SCIENCE HUB REVIEW
2026
Volume 1
Issue 3
www.sciencehubreview.uz
ILMIY ELEKTRON JURNAL

IMPROVING ECONOMIC MECHANISMS TO REDUCE SEASONALITY IN TOURISM (THE CASE OF BUKHARA REGION)

Gayrat Khalimov

Bukhara State University, Bukhara, Uzbekistan
khalimovgayrat@outlook.com

Abstract
This article analyzes the structural dynamics of the tourism sector of Bukhara region based on official statistical indicators for 2017-2026 and develops economic mechanisms aimed at mitigating seasonal fluctuations in tourism. The study finds that the number of visitors to the region grew by an average of 24.8 percent per year between 2017 and 2025, while the number of foreign tourists grew by 41.3 percent per year, and the share of foreign tourists in the total flow increased from 13.4 percent to 36.1 percent; however, this growth is concentrated mainly in the peak season (spring-autumn), so the problem of uneven year-round utilization of accommodation capacity and the workforce persists. Since official annual statistics are reported only as a single yearly figure, seasonal fluctuation was assessed indirectly rather than directly, through national-level monthly data, the volatility of growth rates (-93% in 2020, +806% in 2021), and the degree of diversification within the sector's structure. Based on the findings, the article proposes mechanisms for seasonal price differentiation, a calendar of events targeted at the low season, tax and investment incentive mechanisms, diversification of the tourism product, and public-private partnership mechanisms for employing the workforce outside the peak season. The findings of the article are of practical relevance to government bodies shaping regional tourism policy, local authorities, and tourism sector entrepreneurs.

Keywords
tourism seasonality, seasonality index, Bukhara region, tourist flow, economic mechanisms, tourism diversification, service exports.

INTRODUCTION

Over the past decade, tourism has become one of the fastest-growing sectors of the Uzbek economy; Bukhara region, in particular, is considered one of the country's most

attractive tourist centers owing to its rich cultural and historical heritage. The Law of the Republic of Uzbekistan "On Tourism" (No. O'RQ-549) of 18 July 2019, the Presidential Decree No. PF-5611 of 5 January 2019 approving the 2019-2025 tourism development program, and Resolution No. 543 of the Cabinet of Ministers of 28 September 2022 approving measures for the further development of tourism in Bukhara region for 2022-2026 constitute the sector's regulatory and legal framework. According to official statistics, the quantitative targets set by these programs had already been exceeded by 2024-2025.

However, despite the tourism sector's high annual growth rates, the problem widely studied in international practice, the uneven year-round distribution of tourist demand (seasonality), has not been the subject of separate scholarly analysis in the case of Bukhara region. As R. Butler (2001) and N. Koenig-Lewis and E. Bischoff (2005) note, seasonality is a general characteristic of nearly every branch of the world's tourism economy that cannot be eliminated entirely, though it can be managed and mitigated. A study by Eshtayev (2023) found that, at the national level in Uzbekistan, April, May, September and October are favorable tourist seasons, while January, February, July and December are unfavorable, a pattern that may also serve as a basis for Bukhara region. Nevertheless, existing program documents and strategic plans are focused mainly on aggregate growth indicators (number of tourists, export volume) and do not include specific economic mechanisms aimed at mitigating seasonal fluctuations. As a result, while infrastructure is overloaded during the peak season, employment at hotels, restaurants, and among tour guides falls sharply in the low season, which adversely affects investment returns and the stability of jobs in the sector.

The purpose of this article is to analyze the structural and dynamic characteristics of the Bukhara region tourism sector through percentage-based indicators, using official statistics for 2017-2026, to identify the economic risks associated with seasonal fluctuations, and to develop practical economic mechanisms aimed at reducing these fluctuations.

LITERATURE REVIEW

The problem of seasonality in tourism has long been studied in the international scholarly literature. R. Butler (2001) defines seasonality as an imbalanced distribution of tourism activity over time, distinguishing its natural causes (climate, seasonal holidays and festivities) from its institutional causes (the academic calendar, working-day arrangements). Koenig-Lewis and Bischoff (2005), summarizing the methodological state of seasonality research, note that no single standard measurement method exists in this field. In a compiled volume edited by T. Baum and S. Lundtorp (2001), the economic consequences of seasonality, including uneven use of infrastructure, price instability, and seasonal employment problems, are examined in detail. Stojčić, Mikulić and Vizek (2022), using firm-population data for 2012-2019, showed that seasonality and high dependence on tourism negatively affect the share of high-growth firms, an effect that operates mainly through uneven capital utilization, income instability, and sensitivity to external shocks.

