

## Consumption of Spa Tourism Products in the Slovak Republic and the Economic Results of Enterprises in the Spa Sector

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### Abstract

**Aim:** The aim was to identify the relationship between the proportion of self-paying and insured patients and the total revenues of spa facilities in Slovakia.

**Methodology:** The analysis was based on data from the Statistical Office of the Slovak Republic and annual reports of spa enterprises for the period 2009-2023. The relationships between client structure and economic performance were evaluated using Pearson's and Spearman's correlation coefficients and simple linear regression.

**Results:** The results show a strong and statistically significant correlation between the number of self-paying clients and the total revenues of spa enterprises. For the insured patients the relationship was weaker and statistically insignificant, indicating their stabilising but now growth-inducing role. The expenditure of public health insurance companies had a positive impact on the number of spa visitors, confirming their importance in maintaining demand.

**Implications and recommendations:** The findings confirmed that self-paying clients play a key role in the economic sustainability of Slovak spas. For spa managers, this highlights the need for targeted marketing and product innovation for this segment. Policymakers should consider hybrid financing models that combine support for insured patients with incentives to attract self-paying clients.

**Originality/value:** The paper fills a gap in the literature by providing quantitative evidence on the economic impact of spa tourism consumption in the Slovak Republic, using correlation and regression analysis to data rarely used in this context.

**Keywords:** tourism, spa, innovation, potential

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## 1. Introduction

Spa tourism represents an important segment of the Slovak economy, which plays a significant role not only in the health sector, but also in regional development and employment. As a result of the ageing population, growing interest in health lifestyles and preventive treatment, there is an increased demand for spa services. The composition of the clientele, namely the split between self-payers and patients covered by health insurance companies (types A and B), plays a crucial role in the economic revenues is key to strategic planning and service optimisation.

In the Slovak context, a spa tourism product is understood as a complex service package that includes therapeutic treatment, accommodation, catering, wellness and leisure activities. This broader understanding is essential for capturing the economic role of spa enterprises in tourism and healthcare.

This paper analysed the economic impact of the consumption of spa tourism products from the perspective of individual groups of visitors using Pearson's correlation coefficient. The aim was to identify the relationship between the share of self-paying patients and those covered by insurance companies in the total sales of spa facilities in Slovakia.

The originality of this study lies in applying correlation and regression analysis to quantify the direct economic relationship between the customer structure and spa revenues in Slovakia. Unlike previous studies that primarily addressed marketing or general socio-economic impacts of spa tourism, this paper provides empirical evidence on the financial contribution of self-paying and insured patients. The contribution is scientific by filling a research gap in Central European spa tourism studies, and also practical by offering recommendations for managers of spa enterprises and policy makers in designing effective financing and marketing strategies.

## 2. Literature Review

According to Lukoseviciute, Pereira & Panagopoulos (2022), the economic impact of this sector is financial, stimulated by tourists' expenditure that causes changes in income, employment and the output value. Tourist spending generates a ripple effect on the local economy—starting with direct revenues, followed by indirect supply chain spending and induced household consumption—leading to comprehensive economic benefits/impacts.

Research on the economic benefits of spa tourism and its links to the structure of consumers in the context of health care has been the subject of several studies in the Central European area in recent years. Novotná et al. (2024) analysed the resilience of the spa industry in changing market conditions, strongly pointing to the impact of domestic self-payers and patients covered by insurance companies on the revenues of spa businesses in Czechia and noting the need for diversification of services.

Kocourek, M., Rohlíková, L., & Jenčková, J. (2022), as part of a broader analysis of current trends in the spa industry, identified differences in the behaviour of self-payers and insured patients, highlighting their different expectations and willingness to pay for enhanced services. Kramkowska (2018) focused on the perception of spa treatment by younger patients and analysed the economic implications of combined financing (Narodowy Fundusz Zdrowia (NFZ) vs. self-payers) in Poland, and pointed out the need to optimise prices for different patient segments. Vystoupil et al. (2017) studied the economic effects of the spa industry in the context of regional development and stressed the importance of the combination of healthcare and self-paying customers for the sustainability of spa facilities. Štefko et al. (2020) provided an economic and legal analysis of the financing of spa treatments, highlighting the impact of legislation and insurance on the decision-making of business entities in spa tourism. Kučerová (2020) examined the decision-making factors of customers when choosing between insurance-covered treatment and self-payment and found that higher satisfaction leads to repeat visits, regardless of the form of payment. Čabinová & Onuferová (2019) analysed the use of correlation methods (including Pearson's coefficient) in examining the financial indicators of spa facilities in Slovakia and their dependence on the type of customers. Smith & Puczkó (2014) examined European trends in health and wellness tourism, emphasising that the economic sustainability of spa facilities depends on the right balance between clients stays covered by insurance companies and those financed self-payers. Voigt & Laing (2013) presented the differences in the economic impact of diverse groups of health tourists and revealed the variety in consumer behaviour in the systems with public and private financing of services. Johnston et al. (2010) explored the economic and social impact of health tourism with an emphasis on payment types and patients' origin.

