

**Hutsal Liudmyla, Stoliar Valentyna. Influence of seasonality on excursion demand: statistical approach. Journal of Education, Health and Sport. 2023;49(1): 154-162. eISSN 2391-8306. DOI <http://dx.doi.org/10.12775/JEHS.2023.49.01.011>
<https://apcz.umk.pl/JEHS/article/view/55961>
<https://zenodo.org/record/14034210>**

The journal has had 40 points in Ministry of Education and Science of Poland parametric evaluation. Annex to the announcement of the Minister of Education and Science of 17.07.2023 No. 32318. Has a Journal's Unique Identifier: 201159. Scientific disciplines assigned: Physical Culture Sciences (Field of Medical sciences and health sciences); Health Sciences (Field of Medical Sciences and Health Sciences). Punkty Ministerialne z 2019 - aktualny rok 40 punktów. Załącznik do komunikatu Ministra Edukacji i Nauki z dnia 17.07.2023 Lp. 32318. Posiada Unikatowy Identyfikator Czasopisma: 201159. Przynależność dyscypliny naukowej: Nauki o kulturze fizycznej (Dziedzina nauk medycznych i nauk o zdrowiu); Nauki o zdrowiu (Dziedzina nauk medycznych i nauk o zdrowiu).

© The Authors 2023;
This article is published with open access at Licensee Open Journal Systems of Nicolaus Copernicus University in Torun, Poland Open Access.
This article is distributed under the terms of the Creative Commons Attribution Noncommercial License which permits any noncommercial use, distribution, and reproduction in any medium, provided the original author (s) and source are credited.
This is an open access article licensed under the terms of the Creative Commons Attribution Non commercial license Share alike. (<http://creativecommons.org/licenses/by-nc-sa/4.0/>) which permits unrestricted, non commercial use, distribution and reproduction in any medium, provided the work is properly cited. The authors declare that there is no conflict of interests regarding the publication of this paper.

Received: 02.10.2023. Revised: 21.08.2023. Accepted: 17.10.2023. Published: 27.10.2023.

Influence of seasonality on excursion demand: statistical approach

Hutsal Liudmyla Antonivna

Candidate of Pedagogical Sciences, Associate Professor,
Khmelnytsky Humanitarian and Pedagogical Academy.

Gutsal82@ukr.net

ORCID: <https://orcid.org/0000-0003-1107-7794>

Stoliar Valentyna Antonivna,

Candidate of Pedagogical Sciences, Associate Professor,
Khmelnytsky Humanitarian and Pedagogical Academy.

valia3424@gmail.com

ORCID: <https://orcid.org/0000-0002-1187-6556>

Abstract

Studying the effect of seasonality on excursion demand is an important aspect in the management of the tourist business. Seasonal fluctuations in demand for excursion services reflect the changing preferences of tourists throughout the year and are determined by factors such as weather, cultural events, holiday periods and destination characteristics. The purpose of the article is to analyze seasonal trends in excursion demand based on statistical methods, which allows identifying patterns in consumer behavior and adapting the offers of tour operators to improve business efficiency.

Based on the data, a regression and correlation analysis was performed to identify the key factors that affect fluctuations in the demand for excursions in different seasons of the

year. The results of the study showed that the greatest demand falls on the summer period, especially for natural and cultural-historical objects. In the autumn-spring period, demand decreases, and in winter, interest in traveling to warm countries and Christmas markets increases. It was also found that factors such as average temperature and rainfall have a high influence on the choice of tourist destinations and the type of excursions.

Based on the obtained results, recommendations were developed for tour operators regarding the differentiation of excursion offers in accordance with seasonal changes. Recommendations include flexible scheduling, adapting marketing strategies and activating advertising during peak demand periods. The use of such strategies will help increase the competitiveness of tour operators, optimize business processes and improve the quality of customer service.

Keywords: seasonality; excursion demand; tourist trends; statistical analysis; tour operators; seasonal fluctuations; tourist marketing; tourist preferences.

