S0738-081X\(96\)00093-4](https://doi.org/10.1016/S0738-081X(96)00093-4)
- Benedetto, A., & Millikan, L. (1996). Mineral water and the spas in the United States. *Clinics in Dermatology*, 14(6), 583-600. doi: [https://doi.org/10.1016/S0738-081X\(96\)00089-2](https://doi.org/10.1016/S0738-081X(96)00089-2)
- Titzmann, T., & Balda, B. (1996). Mineral water and the spas in Germany. *Clinics in Dermatology*, 14(6), 611-613. doi: [https://doi.org/10.1016/S0738-081X\(96\)00092-2](https://doi.org/10.1016/S0738-081X(96)00092-2)
- Andreassi, L., & Flori, L. (1996). Mineral water and the spas in Italy. *Clinics in Dermatology*, 14(6), 627-632. doi: [https://doi.org/10.1016/S0738-081X\(96\)00095-8](https://doi.org/10.1016/S0738-081X(96)00095-8)
- Karam, P. (1996). Mineral water and the spas in France. *Clinics in Dermatology*, 14(6), 607-610. doi: [https://doi.org/10.1016/S0738-081X\(96\)00091-0](https://doi.org/10.1016/S0738-081X(96)00091-0)
- Szállási, A. (1985). Promoting balneology in Hungary. *Orvosi Hetilap*, 34, 2110-2112.
- Roanghes-Mureanu, A.-M., & Tudoricu, A. (2014). Development opportunities for spa tourism in Vâlcea Subcarpathians: Towards a single European market. *Human Geographies - Journal of Studies and Research in Human Geography*, 8(2), 111-123. doi: <https://doi.org/10.5719/hgeo.2014.82.111>
- Cassens, M., Hörmann, G., Tarnai, C., Stosiek, N., & Meyer, W. (2012). Health tourism: Increasing importance of touristic settings for public health and medical prevention. *Prävention Und Gesundheitsförderung*, 7, 24-29. doi: <https://doi.org/10.1007/s11553-011-0313-2> (in German)
- Kireta, Š. (2012). Spa establishment in times of crisis. *Gospodarka regionalna i turystyka*, 10, 239-244.

In 2016, the Bardejov Spa reached a pick of the visit rate with its 24,939 clients, which was 15.79% higher than in 2015. Year on year, the number of overnight stays increased by 9% and reached 251,884. J. Komora the Spa Director, anticipates further growth in the number of guests in 2017, if compared to 2016. In 2016, the number of foreign tourists (1,556) reached almost the same level as in 2015 (1,553). With the growth of domestic clientele, the share of foreign clientele was reduced from approximately 8% to 6.24%. The number of guests from the Czech Republic increased from 40% to 59% of the total number of foreign guests.

5. Conclusions

In the time of the first records of Bardejov acidulous mineral waters stretching back to 1247, nobody anticipated the hidden potential of curative springs and future benefits for the region and the Slovak spa industry. Taking into consideration the extent of the article, we have not been able to do a comprehensive assessment of the state of all development periods of the Bardejov Spa. Nevertheless, with the detailed field research, we have singled out several periods such as the first golden period, the period of stagnation, the second golden period, the

period between World War I and World War II, the development of the Bardejov Spa from nationalisation and development in the years 2000 to 2015, separately 2016. We have captured the historical development briefly, but only in the context of the spa visit rate, for the purpose of calculating the regression analysis. From the above-mentioned historical periods, we have evaluated two periods: the first period was (1814-1898), and the second period was 1960-2015. Based on the regression analysis of the visit rates and the regression line for the given periods, we have concluded that the Bardejov Spa has always had a huge potential in spa tourism, as evidenced by an increasing number of visitors. Although we have to note that some circumstances, such as the fire in 1856, the 1848-1849 Hungarian Revolution, the stagnation in reconstructions, the First World War and the Second World War and the amendments to laws decelerated the progress of the spa. As far as the final evaluation of the individual periods is concerned, each of them has contributed to spa tourism and to the development of the Bardejov Spa. At present, the number of guests shows an increasing trend, as evidenced by the 2016 visit rate, as well as by the current data for 2017.

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