Páleník (2021) analysed the growing share of self-payers in the context of the 'silver economy' as an important segment with higher economic performance. Dérco & Pavlišinová (2016) found that more than 55% of spa customers in Slovakia were self-payers and their consumption had a significant impact on the revenues of spa businesses. Kajzar & Václavíková (2017) in their analysis of spa services in Czechia established that self-payers demonstrated longer length and higher value of consumption compared to insured patients.

According to Dérco et al. (2020), customers reimbursed by health insurance companies also form a stable part of the spa's revenue, with their number correlating with financial indicators. Smith et al. (2020) in the WellSpaV4 project, documented that in the V4 countries the financing of spa care through insurance companies is a stable economic instrument and has a positive effect on the volume of services.

Novotná et al. (2024), in their research on the spa industry in Czechia, reported that an increase in public expenditure on spa treatments leads to an increase in attendance, especially in groups of older patients. Kotikova & Schwartzhoffova (2013) compared the length of stay of customers covered by insurance companies and self-payers, and found that publicly funded stays, although shorter, are stable and predictable element for spa businesses.

Although spa tourism in Central European countries – including Slovakia – has a long tradition, the systematic investigation of the economic impact of individual groups of customers (self-payers vs. insured) remains on the periphery of mainstream research interest (cf. Dryglas & Salamaga, 2023; Kubičková et al., 2025; Novotná et al., 2024; Senková et al., 2024; Torres-Pruñonosa et al., 2022). Most studies focused either on marketing and customer satisfaction or the general economic benefits of spa tourism, whilst the quantitative analysis of funding segments (e.g. by source of compensation) based on correlation with spa revenues remained rare. In terms of the economic theory of consumption in services with co-financing (e.g. health + tourism), the theory of demand elasticity, market

segmentation, and financing public goods play a notable role (Samuelson, 1954; Weisbrod, 1991). Spa care is particular in that it combines elements of publicly financed health services (Group A and B patients) with private consumption (self-payers), which provides scope for exploring complementarity vs. substitution between these groups.

This research was based on identified gaps: the lack of statistical analysis of the relationship between customer segments and revenue in the Slovak Republic, the lack of quantitative methods applied to public and private data (e.g. number of A/B patients/self-payers vs. the economic performance of spas), and the need for evidence of the direct economic impact of insurance company expenditure on customer attendance.

### 3. Methodology

This study used a quantitative analytical approach to investigate the relationship between the segmentation of customers in the Slovak spa tourism sector and the corresponding economic performance of spa enterprises. The primary objective was to evaluate the correlation between the number of customers (disaggregated by payment source) and the revenue of spa businesses in Slovakia.

Within the framework of the research, data were obtained from the Statistical Office of the Slovak Republic (in 2017-2023) from the annual reports of spa enterprises (BARDEJOVSKÉ KÚPELE, a.s.; Slovenské liečebné kúpele Piešťany, a.s.; Kúpele Trenčianske Teplice, a.s.; Kúpele Turčianske Teplice, a.s.; Kúpele Bojnice, a.s.; Kúpele Dudince, a.s.; Kúpele Brusno, a.s.; KÚPELE SLIAČ a.s.; Kúpele Lúčky a.s.; Kúpele Nimnica, a.s.; Liečebné termálne kúpele Sklené Teplice a.s.; Prírodné jódové kúpele Číž a.s.; Kúpele Vyšné Ružbachy a.s.; Kúpele Smrdáky, a.s.; Kúpele Nový Smokovec, a.s.; Kúpele Štós a.s.; Kúpele Horný Smokovec a.s.; Kúpele Lučivná a.s.; Liečebné kúpele Červený Kláštor a.s.; Sanatórium Tatranská Kotlina a.s.; Liečebný dom Sanatórium Dr. Guhra; Slovenské liečebné kúpele Rajecké Teplice a.s.; Kúpele Horný Smokovec s. r. o.; Kúpele Kováčová s. r. o.).