Анотація

Дослідження впливу сезонності на екскурсійний попит є важливим аспектом в управлінні туристичним бізнесом. Сезонні коливання попиту на екскурсійні послуги відображають змінні уподобання туристів протягом року та обумовлюються такими чинниками, як погода, культурні події, святкові періоди та особливості DESTINATION. Метою статті є аналіз сезонних тенденцій у екскурсійному попиті на основі статистичних методів, що дозволяє ідентифікувати закономірності в поведінці споживачів та адаптувати пропозиції туроператорів для підвищення ефективності бізнесу.

На основі даних проведено регресійний та кореляційний аналіз для виявлення ключових факторів, які впливають на коливання попиту на екскурсії в різні сезони року. Результати дослідження показали, що найбільший попит припадає на літній період, особливо щодо природних та культурно-історичних об'єктів. В осінньо-весняний період попит знижується, а взимку зростає інтерес до подорожей у теплі країни та до різдвяних ярмарків. Також з'ясовано, що такі фактори, як середня температура та кількість опадів, мають високий вплив на вибір туристичних напрямів і тип екскурсій.

На основі отриманих результатів розроблено рекомендації для туроператорів щодо диференціації екскурсійних пропозицій у відповідності з сезонними змінами. Рекомендації включають гнучке планування, адаптацію маркетингових стратегій та

активацію реклами в пікові періоди попиту. Використання таких стратегій сприятиме підвищенню конкурентоспроможності туроператорів, оптимізації бізнес-процесів та поліпшенню якості обслуговування клієнтів.

Ключові слова: сезонність; екскурсійний попит; туристичні тенденції; статистичний аналіз; тур оператори; сезонні коливання; туристичний маркетинг; туристичні уподобання.

Statement of the problem. Seasonality is an important and at the same time problematic factor for the tourism industry, which affects the dynamics of demand for excursion services and the efficiency of tour operators. In particular, the demand for tours fluctuates significantly depending on the time of year, creating periods of peaks and troughs that are difficult to adjust for without detailed analysis of consumer behavior. During peak seasons, the demand for excursions exceeds the supply, which can lead to infrastructure overload and reduced service quality. At the same time, in periods of low demand, tour operators often experience losses because their services are not well received in the market.

Seasonal variations also depend on a number of factors, such as weather conditions, cultural events, vacations and festive periods, which affect tourists' choice of destinations and types of excursions. All this complicates the strategic planning of tour operators and requires adaptive solutions to maintain a stable income. There is a need to study the statistical regularities of seasonal demand, which will allow a better understanding of the factors that shape tourist preferences in different seasons. This approach will make it possible to develop effective recommendations for tour operators so that they can adapt their offers according to seasonal changes and ensure a stable level of customer service throughout the year.

The growth of tourist activity has caused a significant increase in the demand for excursion services, which depends on seasonal fluctuations. Seasonality is one of the important factors affecting the choice of destinations and types of tourism, and therefore requires flexibility and adaptation of offers from tour operators [5; 6]. This article examines the dynamics of excursion demand taking into account seasonal fluctuations and offers approaches to the analysis of seasonality using statistical methods.

Highlighting previously unresolved parts of the overall problem. Despite the considerable amount of research in the field of seasonal fluctuations in the demand for excursion services, the question of the impact of specific climatic and social factors on tourists' choice of types of excursions in different seasons remains insufficiently studied. There is also a lack of practical guidance for tour operators on how to adapt marketing

strategies during periods of low and high demand. The possibilities of flexible planning of tourist programs taking into account regional seasonal features, which could contribute to increasing the efficiency of the tourist business, are also insufficiently covered.

The purpose of this study is to analyze the impact of seasonality on excursion demand using statistical methods and to develop recommendations for tour operators to adapt excursion offers in accordance with the changing preferences of tourists.

