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Article

A Methodological Approach to Assessing the Impact of Inbound Tourism on Regional Socio-Economic Development in Uzbekistan

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Abstract: Inbound tourism is an important driver of regional economic growth, yet its impact on socio-economic development varies considerably across territories, and standardized tools for measuring this effect remain insufficiently developed. This study proposes a methodological approach to assessing the impact of inbound tourism on the socio-economic development of the regions of Uzbekistan. The research employs systems analysis, comparative analysis, economic-statistical analysis, grouping, index methods, as well as data normalization, generalization, and scientific abstraction. To assess the impact of inbound tourism on regional socio-economic development, an integrated approach was applied, allowing diverse indicators to be combined into a unified measurement system. On this basis, an integral index was constructed and used to rank the regions of the country. The authors also developed an interpretation scale that classifies regions into five levels of development (from very low to very high) and a matrix for selecting regional development directions according to the level of the index. The proposed approach makes it possible to identify leading regions and territories with untapped potential, to reveal key constraints, and to substantiate priority areas of state policy for tourism development. The results may be used by public authorities in regional planning, in the allocation of resources, and in the design of differentiated tourism development programs.

Keywords: Inbound tourism; socio-economic development; regions of Uzbekistan; integral index; index method; regional ranking; methodological approach; tourism policy.

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1. Introduction

In today's world, inbound tourism is one of the most important factors in the sustainable socioeconomic development of regions. The development of international tourism facilitates an increase in the volume of tourism services, growth in employment, expansion of entrepreneurial activity, development of transport and tourism infrastructure, and enhancement of the investment attractiveness of regions. Therefore, the need for scientifically substantiated approaches to comprehensively assessing the impact of inbound tourism on the socioeconomic development of regions is growing [1][2],[3]. In the Republic of Uzbekistan, tourism has been identified as a strategic priority for socioeconomic development. Presidential Decree No. PP-348 of November 19, 2025, established target parameters for the industry's development through 2030: increasing the

share of tourism in the gross domestic product from 3.5% to 7%, increasing the annual number of foreign tourists from 10 million to 20 million, and increasing tourism exports to over USD 6 billion. To achieve these targets, the country has been implementing a set of systemic measures since 2017, including visa liberalization (abolition of visa requirements for citizens of 93 countries and the introduction of electronic visas for 56 countries), modernization of transport and hotel infrastructure, the creation of tourism clusters, and the promotion of the national tourism brand in international markets. These reforms resulted in a significant increase in inbound tourism: from 2,027,000 foreign nationals in 2016 to 6,748,500 in 2019, a 3.3-fold increase. Following a decline caused by the COVID-19 pandemic in 2020-2021, the industry is demonstrating a steady recovery: 5.7 million foreign nationals visited Uzbekistan in the first nine months of 2024, a 16.8% increase compared to the same period in 2023 [4],[5]. However, despite the positive national dynamics, the distribution of tourist flows across the country is highly uneven. The main centers of attraction-the cities of Samarkand, Bukhara, Khiva, and Tashkent-account for the majority of foreign tourists, while peripheral regions (the Republic of Karakalpakstan, Surkhandarya, Kashkadarya, and Jizzakh regions) remain marginalized in terms of tourism activity. Empirical studies document significant interregional disparities in the development of tourism infrastructure. In particular, as Toyirova (2025) notes, the gap between leading and lagging regions in terms of accommodation availability and transport accessibility remains a key challenge for the industry. These circumstances highlight the need to quantify the transformation of inbound tourism growth into specific socioeconomic effects for regions of various types-from established global tourist destinations to territories just beginning to develop their tourism potential [6],[7]. Despite the steady growth of key tourism indicators, existing approaches to assessing the impact of inbound tourism are primarily based on the analysis of individual statistical indicators, which does not allow for a comprehensive assessment of its impact on regional socioeconomic development. The lack of a unified, integrated approach to regional assessment necessitates the development of a scientifically based methodology that takes into account a combination of tourism, economic, social, and infrastructure indicators.