All the statistical calculations were performed in IBM SPSS Statistics 26 and Python (pandas, scipy.stats), which ensured the reproducibility and clarity of the computational steps.

The significance level ( $\alpha$ ) was set at 0.05. Confidence intervals and effect sizes (Cohen's  $d$  where appropriate) were reported to support the reliability of the findings.

Pearson's product-moment correlation coefficient ( $r$ ) was selected as the primary statistical method to test the formulated hypotheses. To confirm the robustness of the findings, in addition to Pearson correlation, other methods such as Spearman's correlation as a non-parametric alternative and simple linear regression were applied to model the relationship between the number of customers and the sales by the spa businesses.

The Pearson correlation method was particularly well suited for this analysis for several compelling reasons:

- The nature of the variables:
  - the primary variables under investigation (self-payers, insured customers, total revenue of spa enterprises, and public insurance expenditure) are all continuous ratio-level variables. This characteristic satisfies the fundamental assumption required for the calculation of Pearson's  $r$ .
- Research objective:
  - the main objective of this study was to evaluate the strength and direction of the linear relationships between different categories of customers and economic indicators, rather than to make predictions or establish causality. Pearson's  $r$  is a widely accepted metric in exploratory and correlational research designs to quantify the extent of linear associations between pairs of numerical variables.

- Data characteristics:
  - before performing a correlation analysis, the author assessed the normality and homoskedasticity of the variables using Shapiro-Wilk tests and the visual inspection of the Q-Q plots. These assessments confirmed that the use of Pearson's coefficient was statistically appropriate for this data set.

The Pearson correlation coefficient provided interpretable effect sizes ( $r$ -values) that can be easily communicated to non-technical audiences (institutions, local authorities and owners of spa businesses). This method also allowed for a comparison with previous studies in similar areas (e.g. Dérco et al., 2020; Kajzar & Václavíková, 2017), which also used linear correlation approaches.

The coefficient ranged in the interval  $-1 \leq r \leq 1$ , where the value of the coefficient indicates the strength of the relationship, while the mathematical sign plus or minus indicates the direction of the relationship (positive or negative). Prior to the regression analysis, a log transformation was performed on all the variables to remove the potential problem of heteroskedasticity or variability of variance due to error in the relationship. Simple linear regression values were estimated using the least squares method. The existence of autocorrelation and heteroskedasticity problems was tested, as well as whether the assumption of a normal distribution of relational errors was met. The Breusch-Godfrey test, the White test and the Jarque-Bera test were used for this purpose. Once it was concluded that there was no first-order autocorrelation problem of relational error or heteroskedasticity problem and the assumption of normality of relational errors was satisfied in all the regression models, the regression equation was estimated, and the relationship was established between the observed variables.

The general Pearson correlation coefficient  $r$  is expressed as follows:

$$r = \frac{\sum(X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum(X_i - \bar{X})^2 \sum(Y_i - \bar{Y})^2}}, \quad (1)$$

where:

- $X_i, Y_i$  = the values of two variables (e.g. number of patients and sales),
- $\bar{X}, \bar{Y}$  = the mean values of variables  $X$  and  $Y$ ,
- $r$  = resulting correlation coefficient, in interval  $[-1,1]$ :
  - $r = 1 \rightarrow$  strong positive correlation,
  - $r = -1 \rightarrow$  strong negative correlation,
  - $r = 0 \rightarrow$  no correlation.

For the correlation between the number of patients by the method of payment of the stay and the sales by spa businesses, the formula was adjusted as follows:

$$r = \frac{\sum(P_i - \bar{P})(R_i - \bar{R})}{\sqrt{\sum(P_i - \bar{P})^2 \sum(R_i - \bar{R})^2}}, \quad (2)$$

where:

- $r$  = Pearson's correlation coefficient,
- $P_i$  = number of patients treated in year  $i$  (including both insured patients and self-payers),
- $R_i$  = revenue from spa services in year  $i$ .

The indicators  $P$  and  $R$  refer to the average values over the entire period (2009-2022).

In addition, the regression relationship between spa revenues and the number of customers was modelled using the following equation:

$$R_i = \alpha + \beta P_i + \varepsilon_i, \quad (3)$$

where:

- $R_i$  = spa revenue in year  $i$ ,
- $P_i$  = number of customers (by type of payment),

- $\alpha$  = intercept,
- $\beta$  = regression coefficient,
- $\varepsilon$  = error term.

