**ORIGINAL ARTICLE**

# RELATIONSHIP BETWEEN THE FORMATION OF TOURISM CLUSTERS AND REGIONAL ECONOMIC DEVELOPMENT

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**Abstract.** The article examines the relationship between the formation of tourism clusters and regional economic development using the example of the Republic of Uzbekistan. The main objective of the study is to quantitatively assess the impact of tourism clusters on the regional economy and analyze the dynamics of the sector's development. Descriptive statistics, methods of relative analysis, cluster development indicators and performance indices were used as the research methodology. The findings of the study confirmed the multifaceted positive impact of tourism clusters on regional economic development and specific recommendations for the future development of the sector were developed.

**Key words:** tourism clusters, regional development, economic growth, infrastructure, tourism industry, cluster analysis, performance indicators, economy of Uzbekistan.

## Introduction
In the modern global economy, the tourism industry is recognized as an important driving force for regional development. The issue of the formation and development of tourism clusters is of strategic importance for many countries, since this sector plays a significant role in diversifying the regional economy, creating jobs and attracting investment.

The development of the tourism sector in the Republic of Uzbekistan is one of the priority areas of state policy. "The Development Strategy of the Republic of Uzbekistan for 2022-2026" defines the development of the tourism industry and increasing its share in the gross domestic product as important tasks. In this context, the formation of tourism clusters and the study of their impact on regional economic development are of particular importance.

The concept of tourism clusters was first developed by Michael Porter, who defined clusters as geographically close groups of related businesses and institutions. In the tourism sector, clusters include accommodation, transport, catering, entertainment, cultural facilities and support services.

## Literature review
The impact of tourism clusters on regional economic development occupies an important place in modern economic research. An analysis of international and regional literature on this topic allows us to identify the following main areas.

The cluster theory developed by Porter [1] has also found wide application in the tourism sector. The author defines clusters as "a group of geographically close, interconnected companies and institutions" and emphasizes their role in increasing competitiveness. According to Porter's theory, tourism clusters stimulate innovation, ensure efficient use of local resources, and make a significant contribution to regional economic growth.

Jackson and Murphy [2] in their article " Clusters in Regional Tourism: The Australian Case " highlighted the importance of tourism clusters and provided an in-depth analysis of their impact

on regional development. The authors identified government policies, private sector partnerships and active participation of local communities as important factors in enhancing the effectiveness of tourism clusters. Their study shows that successful tourism clusters play a significant role in creating jobs, increasing local income and developing infrastructure in the region.

Nordin [3] in his article " Tourism Clustering and Innovation: Paths to Economic Growth and Development " studied the experience of developing tourism clusters in Scandinavian countries and analyzed ways to increase the competitiveness of the regional tourism sector through a cluster approach. The author emphasizes the need to create an innovative environment, develop an education and training system, and establish effective relationships between cluster participants for the successful operation of tourism clusters.

Chang and a large research team [4] examined the experience of South Korean tourism cluster development in the article "Tourism Cluster Development and Regional Economic Growth: Evidence from South Korea" . The authors proved the positive impact of tourism clusters created on regional economies through government programs and private sector cooperation. According to the results of the study, Korean tourism clusters played an important role in strengthening local production chains, increasing international tourism flows, and developing regional branding.

Mirzaev [6] analyzed the strategies for developing tourism clusters in Uzbekistan and studied their impact on regional economic growth. The author, taking into account the specifics of the tourism sector of Uzbekistan, showed the prospects and difficulties of implementing the cluster approach. According to the results of the study, for the successful development of tourism clusters in Uzbekistan, it is necessary to modernize the infrastructure, improve the personnel training system, and use international experience.

A review of the literature shows that tourism clusters are an important tool for regional economic development. International experience and theoretical foundations confirm the importance of the following factors for the effectiveness of tourism clusters: targeted support from government policy, cooperation with the private sector, creation of an innovative environment, development of a personnel training system and active participation of local communities. In the context of Uzbekistan, the development of tourism clusters should be considered an integral part of a modern economic growth strategy and use advanced international experience.

**Research Methodology**

The analytical part of this article includes the following methods: descriptive statistics, i.e. the arithmetic mean values and standard deviation (variation coefficient) were calculated. Then, a relative analysis was conducted, i.e. the growth rates relative to the base year, structural analysis (shares) and chain growth rates were calculated. The cluster infrastructure density index, service level index, tourism development index and efficiency indicators were also calculated.

All formulas and calculations are clearly presented, and the results clearly demonstrate the impact of tourism clusters on the economic development of the region.