In today's environment, inbound tourism is viewed not only as a source of increased tourist flows but also as an important factor in the socioeconomic development of regions. An increase in the number of foreign tourists contributes to an increase in the volume of tourism services, the creation of new jobs, investment, the development of entrepreneurship, and increased incomes. However, existing research primarily focuses on analyzing the dynamics of tourist flows or individual economic indicators, while a comprehensive assessment of the impact of inbound tourism on the socioeconomic development of regions remains understudied [8],[9]. Therefore, there is a need to develop scientifically sound methodological tools to determine the real contribution of inbound tourism to regional development. A distinctive feature of this study is its shift from analyzing absolute tourism indicators to assessing their ultimate socioeconomic results. The article proposes a proprietary methodology for assessing the impact of inbound tourism on the socioeconomic development of Uzbekistan's regions, based on the integration of tourist activity indicators and regional socioeconomic development. The development of an integrated index will not only allow for a quantitative measurement of the impact of inbound tourism on the regional economy but also for a comparative analysis of regions, identifying areas with high and low tourism impact, and formulating scientifically based recommendations for improving regional tourism policy and increasing the efficiency of the country's tourism potential.[10]

Despite the existence of a significant number of studies devoted to the development of tourism and its impact on the economies of territories, issues of a comprehensive assessment of the impact of inbound tourist flow on the socio-economic development of the regions of Uzbekistan remain insufficiently studied, which necessitates the development of appropriate methodological tools.

The object of the study is the processes of socio-economic development of the regions of the Republic of Uzbekistan under the influence of inbound tourist flow.

The subject of the study is methodological approaches, methods and tools for assessing the impact of inbound tourist flow on the socio-economic development of regions.[11]

An analysis of domestic and international scientific research revealed that existing methodological approaches are primarily focused on assessing individual aspects of tourism activity or its economic contribution at the national level. However, comprehensive assessments of the impact of inbound tourism on the socioeconomic development of regions in the Republic of Uzbekistan using an integrated approach remain underdeveloped, necessitating this study.

The aim of the study is to develop a methodology for assessing the impact of inbound tourist flow on the socio-economic development of the regions of the Republic of Uzbekistan based on an integral index.[12]

- to achieve this goal, the following research objectives were defined:

- to study the theoretical and methodological foundations for assessing the impact of inbound tourist flow on the socio-economic development of regions;

- to analyze domestic and foreign methodological approaches to assessing the impact of inbound tourism and identify their advantages and limitations;

- to form a system of indicators characterizing the tourism, economic, social and infrastructure components of regional development;

- to develop an original methodology for a comprehensive assessment of the impact of inbound tourist flow on the socio-economic development of regions based on an integral index;

- to test the developed methodology using materials from regions of the Republic of Uzbekistan;

- to rank regions according to the level of influence of inbound tourist flow and develop practical recommendations for improving regional tourism policy.[13]

2. Research methodology

The study utilized methods of systems analysis, comparative analysis, economic-statistical analysis, grouping, index methods, as well as data normalization, generalization, and scientific abstraction. To assess the impact of inbound tourism on the socioeconomic development of regions, an integrated approach was used, allowing for the integration of diverse indicators into a unified measurement system.

Scientific novelty of the research. The scientific novelty of this study lies in the development of a proprietary methodology for comprehensively assessing the impact of inbound tourism on the socio-economic development of regions of the Republic of Uzbekistan based on an integrated index. The study:

- an integrated assessment system has been developed that combines tourism, economic, social and infrastructure indicators;

- an algorithm for calculating the integral index using the Min–Max normalization method is proposed;

- a scale for interpreting the integral index and a matrix for assessing the level of influence of inbound tourist flow on the socio-economic development of regions have been developed;

- a ranking of the regions of the Republic of Uzbekistan was conducted based on the proposed methodology and practical recommendations for improving regional tourism policy were developed.

