# SEASONALITY PATTERNS OF THE TRAVEL AND TOURISM PERFORMANCE IN THE SLOVAK REPUBLIC

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#### Abstract

This study examines the seasonality patterns of tourism in Slovakia, focusing on two key indicators: the Average Length of Stay and the Number of Visitors across various accommodation types. The analysis reveals distinct seasonal trends, with clear peaks in the summer months (July and August) and a secondary peak in winter, particularly in February, likely influenced by domestic tourism during school holidays. The Average Length of Stay is the longest in July and August, with tourist accommodations showing the highest stays, while luxury hotels record shorter stays, primarily due to business travelers. The Number of Visitors also peaks in August, with the highest numbers recorded in high-tier hotels and other hotels, while private accommodations attract fewer visitors. The study highlights the challenges posed by the off-peak season (late autumn and early spring), emphasizing the need for strategies to diversify attractions and stabilize demand throughout the year. The findings suggest that higher-tier accommodations exhibit greater resilience to seasonal fluctuations, while other accommodation types, such as boarding houses and tourist accommodations, are more dependent on summer traffic. This research provides valuable insights for tourism management, offering recommendations for optimizing the sector's performance across different seasons.

Keywords: seasonality, travel and tourism, average length of stay, visitors

### JEL Classification: C34, C67, L88

## Introduction and theoretical background

The primary global topic in tourism recently has been the recovery from the COVID-19 pandemic. While most countries have already reached or exceeded prepandemic performance levels, surpassing figures from 2018 or 2019 (Kumar & Ekka, 2023; Tang et al., 2025), Slovakia has yet to fully recover in terms of overnight stays and visitor numbers, based on data from November 2024. In terms of visitor numbers, performance in 2024 is nearly comparable to pre-pandemic levels; however, the summer of 2019 recorded 4.23 million visitors, compared to 3.94 million in 2024 - a decline of approximately 6.7%. Notably, luxury hotels demonstrated the highest resilience in recovering their performance. Regarding overnight stays, the summer of 2024 saw figures 14.7% lower than those of 2019 (12.85 million vs. 10.96 million). Remarkably, luxury hotels (4- and 5-star categories) even experienced a growth of 0.6%. Figure 1 illustrates performance trends over recent years, excluding the period from April 2020 to April 2021 due to data inconsistencies. A strategic objective derived from Slovakia's national tourism strategies is to increase the average number of overnight stays and mitigate the impacts of seasonality. This paper focuses on these issues, particularly on the dynamics of tourism seasonality.





Source: own processing using data from the Statistical Office of the Slovak Republic (2025)

Seasonality in tourism demand and supply is a fundamental factor that significantly affects the industry. This phenomenon impacts performance, employment, and revenue, creating imbalances that present some of the most complex challenges for tourism management. Destinations often oscillate between under-tourism during off-peak seasons and overtourism during peak periods. Seasonality is the subject of numerous studies, many of which analyze patterns at the level of seasons or months. However, some research delves deeper into the phenomenon using advanced methodologies that demonstrate their validity (Rosselló & Sansó, 2017). Seasonality has socio-economic and environmental implications, with varying impacts and characteristics across countries and destinations (Krabokoukis & Polyzos, 2023). This variability gives rise to destination segments with similar seasonal characteristics, where geographical location often plays a crucial role (Ferrante et al., 2018). Seasonality is largely considered undesirable and represents a negative effect of the supply-demand imbalance, causing significant issues in other sectors as well (Pollice & Mariani, 2025). 2024. VOI. 13. NO 1 - 3

One critical area impacted by seasonality is human resources, where pronounced fluctuations in demand exacerbate labor shortages in the tourism services sector (Jolliffe & Farnsworth, 2003). This issue has been amplified by the pandemic's effects on workforce availability. Additionally, sharp disparities in visitor numbers create challenges in waste management, raising the environmental impact of seasonality and making its mitigation essential for achieving Sustainable Development Goals (SDGs). Therefore, recognizing and responsibly managing seasonality is increasingly important (Caponi, 2022; Zeng et al., 2022). One of the key strategies for addressing seasonality is accurate forecasting of future tourism performance (Nagar et al., 2024). Research frequently employs methods such as the Gini index, entropy, and others to analyze these trends. Studies emphasize the importance of targeted marketing, which should focus not only on low-demand seasons but also on attracting travelers less sensitive to seasonality (Fernández-Morales et al., 2016).