To measure seasonality, the seasonality index proposed by R. BarOn (1975) and approaches based on the Gini coefficient are widely used; Karamustafa (2010), comparing various measurement methods, shows that each requires different types of data. Martín-Martín and colleagues (2020) proposed a synthetic DP2 indicator for assessing the intensity of seasonality in rural tourism areas, which allows several variables to be taken into account simultaneously. Cuccia and Rizzo (2011) studied the specific manifestations of seasonality in cultural tourism destinations using the example of Sicily, while Stupariu and Morar (2018) analyzed seasonality in the case of Romania's spa and wellness resort areas. Dhimitri and colleagues (2025) examined seasonality and destination performance from the perspective of stakeholders along the Albanian Adriatic coast.

The economic literature on reducing seasonality identifies the following principal mechanisms: seasonal price differentiation (dynamic pricing), diversifying demand by attracting new market segments, generating low-season demand through festivals and special events as emphasized by D. Getz (1991), positioning the tourism product with due regard to the geographic and institutional factors analyzed by C.M. Hall and S.J. Page (2014), and government investment and tax incentive measures. Fernandez-Morales,

McCabe and Cisneros-Martínez (2024) examined the role of social tourism programs in enhancing a destination's resilience to external shocks, while Boto-García and Pérez (2023) studied the effect of high-speed rail connectivity on seasonality; both studies confirm that demand can be smoothed through transport and social policy instruments.

Regulatory documents adopted in Uzbekistan in recent years, including Presidential Decree No. PF-87 of 15 May 2025 and Resolution No. PQ-161 of 30 April 2026, are aimed at developing tourism infrastructure and increasing tourist flows, but do not contain separate mechanisms specifically targeted at reducing seasonality. Soliyeva (2024), analyzing the types of tourism in Uzbekistan, notes that pilgrimage, ecological and gastronomic tourism are among the directions that maintain stable demand throughout the year. This underscores the need for further scholarly and applied research in this area.

RESEARCH METHODOLOGY

The study's primary data source is the official statistical reference "Indicators of the Tourism Sector of Bukhara Region" provided by the Bukhara Tourism Department. The reference covers actual indicators for 2017-2025 and forecast indicators for 2026, including the number and types of accommodation facilities, the number of visiting tourists (foreign and domestic, broken down by region), the volume of service exports, revenue from cultural heritage and pilgrimage sites, the number of people employed in the sector, and other indicators.

An important methodological limitation of the study is that the available official data are presented only on an annual basis and do not include the monthly or quarterly breakdown required to measure seasonality directly. To address this limitation, the study employed three indirect approaches: first, using open press data from the Tourism Committee of Uzbekistan and the State Statistics Committee, national-level monthly/quarterly tourist flow trends (for example, the high activity in April-May and September-October identified by Eshtayev (2023)) were drawn upon as a theoretical basis for the regional analysis, since Bukhara region lies within the country's overall continental climate zone; second, the volatility of annual growth rates, expressed in percentage terms, was assessed as an indicator of the sector's high sensitivity to external factors; third, the degree of diversification within the tourist composition (the percentage ratio of foreign to

domestic tourists, the percentage distribution by region) was analyzed to assess the sector's potential to reduce its dependence on seasonality.

The analysis employed descriptive statistics, time-series analysis, calculation of the compound annual growth rate (CAGR), and compositional (percentage-share) analysis. Wherever possible, all key indicators were presented in relative (percentage) rather than absolute terms.

RESULTS

Between 2017 and 2025, the number of tourists visiting Bukhara region grew by an average of 24.8 percent per year (Table 1). The number of foreign tourists grew even faster, by an average of 41.3 percent per year, and their share in the total flow is expected to rise from 13.4 percent in 2017 to 36.1 percent in 2025, and, according to the 2026 forecast, to 38.9 percent. This indicates a significant increase in the sector's degree of internationalization.