The use of these statistical procedures ensures that the analysis met the standard assumptions of correlation and regression models. The following section presents the empirical results obtained on the basis of the described methodology.

Building on the findings of previous studies, the research gap identified in the literature suggests that the structure of spa customers, particularly the balance between self-payers and those covered by public health insurance, may have a direct impact on the revenue and performance of spa enterprises in Slovakia.

Therefore the following hypotheses were formulated:

- H0(1): There is no statistically significant relationship between the number of self-payers and the total revenues of spa enterprises in the Slovak Republic.
- H1(1): There is a statistically significant positive relationship between the number of self-payers and the total revenues of spa enterprises in the Slovak Republic.
- H0(2): There is no statistically significant relationship between the number of customers whose stays were covered by public health insurance and the revenues of Slovak spa enterprises.
- H1(2): There is a statistically significant relationship between the number of customers whose stays were covered by public health insurance and the revenues of Slovak spa enterprises.
- H0(3): Public health insurance expenditure on spa care does not significantly affect the number of spa visitors in the Slovak Republic.
- H1(3): Public health insurance expenditure on spa care significantly affects the number of spa visitors in the Slovak Republic.

#### 4. Results

Monitoring customers based on the method of spa treatment payment provides important context for assessing the potential of spa tourism in Slovakia through capacity and performance indicators. The high proportion of self-payers (59%) suggests that spa facilities are increasingly reliant on individuals' financial capacity and motivation. This trend affects facility performance and their ability to utilise the available capacity. At the same time, the increase in the number of patients whose stay was covered by health insurance (by 1.7%) indicated stable demand supported by healthcare institutions, which is important for capacity planning (see Graph 1). The number of spa facilities, bed capacity, and utilisation of permanent beds are directly influenced by the type of payment. If insurance companies expand their reimbursement programmes for spa stays, this may lead to higher occupancy rates and more efficient use of existing infrastructure. The trend toward self-payers may reflect a shift in demand for above-standard services, influencing the investment priorities of spa facilities. Average length of stay, occupancy rates, and revenue trends are closely tied to changes in customer structure. When self-payers predominate, they may prefer shorter stays and higher-quality services, while those insured may participate in longer, standardised therapeutic programmes.

Monitoring the method of payment helps spa facilities tailor their offered services to demand. Capacity indicators, such as the number of rooms or employees, can be optimised based on changes in the financing structure. Performance indicators, e.g. revenue and visitor numbers, allow for an assessment of whether facilities are effectively utilising the available capacity and responding to the needs of different customer segments.

Insurance-covered stays (blue bars in Figure 1): the number of insured patients remained stable from 2009 to 2019, gradually increasing to a peak of 66,702 in 2019. A sharp decline occurred in 2020 (43,617) due to the COVID-19 pandemic. Since 2021 a gradual recovery was observed, reaching 59,560 insured patients in 2023.

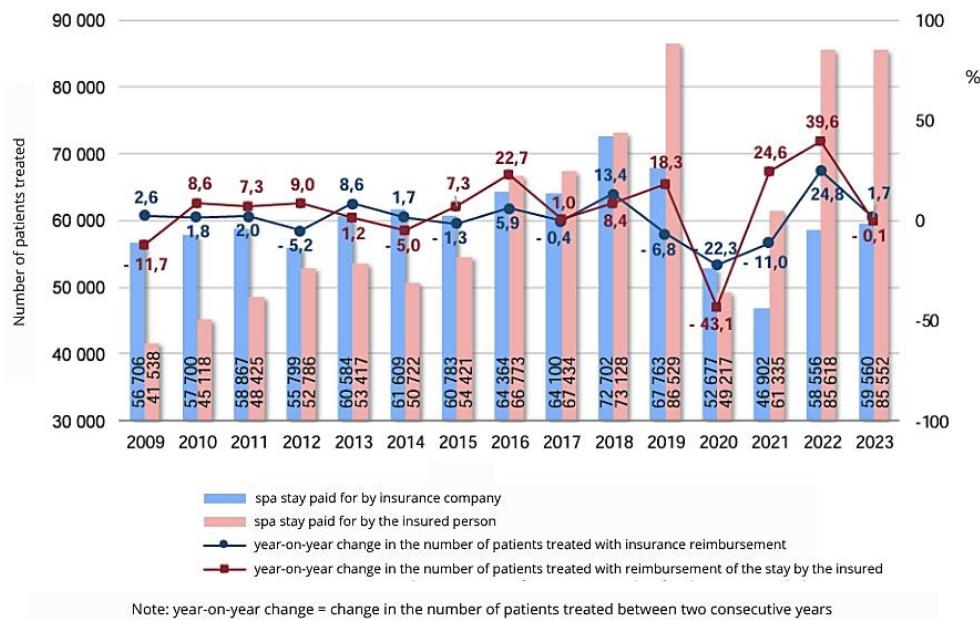


Fig. 1. Development of treated spa patients with permanent residence in Slovakia by type of payment (in 2009-2023)

Source: (National Health Information Centre of the Slovak Republic, 2024).