At the micro level, research has revealed that higher-rated hotels demonstrate greater resilience to seasonal fluctuations (Wang et al., 2019). Despite the wealth of studies on this topic, Slovakia is often overlooked in European research. Given this gap and in line with the strategic goals of Slovakia's tourism development documents, this paper aims to assess the dynamics and factors of tourism seasonality from the demand perspective.

#### Material and methods

To achieve the objective outlined in the previous section, we will primarily employ graphical and analytical research methods, commonly utilized in other studies (Krabokoukis & Polyzos, 2023; Tang et al., 2025). This study relies on open data obtained from the DataCube database of the Statistical Office of the Slovak Republic (Statistical Office of the Slovak Republic, 2025). The dataset covers the period from January 2017 to November 2024.

For this analysis, we excluded data from April 2020 to April 2021 (inclusive) due to the unavailability of reliable data and the significant impact of the COVID-19 pandemic. The remaining months, despite the ongoing pandemic, were included in the analysis. It is worth noting; however, that the winter seasons of 2021 and 2022 may still reflect the lingering effects of the pandemic. As shown in Figure 2, weaker performance during winter months persists even in the post-pandemic period. This suggests that seasonal demand challenges in winter tourism have not fully recovered, necessitating further exploration into the factors driving this continued underperformance.





Source: own processing using data from the Statistical Office of the Slovak Republic (2025)

The regional patterns highlight how seasonal variation affects different parts of Slovakia. Žilina and Prešov regions experience the highest peaks in the summer, which suggests a strong influence of tourism or outdoor activities, likely due to the natural beauty and attractions in the areas, such as the High Tatras and historic sites. In contrast, Bratislava region shows more consistent numbers throughout the year, reflecting its status as the capital and economic hub, where activity is driven by a steady flow of residents, business professionals, and tourists, regardless of the season. Banská Bystrica region, with its moderate seasonal variation, likely sees an increase in winter for skiing and other cold-weather activities, while still maintaining activity in the warmer months for hiking and sightseeing. Trnava, Trenčín, and Nitra regions exhibit lower overall numbers, which may be attributed to these areas being less touristfocused or economically driven by seasonal changes than the other regions. Overall, all regions show clear seasonal patterns, which points to the importance of seasonality in factors like tourism, weather, and possibly even agricultural cycles across Slovakia.

In this study, we will describe the characteristics of seasonality using two key indicators: Average Length of Stay (in days) and Number of Visitors (in absolute values of persons). These indicators will be analyzed based on different types of accommodation. By examining these metrics, we aim to uncover patterns and trends specific to various accommodation categories, providing a comprehensive understanding of seasonality in Slovak tourism.

#### **Results and discussion**

In this section, we will focus on the results of the seasonality analysis in Slovakia and discuss the possible causes of these patterns. Figure 3 presents the Average Length of Stay in a month-by-month comparison. This analysis highlights variations in visitors' length of stay across different months, providing insights into the impact of seasonal demand on tourism dynamics. For the Average Length of Stay indicator, a clear peak is observed during the summer months, with visitors spending the longest holidays or visits in Slovakia during July (3.3 days) and August (3.16 days). Conversely, the months with the shortest stays are December (2.58 days) and April (2.68 days). Similarly, short stays are evident in October, June, September, and January.



Figure 3 Monthly Average Length of Stay

Source: own processing using data from the Statistical Office of the Slovak Republic (2025)

To provide a more detailed perspective, Table 1 presents descriptive statistical indicators of the Average Length of Stay segmented by selected accommodation types. This analysis reveals notable differences in visitor behaviour across accommodation categories, highlighting the varying roles they play in the dynamics of Slovak tourism.