Table 1

Dynamics of the key indicators of the Bukhara region tourism sector, 2017-2026

Year	Total tourists (persons)	Share of foreign tourists (%)	Share of domestic tourists (%)	Employment (persons)
2017	1,269,965	13.4	86.6	3,025
2018	2,512,038	12.0	88.0	5,145
2019	3,640,918	16.6	83.4	13,385
2020	249,927	5.3	94.7	4,860
2021	2,265,389	2.2	97.8	5,340
2022	3,513,794	15.7	84.3	30,112
2023	4,877,794	28.5	71.5	55,261
2024	5,755,525	30.3	69.7	73,369
2025	7,485,300	36.1	63.9	84,008
2026 (forecast)	9,000,000	38.9	61.1	85,508

(Source: author's calculations based on data from the Bukhara Tourism Department)

The sector's sensitivity to external factors is clearly reflected in the percentage volatility of annual growth rates: in 2020, amid the global pandemic, the number of tourists fell by 93 percent relative to the previous year, whereas in 2021 an artificial "growth" of 806 percent was recorded owing to the low base effect (Table 1). Such sharp percentage swings, although not seasonality as such, vividly illustrate the extent of the economic risk arising from the sector's reliance on uneven, concentrated demand.

The regional distribution of foreign tourists (Table 2) shows that in 2025, 54.9 percent came from CIS countries, 21.5 percent from Europe, 20.5 percent from Asia, and only 2.1 percent from the Americas. Such geographic concentration, and in particular the high (nearly 55 percent) dependence on CIS countries, may further intensify seasonal and annual demand instability in the event of regional political and economic shifts.

Table 2

Regional distribution of foreign tourists, 2025

Region	Share of total foreign tourists, 2025 (%)
CIS countries	54.9
European countries	21.5
Asian countries	20.5
Americas	2.1
Other countries	1.0

(Source: author's calculations based on data from the Bukhara Tourism Department)

An analysis of the volume of service exports per foreign tourist shows that this indicator increased by only 24 percent between 2017 and 2025, a figure markedly lower than the nearly 16-fold (i.e., 1,490 percent) increase in the number of tourists. This indicates that the sector's growth has been predominantly quantitative (extensive) in nature, and that the range of products and services aimed at increasing per-tourist spending remains insufficiently developed.

At the same time, the number of people employed in the sector per 1,000 tourists increased by approximately 370 percent (i.e., nearly 4.7-fold) between 2017 and 2025. While this rapid increase may reflect improved service quality, it also implies, if this workforce is employed on a permanent, year-round basis, a growing burden on the wage bill during the low season and a corresponding increase in financial risk, which once again confirms the need for a policy to reduce seasonality. Furthermore, according to the data, the number of cultural and entertainment events held in the region fell by nearly 52 percent between 2017 and 2025, indicating a weakening of the instruments used to stimulate demand during the low season.

An analysis of the internal composition of the accommodation sector sheds further light on the nature of this growth (Table 3). In 2017, traditional hotels accounted for 93.0 percent of accommodation facilities, whereas by 2025 this figure had fallen to 33.1

percent; over the same period, the share of guesthouses and family-run guesthouses rose from 7.0 percent to 49.4 percent, and the share of hostels and dormitories rose from 0 percent to 15.4 percent. This indicates that the sector's quantitative expansion has been driven mainly by small-scale, family-operated segments, while the relative share of professionally managed hotels has declined.

Table 3

Composition of accommodation facilities by type, 2017 and 2025

Type of accommodation facility	2017 (units / share, %)	2025 (units / share, %)
Hotels	106 / 93.0%	228 / 33.1%
Guesthouses and family-run guesthouses	8 / 7.0%	340 / 49.4%
Hostels and dormitories	0 / 0.0%	106 / 15.4%
Others (motels, apartments, etc.)	0 / 0.0%	14 / 2.1%

(Source: author's calculations based on data from the Bukhara Tourism Department)

This structural shift is even more pronounced in the statistics on quality categories (star classification) (Table 4). In 2017, 3-4 star ("premium") hotels accounted for 18.4 percent of all accommodation facilities, whereas by 2025 this figure had collapsed to just 0.87 percent, while the share of unclassified ("standard") facilities rose from 81.6 percent to 98.98 percent. This shows that the sector's overall expansion is occurring almost entirely within a segment that is undifferentiated by quality or price, indicating a weakening of the structural foundation required to implement a seasonally differentiated pricing policy.

Table 4

Composition of Bukhara region's accommodation facilities by quality category, 2017 and 2025

Quality category	2017 (units / share, %)	2025 (units / share, %)
Unclassified ("standard")	93 / 81.6%	681 / 98.98%
3-4 star (premium)	21 / 18.4%	6 / 0.87%
2 star	0 / 0.0%	1 / 0.15%

(Source: author's calculations based on data from the Bukhara Tourism Department)

Data on diversification potential also reveal an interesting trend. Although the number of pilgrimage tourism sites increased from 24 to 51 (+112.5%) between 2017 and 2025, almost all of this growth consisted of a one-time jump concentrated in 2022 (from 29 to 51 sites), with the number of sites remaining unchanged from 2022 through 2025. Nevertheless, revenue from pilgrimage sites continued to grow steadily even after 2022,

rising from 1.8 billion to 5.1 billion soums (+183.3%), meaning that average revenue per site nearly tripled. This indicates that recent growth has resulted not from the opening of new sites but from improvements in service quality and increases in visitor numbers at existing sites (intensive development).