Self-paid stays (pink bars in Figure 1): the number of self-payers generally increased since 2009, reaching a peak in 2022 (85,618), whereas in 2023, a slight decline was recorded (85,552). Year-over-year percentage changes for both payment types highlighted significant volatility, especially during 2020 and 2021, when spa facilities were affected by pandemic-related restrictions. The sharpest increase in year-over-year changes for both groups was observed in 2022, indicating a post-pandemic revival of spa tourism.

The number of insurance-covered customers remained more stable compared to self-payers, suggesting different dynamics in the preferences and accessibility of spa services for these two groups.

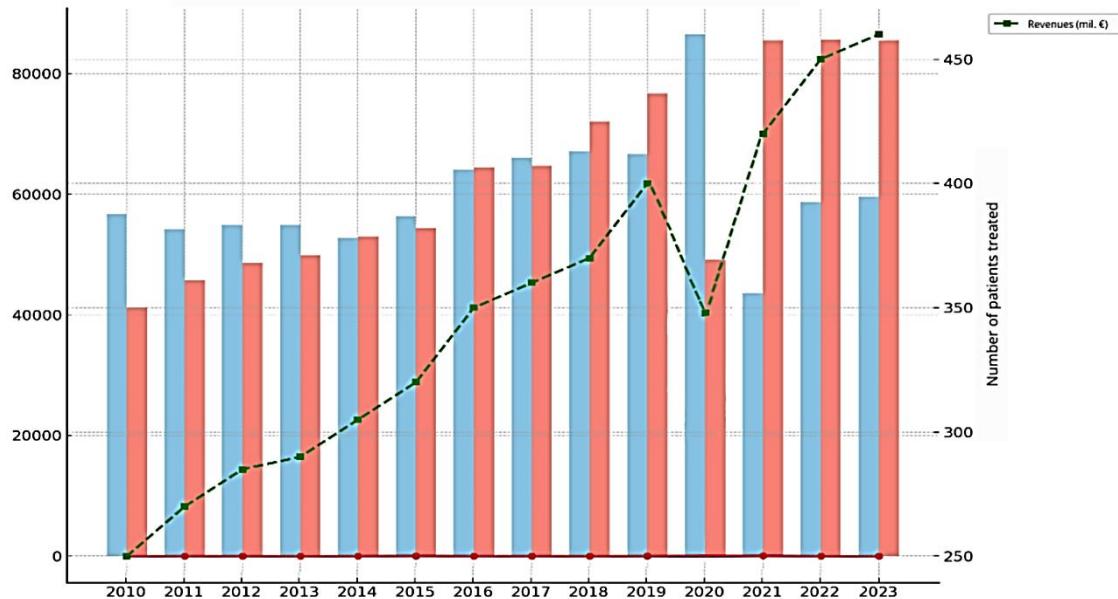


Fig. 2. Treated spa customers by type of payment and spa enterprises' revenues in Slovakia (in million EUR) in 2010-2023

Source: own elaboration.

Note: Blue bars – number of customers whose stays are covered by health insurance; orange bars – number of self-paying customers; green dashed line – revenues of spa enterprises (in mil. EUR)

Figure 2 illustrates the changing dynamics of spa tourism in Slovakia, with the COVID-19 pandemic playing a key role. While the self-paying segment shows long-term growth, reimbursements from health insurance providers remain crucial for the stability and balance of the spa system. The self-paying segment was the main driver of revenue growth in spa tourism, as evidenced by its strong correlation with the revenue of spa enterprises in Slovakia (see Figure 3).