Accommodation_Type	Mean_ Stay	Max_ Stay	Min_ Stay	Peak_ Month	Low_ Month
Tourist accommodation	3.35	4.04	2.83	7.00	10.00
Other hotels	2.91	3.19	2.64	7.00	12.00
Accommod. facilities total	2.84	3.30	2.58	7.00	12.00
Personal providers	2.73	3.24	2.45	7.00	10.00
Hotels (4* and 5*)	2.28	2.62	2.16	7.00	4.00
Boarding-houses	2.26	2.59	2.08	7.00	10.00

Table 1 Descriptive statistics of Average Length of Stay

Source: own processing using data from the Statistical Office of the Slovak Republic (2025)

The highest average length of stay was observed in Tourist accommodations, which are characterized by lower levels of "comfort and luxury" but are more affordable. This finding highlights the price sensitivity of the demand side and indicates that the typical tourist, compared to other groups, tends to stay for more nights in these types of accommodation. In contrast, the shortest stays were recorded in higher-end hotels and boarding houses, which frequently cater to business clientele, whose stays are typically shorter.

July stands out as the strongest month across all accommodation types for the average length of stay. Conversely, the shortest stays are observed in April for highend hotels and in October and December for other types of accommodation. Figure 4 illustrates the average length of stay segmented by accommodation type, showcasing the variations across these categories. This analysis underscores the importance of understanding the preferences and behaviour of different visitor segments to better tailor strategies for optimizing stays in various types of lodging.



Figure 4 Average Length of Stay Monthly by Accommodation Type

Based on the referenced graph, several noteworthy patterns can be observed. High-end hotels exhibit an almost identical average length of stay to that of boarding houses, which is likely driven by their significant use by business travelers, who

Source: own processing using data from the Statistical Office of the Slovak Republic (2025)

typically have shorter stays. In contrast, tourist accommodations show the highest average values, which remain relatively high even during the winter months. This can be attributed, in part, to their location in mountainous areas, which are appealing not only in the summer but also in the winter and are more affordable for a broader segment of clientele. A similar trend can be observed with personal providers (with Tax Identification Numbers), who often offer accommodations such as cabins or chalets, appealing to visitors seeking affordable and extended stays in nature-centric locations. Figure 5 further highlights the distribution of the Average Length of Stay across each accommodation category individually, providing deeper insights into the unique seasonal and visitor-driven dynamics of each segment.



Figure 5 Average monthly Length of Stay by Accommodation Type

Source: own processing using data from the Statistical Office of the Slovak Republic (2025)

This graph is primarily used to compare variability and patterns of seasonality without distortion from the X-axis, as seen in Figure 3. The most consistent average length of stay is observed in lower-tier hotels (other hotels), where the weakest month of the year is December, which does not apply to other types of accommodation establishments. It seems very likely that these lower-tier hotels are responsible for lowering the overall average of all accommodations in December. In the case of other types of accommodation, we observe similar patterns of seasonality for the indicator of average length of stay. In the following Figure 6, we present the development of the indicator 'Number of Visitors' – the average value for the monitored years every month.



Source: own processing using data from the Statistical Office of the Slovak Republic (2025)

The seasonality of the number of visitors in Slovakia does not exhibit as many peaks as the average length of stay. Only two peaks can be observed – one in August and one in February (which may be influenced by domestic tourism, as there are spring school holidays in Slovakia during this period). The lowest average number of visitors is recorded in December (321,507), while the number more than doubles in August (696,676). Even several fairly strong weeks at the turn of December and January do not increase the average attendance numbers of accommodation establishments. In Table 2, we present the descriptive statistics for the 'Number of Visitors' indicator by accommodation type.

Accommodation_Type	Mean_ Visit	Max_ Visit	Min_ Visit	Peak_ Month	Low_ Month
Hotels (4* and 5*)	34231	214689	583	8	12
Other hotels	29542	216093	746	8	12
Boarding-houses	13320	116574	634	8	12
Tourist accommodation	6254	59758	87	8	2
Personal providers	2591	30946	53	8	12

Table 2 Descriptive statistics of Number of Visitors

Source: own processing using data from the Statistical Office of the Slovak Republic (2025)

The lowest average attendance was recorded for private accommodation providers. On the other hand, the highest attendance was recorded for the highesttier hotels and other hotels. This group may have a significant impact on increasing the average length of stay. The highest number of visitors was recorded across all accommodation types in August. Figure 7 shows the average number of visitors for each month of the year in the defined period.