Practical significance of the study is determined by the possibility of using the developed methodology by government bodies, regional authorities, tourism organizations and research institutions when monitoring tourism development, comparative assessment of

regions, determining priority areas of state support and developing programs for the development of regional tourism policy.

Theoretical significance of the study is to develop methodological approaches to assessing the impact of inbound tourism on the socioeconomic development of regions. The proposed methodology complements existing scientific approaches through the use of an integrated index that provides a comprehensive assessment of tourism, economic, social, and infrastructural factors in regional development.

3. Result and discussion

The study is based on official statistics from the Tourism Committee of the Republic of Uzbekistan and the Agency of Statistics under the President of the Republic of Uzbekistan, as well as domestic and international research on the impact of tourism on the socioeconomic development of regions.

Inbound tourism is a strategically important factor in regional socioeconomic development due to its multiplier effect across interconnected economic sectors. Foreign tourist expenditure generates additional demand for accommodation, transport, catering, retail, cultural and entertainment services, thereby stimulating business activity, investment, tax revenues, and regional economic growth. Its impact extends beyond the tourism sector to employment, household incomes, small and medium-sized enterprises, infrastructure development, and the investment attractiveness of regions.

The impact of inbound tourism can be systematized through four interrelated dimensions: economic, social, infrastructural, and institutional. The economic dimension is reflected in the growth of tourism services, business revenues, investment activity, and tax revenues. The social dimension encompasses job creation, increased employment and incomes, and the expansion of opportunities for small and medium-sized enterprises. The infrastructural dimension involves the modernization of transport, accommodation, and tourism facilities, as well as improvements in service quality. The institutional dimension is associated with the development of regulatory frameworks, government support programs, and public-private partnership mechanisms.

Thus, the socioeconomic effects of inbound tourism result from the interaction of these dimensions rather than from individual indicators. This integrated approach provides a theoretical basis for systematizing the main areas of tourism impact and identifying a comprehensive set of indicators for its subsequent assessment.

To theoretically substantiate this approach, the author developed a conceptual framework illustrating the interrelationships between inbound tourism and regional socioeconomic outcomes (Figure 1).