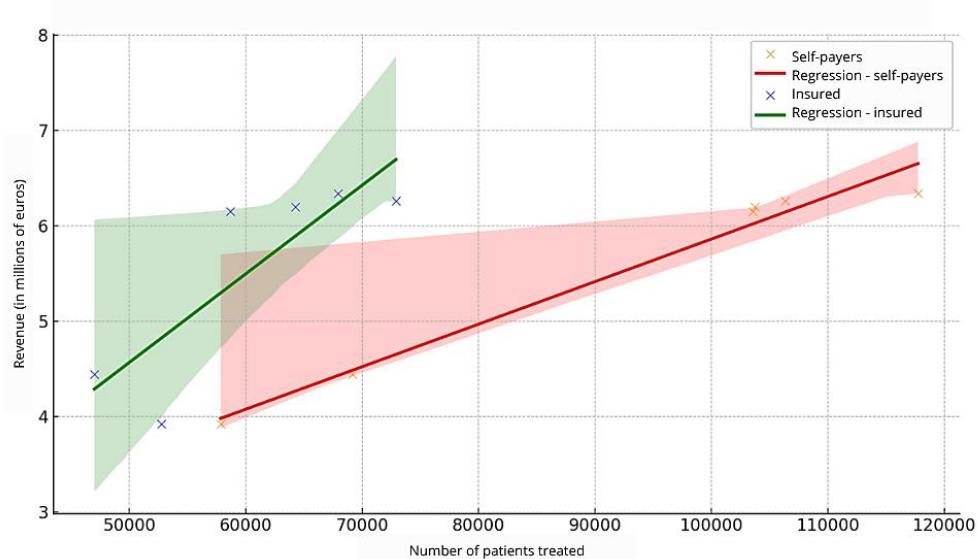


Fig. 3. Linear regression of the relationship between self-payers, insured customers and spa enterprise revenues

Source: own elaboration in statistical program IBM SPSS Statistics 26.

Revenue of spa enterprises exhibited a positive correlation with the number of self-payers, indicating that this market segment provides a greater financial contribution to spa businesses. A more stable but less dynamic trend was observed among those covered by health insurance, where revenue depended on the fixed reimbursement rates set by health insurance providers. The sharp decline in both numbers of visitors and spa revenue during 2020 and 2021 underlined the vulnerability of spa tourism to external shocks, such as the COVID-19 pandemic. In 2022 the rapid increase in the number of self-payers and the corresponding recovery in the volume of revenue suggest a renewed demand for spa services.

These findings highlight the importance of the self-paying segment as the main driver of revenue and emphasise the need to focus on this group in strategic planning for spa tourism development, whilst they also underline the stabilising role of the insurance-covered customer segment, which contributes to the long-term sustainability of spa tourism. The total number of spa visitors (including those reimbursed by insurers) showed an upward trend following the decline during the pandemic (2020-2021), correlated with growing expenditure on the part of health insurance providers. This correlation (correlation coefficient: -0.124278) suggests that higher insurer spending supports a larger number of publicly funded patients. Spa revenues followed a similar trend to health insurance expenditure, with a significant drop during the pandemic and a notable recovery in 2021 and 2022. This dynamic indicated that expenditure by health insurance providers was among the key factors influencing the overall economic performance of the spa tourism sector.

The results strongly confirm Hypothesis H1(1), which states that the number of self-payers has a significant and strong positive impact on the revenue of spa enterprises. The findings also support Hypothesis H1(3), suggesting that health insurance expenditure (represented by the number of insured customers) positively influence visitor numbers as well as revenue, although less markedly than in the case of self-payers.

The model based on self-payers demonstrates higher predictive accuracy and should therefore be prioritised in the planning of marketing strategies, investment decisions, and service segmentation.

Table 1. Comparison of Spearman's and Pearson's correlation coefficients

Variable	Spearman's	Spearman's <i>p</i> -value	Regression coefficient ( $\beta$ )	Intercept ( $\alpha$ )	<i>R</i> -value (correlation)	$R^2$ (coefficient of explained variance)	<i>p</i> -value of the regression
Self-paying customers	1	0	446.5182	1,395,8261	0.985753	0.971708	0.000303
Insured customers	0.89	0.018	929.9709	-840,731	0.837113	0.700758	0.037637

Source: own elaboration in statistical program IBM SPSS Statistics 26.