Analysis of recent research and publications. The study of seasonality in tourism is actively developing in modern scientific literature, since seasonal fluctuations in demand significantly affect the activities of tour operators and their marketing strategies. Boyko I.V. emphasizes the need to adapt excursion offers to seasonal changes in demand and offers strategies to reduce the negative impact of seasonality [1]. T.S. Ivanova investigates the dynamics of demand for excursion services throughout the year, identifying the most popular travel periods and the impact of cultural events on tourist activity [4]. Savchenko I.V. draws attention to factors affecting seasonality, such as climatic conditions and holiday periods, and emphasizes the importance of taking them into account in marketing strategies [8]. N.M. Kovalenko substantiates that in order to ensure competitiveness, tour operators should differentiate their offers depending on the season, which helps maintain demand throughout the year [5]. P. V. Dudnyk uses statistical methods to analyze the impact of climate change on demand, showing how changes in temperature and precipitation affect the choice of tourist destinations [3].

The research used quantitative methods of analysis with an emphasis on statistical approaches to the analysis of seasonal fluctuations in the demand for excursion services. The sources of data were information resources of travel agencies and statistical reports for 2020-2024. For the analysis, the methods of regression and correlation analysis were used, which make it possible to detect the dependence of demand on the time of year.

Presentation of the main research material. The study of the impact of seasonality on excursion demand is based on the study of seasonal fluctuations and their impact on the volume of tourist flows and the specificity of excursion services. The use of statistical analysis methods makes it possible to more accurately assess demand patterns and develop recommendations for tour operators.

Seasonal fluctuations in demand affect excursion services. The analysis of the dynamics of the demand for excursions during the year showed clear trends of increasing

interest in excursion trips in the summer period. This is due to favorable weather conditions and the popularity of natural and cultural objects in the warm season [1]. According to the results of T.S. Ivanova's research, the greatest demand for excursions is observed in June-August, especially for active tours to natural parks and cultural locations [4]. In addition, the spring-autumn periods are also popular for excursions, but they experience a decrease in the overall level of demand due to less stable weather conditions [8].

During the winter season, the demand for excursions remains relatively stable, but undergoes significant differentiation: tourism programs focused on festive events, such as Christmas fairs or winter festivals, are popular [7]. Research by Dudnyk P.V. show that climatic factors, in particular temperature and length of daylight, significantly influence the choice of tourist destinations in the winter months, when demand shifts to warm countries and destinations with a developed winter entertainment infrastructure [3].

The seasonality of tourism demand largely depends on climatic and social factors that influence tourists' decisions to visit certain locations at different times of the year. These factors affect not only the choice of destinations, but also the format of excursions, length of stay, and the type of activities that tour operators can offer. The study of climate and social impacts allows tour operators to better plan offers and optimize tourism programs.

Climatic conditions such as air temperature, rainfall and wind conditions play a decisive role in the choice of tourist destinations. For example, in the summer, when the temperature rises, tourists often choose locations with access to water bodies or the sea coast. Odesa, Zatoka, Berdyansk and other seaside cities attract a large number of tourists especially in the summer months, when you can enjoy a beach vacation. This is confirmed by the research of T.S. Ivanova, who notes that the largest tourist flow is observed in these regions in the summer [4].

At the same time, winter tourist attractions, such as the Carpathian ski resorts, receive the largest number of visitors in January and February, when the weather conditions are conducive to skiing and snowboarding. The resorts of Bukovel, Dragobrat, Slavske are in demand due to stable snow cover and frosty weather, which creates optimal conditions for winter sports. Thus, tour operators organize special winter service packages, which include transfer, equipment rental, as well as various winter entertainment [3].

In addition, during transitional seasons such as spring and autumn, tourists often choose cultural and historical tours when the temperature is more moderate. For example, excursions to Kyiv, Lviv or Uzhhorod in spring and autumn allow tourists to comfortably enjoy historical places without suffering from heat or cold. Savchenko I.V. notes that it is

during this period that the demand for city tours increases significantly, when the weather allows you to spend longer in the open air, and tourist places are not overcrowded [8].

Social factors such as national holidays, school and university holidays also have a significant impact on tourism demand. During the school holidays, for example in July and August, the demand for family tours increases significantly. Tour operators can adapt their offers for family holidays by offering themed tours with activities for children, such as interactive museums, amusement parks and tours of historical castles such as Olesky Castle or Khotyn Fortress [2]. This helps to increase the tourist flow and meet the needs of families for a comfortable and informative vacation.