**Analysis and results**

During the study, statistical data on the tourism sector of the Republic of Uzbekistan for the period 2019-2023 were analyzed. The database includes the following key indicators: arrival of foreign citizens in Uzbekistan, the number of people served by travel companies, domestic

tourism, the number of recreation organizations, the number of health resorts, the number of hotel businesses.

**Table 1.** Key indicators of the tourism sector

| Classifier | 2019 | 2020 | 2021 | 2022 | 2023 | Growth in 2023 compared to 20219 |
|---|---|---|---|---|---|---|
| Total number of foreign citizens who arrived in the Republic of Uzbekistan for tourism purposes (thousand people) | 6748.5 | 1504.1 | 1881.3 | 5232.8 | 6626.3 | -1.81% |
| Number of tourists served by travel agencies and organizations (thousands of people) | 942 | 212.3 | 577.8 | 673.7 | 1157.1 | 22.84% |
| Inbound tourism (people) | 348.7 | 21.7 | 44.4 | 93.8 | 237.7 | -31.83% |
| Domestic tourism (people) | 532.5 | 176.7 | 522.0 | 538.9 | 728.6 | 36.83% |
| Outbound tourism (people) | 36.0 | 6.4 | 16.2 | 19.8 | 156.6 | 335.0% |
| Number of recreation facilities and tourist centers (pcs.) | 298 | 277 | 132 | 163 | 172 | -42.28% |
| Number of health resorts and recreation centers | 509 | 494 | 328 | 405 | 591 | 16.09% |
| Number of places in hotels and similar accommodation facilities (facilities) | 1051 | 1156 | 1085 | 1167 | 1387 | 31.97% |

**Source:** The data in the table were prepared by the researcher based on information provided on the official website of the Main Statistics Department of the Republic of Uzbekistan.

Based on the above figures, let's move on to the analytical part. First, let's look at the average values and variance analysis.
**Arithmetic mean**
1. For each indicator, the arithmetic mean values were calculated over 5 years:

$$\overline{X} = \frac{\sum X_i}{n}$$

The calculated average values are as follows: average number of foreign tourists – 4398.6 thousand people, services of travel agencies – 712.6 thousand people, domestic tourism – 499.7 thousand people, average number of hotels – 1169.2 units.
2. To assess the level of variability, we calculate the standard deviation.

$$\sigma = \sqrt{\frac{\sum(X_i - \bar{X})^z}{n-1}}$$

The standard deviation results were as follows: foreign tourists were 2387.4 (high volatility), travel companies were 378.9 (medium volatility), domestic tourism was 198.3 (low volatility),

and hotels were 127.8 (low volatility). The growth rate for each year compared to 2019 was calculated as follows:

| Growth rate of foreign tourists | For travel agency services |
|---|---|
| 2020: 22.3% (sharp decline) | 2020: 22.5% |
| 2021: 27.9% (slow recovery) | 2021: 61.3% |
| 2022: 77.5% (fast recovery) | 2022: 71.5% |
| 2023: 98.2% (almost full recovery) | 2023: 122.8% (above base year) |

3. The next step is to analyze the structure. The share of each component in the total volume is calculated. In 2023, the share of domestic tourism was 64.9%, inbound tourism - 21.2%, outbound tourism - 13.9%.

4. If we analyze the chain growth rates, the change of each year compared to the previous one was calculated:

$$T_{zanj} = \frac{Y_t - Y_{t-1}}{Y_{t-1}} x100\%$$

| Photo chains for foreign tourists | By number of hotels |
|---|---|
| 2020/2019: -77.7% | 2020/2019: +10.0% |
| 2021/2020: +25.1% | 2021/2020: -6.1% |
| 2022/2021: +178.2% | 2022/2021: +7.6% |
| 2023/2022: +26.7% | 2023/2022: +18.9% |

The next step is to quantify the impact of the Cluster.

5. If we consider the infrastructure density index, we get the number of infrastructure facilities per 1000 foreign tourists.

IZI = (Hotels + Sanatoriums) / (Foreign tourists / 1000)

The dynamics of infrastructure density gave the following results:

$IZI_{2019} = 231.2$, $IZI_{2020} = 1096.8$, $IZI_{2021} = 751.2$, $IZI_{2022} = 300.4$, $IZI_{2023} = 298.6$

6. Taking into account the service level index, the ratio of the number of tourists served by travel agencies to the total number of foreign tourists is:

FDI = (Travel agency services / Foreign tourists) × 100%

The level of service was as follows:

$XKI_{2019} = 14.0\%$, $XKI_{2020} = 14.1\%$, $XKI_{2021} = 30.7\%$, $XKI_{2022} = 12.9\%$, $XKI_{2023} = 17.5\%$

7. Tourism development index, which shows regional development. The index reflects the ratio of domestic and inbound tourism:

TRI = (Domestic Tourism + Inbound Tourism) / Outbound Tourism

The dynamics of the tourism development index are as follows:

$THREE_{2019} = 24.5$, $THREE_{2020} = 31.0$, $THREE_{2021} = 35.0$, $THREE_{2022} = 32.0$, $THREE_{2023} = 6.2$

8. Let us consider the rate of cluster development, that is, the rate of growth of common infrastructure facilities.

To do this, we subtract the total number of hotels and sanatoriums in the base year from the total number of hotels and sanatoriums in the current year and divide by the base year. The cluster development rate for 2023 is $KRS_{2023} = 25.9\%$.

Now let's look at the overall performance analysis.

9. Find the infrastructure per tourist, i.e. the number of all infrastructure facilities divided by the total number of tourists. For 2023, the infrastructure per tourist is $TBTI_{2023} = 0.283$ units.

The results of the analysis show that significant changes have occurred in the tourism sector of Uzbekistan in 2019-2023. The average number of foreign tourists was 4,398.6 thousand people, while the high standard deviation (2,387.4) indicates instability of the sector. The growth of services of travel companies by 122.8% in 2023 confirms the positive dynamics of cluster development. The growth of the infrastructure density index from 231.2 in 2019 to 298.6 in 2023 indicates an increase in the influence of tourism clusters on regional development.

**Conclusion and suggestions**

To achieve maximum efficiency in any industry, it is necessary to strengthen the infrastructure to a sufficient degree. Similarly, in the tourism sector, it is necessary to create the necessary infrastructure to ensure a larger percentage of the country's GDP due to income from this industry. Uzbekistan has a sufficient number of historical sites, as well as a large number of transport and excursion services. The main task that must be accomplished is to bring the stages from the emergence of a need to its full satisfaction into a single system. As a result of the analysis, we come to the following conclusions:

Firstly, there have been significant changes in the number of foreign visitors to Uzbekistan's tourism sector. This figure, which amounted to 6,748.5 thousand people in 2019, dropped sharply to 1,504.1 thousand people in 2020 due to the pandemic, but there has been a gradual recovery in the following years. In 2023, it reached 6,626.3 thousand people, almost restoring the pre-pandemic level. This result demonstrates the sustainability and resilience of tourism clusters to external influences.

Secondly, the volume of services provided by tourism enterprises and organizations has shown significant growth. This figure, which amounted to 942 thousand people in 2019, will reach 1157.1 thousand people in 2023, an increase of 22.84%. This result confirms the expansion of the service capacity of tourism clusters and the fact that the industry is on the path of professional development.

Thirdly, positive dynamics were also observed in the sphere of domestic tourism. Domestic tourism, which amounted to 532.5 thousand people in 2019, reached 728.6 thousand people in 2023, an increase of 36.83%. This indicator indicates an increase in demand for tourism services from the local population and the development of the domestic market.

The study revealed the multifaceted impact of tourism clusters on the economic development of regions. The number of hotels and similar accommodation facilities increased from 1,051 in 2019 to 1,387 in 2023, an increase of 31.97%. This result confirms the expansion of tourism infrastructure and the increased ability of the sector to attract investment. Analysis of the infrastructure density index made it possible to assess the level of efficiency of tourism clusters. The number of infrastructure facilities per 1,000 foreign tourists in 2019 was 231.2, and in 2023 it reached 298.6. This result confirms the positive impact of tourism clusters on the development of regional infrastructure.

**Theoretical and practical significance of the study**

Theoretically, this study allowed us to quantitatively substantiate the relationship between tourism clusters and regional economic development. In practice, the results obtained serve as an important basis for government agencies to make strategic decisions on the development of the tourism sector . The development of tourism clusters makes a significant contribution not only to the growth of the tourism sector, but also to the overall development of the regional economy. This influence is reflected in the development of hotel services, transport, food industry, crafts and other industries.

**Recommendations**

As a result of the research conducted, the following recommendations were developed:

For the further development of tourism clusters, it is necessary to strengthen the interaction between the public and private sectors, in particular, the implementation of comprehensive programs to modernize tourism infrastructure, improve the personnel training system, and introduce digital technologies.

In order to stimulate the development of domestic tourism, it is advisable to implement such measures as the creation of local tourist routes, the restoration of historical and cultural monuments, and the development of ecotourism trends.

To increase competitiveness in international tourism markets, it is necessary to improve the quality of tourism services, bring service standards into line with international requirements, and strengthen marketing activities.

**Links:**

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