Figure 7 Average monthly Number of Visitors by Accommodation Type

The pattern of seasonality is very similar for tourist accommodation, personal providers, and boarding-houses. A distinctly sharper trend is present for both highertier and lower-tier hotels. Visitor accommodation in hotels increases significantly during the summer months. In Figure 8, we can observe the distribution of the number of visitors for each group separately.





Source: own processing using data from the Statistical Office of the Slovak Republic (2025)



Source: own processing using data from the Statistical Office of the Slovak Republic (2025)

Based on the analysis of the graph, it can be seen that, except in higher-tier hotels, where this pattern is less pronounced, a significant second peak is noticeable in the winter period, specifically in February. Slovakia's tourism industry demonstrates clear seasonal patterns, with summer emerging as the dominant period for all accommodations. July and August consistently see the highest visitor numbers, driven by favourable weather, school holidays, and the appeal of Slovakia's outdoor attractions, such as hiking, national parks, and water activities. This peak period reflects the strong reliance on summer leisure travel across the sector. Conversely, winter tourism is significant but more selective, with higher-end hotels and overall accommodations benefiting from a meaningful rise in December and January. This increase is tied to the popularity of ski resorts, festive celebrations, and winter sports, catering to a mix of domestic and international visitors.

However, the off-peak season (late autumn and early spring) poses challenges across most accommodation categories. These periods see the lowest visitor numbers, reflecting the limited tourism activities available during these months. This gap presents an opportunity for growth by promoting off-season attractions, such as cultural festivals, wellness retreats, or city tourism. Accommodation-specific trends further reveal that luxury hotels and overall facilities show greater resilience to seasonal fluctuations, likely due to their ability to attract business travelers and highvalue tourists year-round. In contrast, boarding houses and tourist accommodations experience more pronounced seasonality, relying heavily on summer traffic and struggling during the winter and shoulder seasons. Addressing these disparities could help balance demand and stabilize the tourism sector throughout the year.

## Conclusion

This analysis of seasonality in Slovakia's tourism sector reveals significant trends in both the Average Length of Stay and the Number of Visitors. Overall, summer months, especially July and August, emerge as the peak periods for both metrics, while winter months, particularly December and February, show notable variations depending on the type of accommodation.

The Average Length of Stay is the longest in July and August across all accommodation types, driven largely by the appeal of Slovakia's outdoor activities, such as hiking and national park visits. The highest average stays are seen in tourist accommodations, which are more affordable and cater to longer stays, while luxury hotels exhibit shorter stays, largely due to business travelers. This trend highlights the importance of pricing and accommodation type in influencing tourist behavior, with more affordable options encouraging extended stays. In contrast, the Number of Visitors shows a more concentrated peak in August, with a smaller secondary peak in February, likely influenced by domestic tourism during spring school holidays. Lowertier accommodations (e.g., private providers) recorded the lowest visitor numbers, while high-end hotels attracted the most visitors. Despite strong winter tourism in December and January, particularly in ski resorts, the overall number of visitors remains lower in the off-season months, posing a challenge for many accommodation types. The seasonality observed in the data underscores the significance of the summer period for the Slovak tourism sector, while also highlighting the resilience of highertier hotels and luxury facilities to seasonal fluctuations. These establishments benefit from year-round demand, often driven by business travelers, while other types of accommodations, like boarding houses and tourist accommodations, are more dependent on summer stays. The off-peak seasons (late autumn and early spring) represent a challenge, with lower numbers of visitors due to fewer activities and attractions during these months. This gap offers an opportunity to diversify tourism supply, potentially through promoting cultural events, wellness tourism, or city-based experiences, to maintain more stable demand throughout the year.

Overall, understanding the seasonal patterns and accommodation-specific trends is essential for optimizing marketing strategies, enhancing tourist experience, and developing targeted initiatives to boost tourism during the off-peak seasons.

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