Spearman's correlation confirmed a very strong monotonic relationship between the number of self-paying customers and spa facility revenue ( $r = 1.00; p < 0.001$ ), which reinforces the credibility of the initial Pearson's correlation analysis. For those insured, the correlation was lower ( $r = 0.89$ ), yet still statistically significant ( $p = 0.018$ ), indicating that this segment also has a positive, though less pronounced, relationship with the economic performance of spa enterprises. A simple linear regression between the number of self-payers and the level of revenue revealed a very strong relationship ( $R^2 = 0.972$ ), with each additional self-paying customer contributing an average of €446.52 in revenue. For those insured, the regression model was weaker ( $R^2 = 0.701$ ), with a coefficient of €929.97, suggesting a higher individual financial contribution but lower overall predictive power. These results strongly support Hypothesis H1(1) and partially support Hypothesis H1(3).

Based on the analysis of these indicators, it can be confirmed that the null hypotheses were rejected, with the results presented below in Table 2. A very strong positive correlation was identified between the number of self-payers and the total revenue of spa enterprises ( $r = 0.98$ ), which is statistically significant ( $p < 0.05$ ). Thus, the null hypothesis was rejected, confirming the importance of self-payers to the economic performance of spa facilities, whereas the number of insured customers did not have a significant positive effect on spa enterprise revenue in Slovakia. The correlation coefficient ( $r = -0.17$ ) indicated a weak negative correlation, which was not statistically significant ( $p = 0.15$ ), therefore the null hypothesis was not rejected and the alternative hypothesis was not confirmed. Health insurance expenditure on spa care was found to have a positive effect on the number of spa facility visitors. The correlation coefficient ( $r = 0.46$ ) indicated a moderate positive correlation that was statistically significant ( $p < 0.05$ ). This hypothesis was not rejected, confirming the important role of health insurers in supporting spa stays (see Table 2).

Table 2. Hypothesis testing results based on statistical analysis

Hypothesis	Correlation coefficient	Significance ( <i>p</i> -value)	Conclusion
H1(1): There is a statistically significant positive relationship between the number of self-payers and the total revenues of spa enterprises in the Slovak Republic	0.98	<0.05	Statistically significant
H1(2): There is a statistically significant relationship between the number of customers whose stays were covered by public health insurance and the revenues of Slovak spa enterprises	-0.17	0.15	Not statistically significant
H1(3): Public health insurance expenditure on spa care significantly affects the number of spa visitors in the Slovak Republic	0.46	<0.05	Statistically significant

Source: own elaboration.

Self-payers, particularly from the growing demographic group of older adults, demonstrate greater sensitivity to service differentiation and a strong perception of health benefits. Therefore, personalised rehabilitation plans, flexible duration options, and loyalty programmes may enhance customer retention and increase average spending per visitor.

Given the volatility in the number of self-payers and the relative stability of insured customers, spa facilities should consider dual-capacity models: basic infrastructure allocated to long-term programmes funded by health insurers, and flexible units designed for premium short-term packages targeted at self-paying individuals.

Public health authorities could consider implementing hybrid financing schemes in which self-paying customers receive partial reimbursements for clinically beneficial treatments. Such measures could incentivise preventive use of spa care whilst simultaneously supporting spa providers through a diversified funding base.

## 5. Discussion and Conclusions

The findings of this study clearly demonstrate that the structure of spa customers, particularly the proportion of self-payers, significantly affects the economic performance of Slovak spa enterprises. The very strong and statistically significant correlation ( $r = 0.98, p < 0.05$ ) between the number of self-paying customers and total revenue supports the earlier research by Dérco & Pavlišinová (2017), who highlighted the financial dominance of this segment in the Slovak spa sector. This result is also consistent with Kajzar & Václavíková (2017), who found higher per capita spending among self-payers compared to those insured in Czech spa facilities.

However, the number of patients funded by public health insurance showed no significant correlation with spa revenue, indicating a more rigid and limited reimbursement framework. This partially contradicts earlier findings (e.g. Dérco et al., 2020; Smith et al., 2020), which suggested that publicly funded customers constitute a stable financial base for spa providers, yet the results of this study, suggest that while these individuals contribute to occupancy stability, under current payment conditions they do not support revenue growth.

Interestingly, public health insurance expenditure on spa care showed a moderate but statistically significant correlation with the number of visitors ( $r = 0.46, p < 0.05$ ), confirming the supportive role of insurance funding in maintaining demand, especially during the post-pandemic recovery years. These findings are in line with European-level studies (e.g. Mainil et al., 2017), which stress the role of public support in promoting accessibility and equality in health tourism services.

As noted by Dérco & Pavlišinová (2017), self-payers accounted for 55.5% of the total customer base, supporting Hypothesis H1(1) regarding their positive impact on revenue. Similarly, according to Novotná et al. (2024), insurance expenditure directly influenced the increased numbers of visits to spa facilities, thereby supporting Hypothesis H1(3).