DISCUSSION

The above analytical findings show that although the Bukhara region tourism sector is experiencing high overall growth, this growth does not resolve the problem of the uneven temporal distribution of demand and may, on the contrary, further intensify the burden placed on the sector during the peak season. International experience (Getz, 1991; Hall and Page, 2014; Martín-Martín et al., 2020) confirms that mitigating seasonality requires a complex, multi-pronged approach. On this basis, the following five economic mechanisms are proposed (Figure 1):

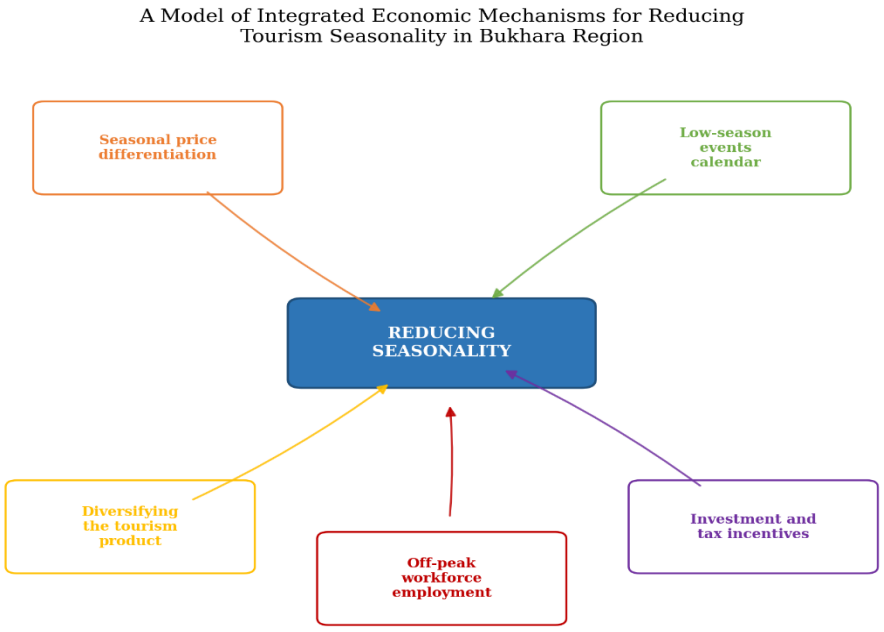

Figure 1. A model of integrated economic mechanisms for reducing tourism seasonality in Bukhara region

Seasonal price differentiation mechanism. Introducing a government program for hotels and tour operators that encourages the reduction of tariffs and tour-package prices during the low season, linked to local tax incentives or discounts on utility tariffs.

Developing a calendar of low-season events. Given that the number of cultural and entertainment events has fallen by nearly 52 percent over the past nine years, it is

advisable to reverse this negative trend by developing festivals, gastronomy events, and conference (MICE) tourism specifically targeted at the winter and summer months.

Diversifying the tourism product. Given the steady (several-fold) growth in the number of pilgrimage tourism sites and the relatively stable year-round demand for this segment, the targeted development of pilgrimage, educational, and wellness tourism can help distribute demand more evenly throughout the year.

Investment and tax incentive mechanisms. Given that the number of hotels under reconstruction has fallen to nearly zero in recent years, introducing targeted incentives for investors who maintain or expand operations during the low season would attract new investment to the sector.

Public-private partnership for employing the workforce outside the peak season. Given the rapid (several-fold) growth of the handicrafts sector, temporarily engaging tourism sector employees in handicrafts and other related production activities during the low season could help stabilize their annual income.

CONCLUSION

The findings of the study show that, although the Bukhara region tourism sector grew at high rates between 2017 and 2025 (an average of 24.8% per year in terms of tourist numbers and 41.3% for foreign tourists), this growth has been predominantly quantitative in nature. Factors such as the relatively slow (24%) growth in per-tourist service exports, the decline (by 52%) in the number of cultural events, and the rapid (370%) increase in the number of employed workers indicate that the sector's dependence on seasonal and external factors persists. To reduce seasonality, it is recommended that price differentiation, a calendar of low-season events, product diversification, investment incentives, and mechanisms for employing the workforce outside the peak season be implemented as an integrated package.