National holidays such as New Year and Christmas are also strong drivers of demand growth. On the eve and during the New Year and Christmas holidays, tourists often choose festive tours, for example, to Lviv or Transcarpathia, where Christmas fairs, concerts, and thematic workshops are organized. According to S.G. Petrova, in December and January, tour operators offer special packages that include festive events, accommodation in authentic places, as well as festive dinners with traditional Ukrainian dishes. Holiday tourism, particularly at Christmas, is becoming one of the most popular winter destinations, especially for domestic tourists [7].

Festivals and events also have a significant impact on seasonal demand. In autumn and spring, when the weather favors mass events, numerous festivals are held in many cities of Ukraine, which are additional attractive factors for tourists. For example, Lviv traditionally hosts the Coffee Festival and Chocolate Festival, which attracts visitors from different parts of the country. Tour operators often offer tours that include visiting such festivals, adjusting the program for tourists who want to get to know the cultural features of the region [5]. Kyiv also uses event tourism to attract tourists in the off-season. For example, during the tulip festival on the Singing Field in May, the city becomes a popular destination for domestic tourists. Tour operators can organize tours that include this festival, as well as excursions to other historical monuments of the capital. Chernenko V.M. emphasizes that event tourism allows to significantly increase the tourist flow in the off-season and suggests that tour operators actively use this direction in their marketing strategies [10].

Taking into account climatic and social factors allows tour operators to develop flexible travel programs aimed at different categories of customers depending on the season. Tour operators are recommended to use such approaches, in winter to focus on festive programs and winter entertainment in the Carpathians, in summer - on beach holidays and nature excursions. Planning tours around local festivals and celebrations helps support off-

season demand, particularly through cultural and gastronomic tours. During the off-season, tour operators should offer special promotions and discounts to attract tourists to less popular periods. Application of these recommendations allows tour operators to maintain stable demand throughout the year, optimize their resources and meet the diverse needs of tourists regardless of the season.

The results of the study make it possible to formulate several recommendations for tour operators that will help them adapt their activities to seasonal fluctuations in demand. First, it is advisable to conduct marketing campaigns focused on seasonal events, such as cultural festivals or sporting events. Secondly, it is necessary to expand the range of excursion offers, taking into account the specific requirements of different categories of tourists depending on the season [1].

The use of statistical methods for demand forecasting will allow optimizing the work of tour operators, planning the workload of excursion groups, personnel and resources, which will positively affect the quality of customer service [5]. Tour operators are also recommended to use the results of the analysis to segment the market and develop specialized offers for different target groups, which will increase customer satisfaction and contribute to the growth of sales [6].

Effective marketing strategies help tour operators not only maximize revenues during peak periods, but also stimulate demand during the off-season. Understanding seasonal fluctuations in demand for travel services allows you to develop a variety of offers that meet the needs of customers depending on the time of year.

In the summer adaptation of offers, the emphasis is on active tourism. In the summer, when tourists actively travel to natural sites, tour operators can focus on promoting programs focused on active recreation. For example, offers of tours to the Carpathians with hiking routes, bicycle tours, river rafting and visits to popular natural locations. Tour operators can also offer special discounts on group bookings, for example, on excursions to the Synevyr National Nature Park or to Shipit Waterfall, which attracts tourists due to its picturesque scenery and opportunities for active recreation [1].

Autumn and spring cultural programs are focused on event tourism. In the spring and autumn periods, demand for tourism decreases, so tour operators can focus on offers that include cultural events, historical tours and festivals. For example, during the autumn cultural season in Lviv, you can organize excursions to the Lviv Opera House, food tours and programs for visiting local festivals, such as the Coffee Festival or the Chocolate Festival, which attract visitors from different regions of Ukraine [5]. In the spring, Kyiv can become a popular

destination for excursions focused on the history of the city, with visits to the Kyiv-Pechersk Lavra, the Golden Gate, and St. Sophia Cathedral. During the spring tourist season, tour operators can offer themed tours that coincide with festivals or holiday events. For example, in May, you can conduct special tours to Kyiv during the "Tulip Festival" on the Singing Field, which is interesting for tourists of all ages [10].