### 5.1. Limitations

This study was based on aggregated national-level data and focused on correlations without establishing causal relationships. The use of Pearson's correlation assumed linearity and did not control for potential confounding factors such as inflation, marketing expenditures, or seasonality. The author recommends that future research employs panel regression models or structural equation modelling (SEM) to capture the complex relationships involving multiple variables. It would also be beneficial to analyse individual-level data from spa operators and health insurance providers to differentiate clients by age, diagnosis, and/or length of stay.

The study further suggests examining regional disparities in spa performance and policy implementation across different parts of Slovakia. Where data availability permits, comparing the findings with other Visegrád Group countries or Western European nations is also recommended to assess the generalisability of the results.

## 5.2. Conclusion

This study investigated the economic impact of customer segmentation in Slovak spa tourism, focusing on the roles of self-paying and insured visitors in influencing spa enterprise revenue and demand patterns. Using secondary data from 2009 to 2023 and applying Pearson's correlation analysis, the study provided empirical evidence of the significant differences in the financial contribution and demand stability between these two customer segments.

A key finding was the statistically significant and strong positive correlation between the number of self-payers and spa enterprise revenue in Slovakia, highlighting this segment as the primary driver of economic performance. In contrast, the number of customers financed by public health insurance schemes did not show a significant impact on revenue, although it contributed to a more stable and predictable occupancy model. Additionally, public insurance expenditure was positively associated with overall spa stays, stressing their role in sustaining demand, particularly during the post-pandemic recovery period.

These findings underline the importance of differentiated policy and management strategies tailored to each customer segment. Whilst self-paying customers represent a growth opportunity and a driver of market innovation, the insured segment provides a foundation for capacity utilisation and systemic resilience. A balanced approach that acknowledges both the commercial and health-related functions of spa tourism is essential for the sustainable development of this sector.

Further research is needed to explore causal relationships, microeconomic behaviour, and the regional disparities within the Slovak spa system, and to compare these findings with broader European trends. This will better equip policymakers and spa managers to optimise resource allocation, financing models, and service offered in line with the evolving demographic and economic conditions.

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## Konsumpcja produktów turystyki uzdrowiskowej w Republice Słowackiej i wyniki ekonomiczne przedsiębiorstw w sektorze uzdrowiskowym

### Streszczenie

**Cel:** Celem artykułu jest określenie związku między odsetkiem pacjentów płacących samodzielnie i pacjentami ubezpieczonymi a całkowitymi przychodami zakładów uzdrowiskowych na Słowacji.

**Metodyka:** Analiza opiera się na danych Urzędu Statystycznego Republiki Słowackiej oraz rocznych sprawozdaniach przedsiębiorstw uzdrowiskowych za lata 2009-2023. Związki między strukturą klientów a wynikami ekonomicznymi oceniono za pomocą współczynników korelacji Pearsona i Spearmana oraz prostej regresji liniowej.

**Wyniki:** Wyniki wskazują na silną i statystycznie istotną korelację między liczbą klientów płacących z własnej kieszeni a całkowitymi przychodami przedsiębiorstw uzdrowiskowych. W przypadku pacjentów ubezpieczonych związek ten jest słabszy i statystycznie nieistotny, co wskazuje na ich stabilizującą, ale obecnie niepowodującą wzrostu rolę. Wydatki publicznych zakładów ubezpieczeń zdrowotnych mają

pozytywny wpływ na liczbę odwiedzających uzdrowiska, co potwierdza ich znaczenie dla utrzymania popytu.

**Implikacje i rekomendacje:** Wyniki potwierdzają, że klienci płacący z własnej kieszeni odgrywają kluczową rolę w zrównoważonym rozwoju gospodarczym słowackich uzdrowisk. Dla menedżerów uzdrowisk podkreśla to potrzebę ukierunkowanego marketingu i innowacji produktowych w tym segmencie. Decydenci polityczni powinni rozważyć hybrydowe modele finansowania, które łączą wsparcie dla pacjentów ubezpieczonych z zachętami do przyciągania klientów płacących z własnej kieszeni.

**Oryginalność/wartość:** Artykuł wypełnia lukę w literaturze, dostarczając dzięki analizie korelacji i regresji dowodów ilościowych na temat wpływu turystyki uzdrowiskowej na gospodarkę Republiki Słowackiej.

**Słowa kluczowe:** turystyka, uzdrowisko, innowacja, potencjał

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