The main limitation of the study relates to the fact that official statistics are available only on an annual basis. For future research, it is recommended that the Bukhara Regional Department of Statistics and the Tourism Committee regularly publish regional data at the monthly or quarterly level, which would allow for a more precise quantitative analysis based on the BarOn seasonality index or the Gini coefficient.

REFERENCES

1. Butler, R.W. (2001). Seasonality in tourism: Issues and implications. In T. Baum & S. Lundtorp (Eds.), Seasonality in Tourism. Oxford: Pergamon.

2. Baum, T., & Lundtorp, S. (Eds.). (2001). Seasonality in Tourism. Oxford: Pergamon (Advances in Tourism Research series).

3. BarOn, R.R.V. (1975). Seasonality in Tourism: A Guide to the Analysis of Seasonality and Trends for Policy Making. London: Economist Intelligence Unit.

4. Decree of the President of the Republic of Uzbekistan No. PF-60 of 28 January 2022. "On the Development Strategy of New Uzbekistan".

5. Resolution of the Cabinet of Ministers No. 543 of 28 September 2022. "On measures for the further development of tourism in Bukhara region in 2022-2026".

6. Decree of the President of the Republic of Uzbekistan No. PF-87 of 15 May 2025. "On measures to sharply increase the flow of tourists in 2025-2026...".

7. Resolution of the President of the Republic of Uzbekistan No. PQ-161 of 30 April 2026. "On measures for the rapid development of tourism infrastructure in the regions and the introduction of a project management system in the sector".

8. Official press materials of the State Committee for Tourism Development and the State Statistics Committee of the Republic of Uzbekistan (2019, 2025, 2026).

9. Bukhara Regional Administration. Indicators of the tourism sector of Bukhara region (official statistical reference), 2017-2026.

10. Koenig-Lewis, N., & Bischoff, E.E. (2005). Seasonality research: The state of the art. International Journal of Tourism Research, 7(4-5), 201-219.

11. Cuccia, T., & Rizzo, I. (2011). Tourism seasonality in cultural destinations: Empirical evidence from Sicily. Tourism Management, 32(3), 589-595.

12. Martín-Martín, J.M., Salinas-Fernández, J.A., Rodríguez-Martín, J.A., & Ostos Rey, M.D.S. (2020). Analysis of tourism seasonality as a factor limiting the sustainable development of rural areas. Journal of Hospitality & Tourism Research, 44(1), 45-75.

13. Karamustafa, K. (2010). Measuring the seasonality in tourism with the comparison of different methods. EuroMed Journal of Business, 5(2).

14. Stojčić, N., Mikulić, J., & Vizek, M. (2022). High season, low growth: The impact of tourism seasonality and vulnerability to tourism on the emergence of high-growth firms. Tourism Management, 89, 104455.

15. Boto-García, D., & Pérez, L. (2023). The effect of high-speed rail connectivity and accessibility on tourism seasonality. Journal of Transport Geography, 107, 103546.

16. Stupariu, M., & Morar, C. (2018). Tourism seasonality in the spas of Romania. GeoJournal of Tourism and Geosites, 22(2), 573-584.

17. Dhimitri, J., Çinaj, N., Brakaj, E.P., Qosja, E., Dibra, M., & Mbrica, A. (2025). Stakeholder insights on tourism seasonality and destination performance along the Albanian Adriatic coast. GeoJournal of Tourism and Geosites, 61(3), 1944-1951.

18. Fernandez-Morales, A., McCabe, S., & Cisneros-Martínez, J.D. (2024). Is social tourism a vector for destination resilience to external shocks? Evidence from Spain. Journal of Travel Research, 63(7), 1606-1625.

19. Getz, D. (1991). Festivals, Special Events, and Tourism. New York: Van Nostrand Reinhold.

20. Hall, C.M., & Page, S.J. (2014). The Geography of Tourism and Recreation: Environment, Place and Space (4th ed.). London: Routledge.

21. Eshtayev, A.A. (2023). The impact of global trends on the development of the tourism sector in Uzbekistan. Green Economy and Development, 1(10), 72-78.

22. Soliyeva, S.T. (2024). Types of tourism in Uzbekistan. Education, Science and Innovative Ideas in the World, 44(6), 82-86.

23. Law of the Republic of Uzbekistan No. O'RQ-549 of 18 July 2019. "On Tourism".

24. Decree of the President of the Republic of Uzbekistan No. PF-5611 of 5 January 2019. "On the Development of the Tourism Sector in the Republic of Uzbekistan for 2019-2025".