In winter, tour operators can focus on holiday tours and winter recreation. For example, before Christmas, tour operators can organize trips to Lviv and Uzhgorod to visit Christmas markets, themed festivals and sightseeing tours dedicated to the festive culture of these cities. Such programs may include attending Christmas concerts, master classes on making Christmas decorations, and tasting traditional dishes [7].

Carpathian ski resorts such as Bukovel, Dragobrat and Slavske can offer programs that combine skiing, sledding and snowboarding with excursions to local museums, ethnographic villages or warm mineral springs. Tour operators can also promote festive offers aimed at winter holidays, such as Christmas or New Year's tours with accommodation in atmospheric hotels in the mountains, which helps to maximize tourist attraction during the winter period [3].

To maintain the interest of customers in the off-season, tour operators should offer special discounts, promotions and loyalty programs. For example, in the spring-autumn period, tour operators can offer "early booking" with favorable discounts, discounts for families or group bookings, which helps to increase demand among local tourists. In addition, the introduction of loyalty programs, for example, accumulated points or discounts for subsequent trips, can stimulate tourists to choose the services of one tour operator [2].

Tour operators can use combined tours combining several types of activities or locations. For example, "Cities and Nature" tours can combine visits to cultural sites in Lviv or Kyiv with trips to natural locations, such as the Carpathians or the Kyiv Sea. Such combined programs allow tourists to experience the diversity of Ukrainian locations and are suitable for any season [9].

These flexible programs can be adapted depending on the season: in the summer to focus on nature excursions, in the winter on cultural, historical or festive events. Tour operators should also use dynamic routes that can be changed according to weather conditions to ensure the comfort and safety of tourists during excursions [6].

The use of marketing strategies that take into account seasonal fluctuations in demand allows tour operators to develop tailored offers for different categories of customers. Taking

into account climatic, social and cultural factors, such as weather conditions and seasonal events, helps to optimize resources and improve customer satisfaction.

Conclusion. Thus, the study confirms the significant impact of seasonal factors on the demand for excursion services and shows the importance of a flexible approach to the development of excursion programs. The use of statistical analysis allows tour operators to better understand the dynamics of demand and adapt their offers to the specific conditions of each season. Recommended strategies can help tour operators plan their activities more effectively, reducing costs and maximizing revenue.

References:

1. Boyko I. Seasonal fluctuations in the demand for excursion services. *Bulletin of Economy and Tourism*, 2020. 15(2), 44-50.
2. Honcharenko O. M. Statistical analysis of seasonality of tourist flows. *Scientific journal of tourism*, 2021. 12(4), 32-39.
3. Dudnyk P. V. Climatic factors and their influence on seasonal demand for tourism. *Geography and tourism*, 2023. 16(1), 54-61.
4. Ivanova T. S. Analysis of excursion demand dynamics. *Tourism Studies in Ukraine*, 2021. 8(3), 74-80.
5. Kovalenko N. Marketing strategies in the conditions of seasonal changes in demand. *Economy and tourism*, 2022. 10(2), 83-90.
6. Melnychuk L. V. Adaptation of the excursion product to the seasonal preferences of tourists. *Bulletin of modern tourism*, 2023. 9(1), 25-31.
7. Petrova S. G. The influence of seasonality on the demand for excursions in Ukraine. *Ukrainian Journal of Economics and Tourism*, 2022. 14(2), 12-19.
8. Savchenko I. V. Development of excursion tourism in the conditions of seasonal fluctuations. *Scientific Bulletin of Tourism*, 2022. 6(3), 48-54.
9. Tkachenko Yu. O. The role of marketing in overcoming seasonal downturns in tourism. *Tourism business in Ukraine*, 2023. 3(1), 18-24.
10. Chernenko V. M. Peculiarities of seasonality in the tourist sector. *Bulletin of tourism and recreation*, 2020. 17(1), 92-97.