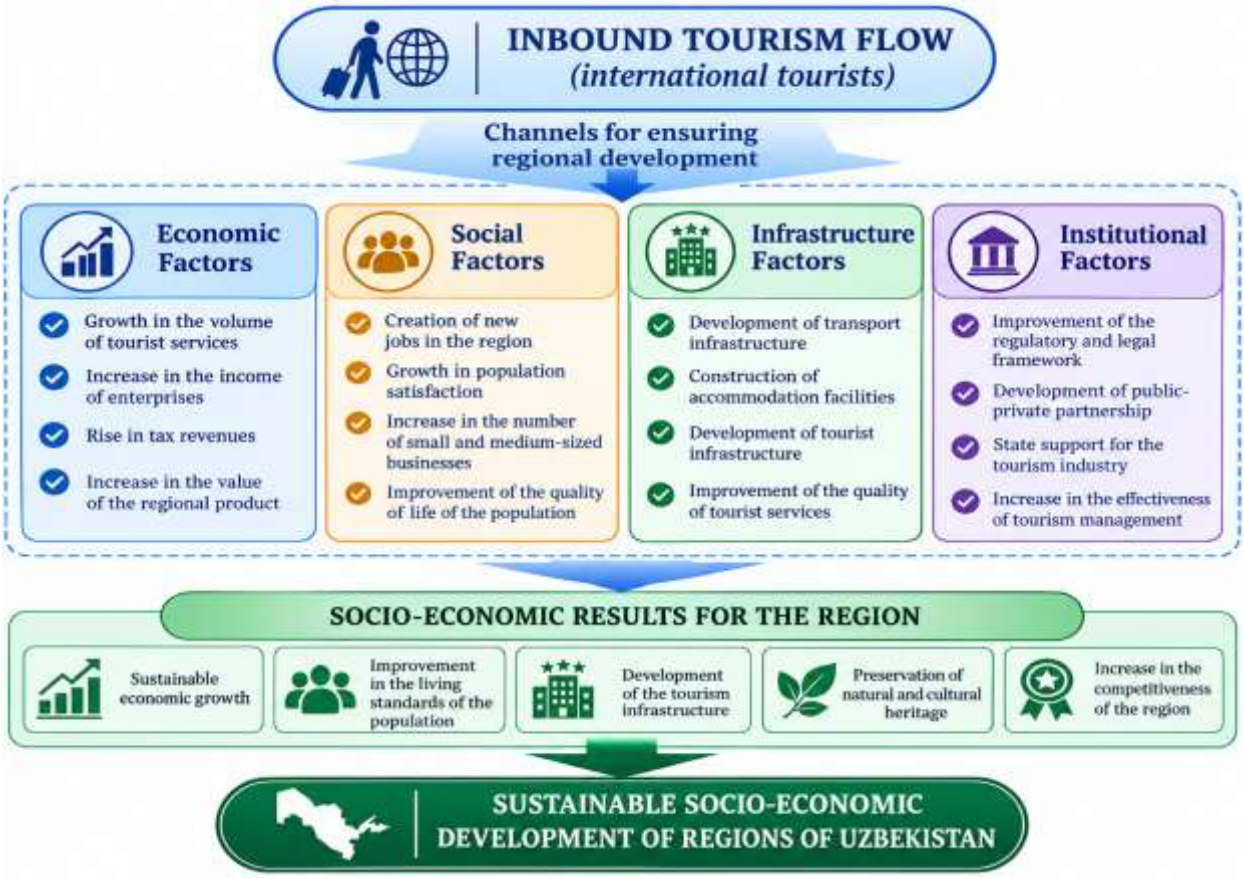


Figure 1. Sustainable socio-economic development of regions through inbound tourism

As shown in Figure 1, inbound tourism influences regional development through interconnected economic, social, infrastructural, and institutional factors. Their combined effects contribute to the growth of tourism services and business activity, employment and incomes, infrastructure and service quality, as well as the improvement of the regulatory and investment environment.

The conceptual framework provides a theoretical basis for developing a comprehensive methodology to assess the impact of inbound tourism on regional socioeconomic development. Such an approach enables the construction of an integrated indicator for objective assessment and comparative analysis of the regions of Uzbekistan.impact of inbound tourism and a comparative analysis of Uzbekistan's regions.

Analysis of existing methods for assessing the impact of inbound tourist flow on the socio-economic development of regions.

The development of a scientifically sound methodology requires an analysis of existing domestic and international approaches to measuring the socioeconomic effects of tourism. The literature includes a range of methods, including Tourism Satellite Accounts (TSA), Input–Output (I–O) models, Computable General Equilibrium (CGE) models, econometric methods, integrated indices, and systems of statistical indicators. Although these approaches provide valuable analytical tools, most focus on specific dimensions of tourism impact and therefore have limitations in providing an integrated regional assessment. A comparative analysis is consequently required to identify their applicability and methodological limitations for the regions of Uzbekistan.

The methodological foundations of tourism impact assessment have been developed by researchers from different countries. Among international scholars, L. Dwyer, P.

Forsyth, J.R.B. Ritchie, G. Crouch, J.L. Crompton, and others have contributed to the assessment of tourism's economic contribution, destination competitiveness, and sustainable development through TSA, I–O, CGE, and econometric approaches. However, these methods are predominantly oriented toward national-level analysis or individual economic effects and give comparatively limited attention to regional differences.

Russian researchers, including E.V. Pomelova, K.K. Levchenko, L.A. Burnyasheva, and E.N. Romanov, have examined the economic and social effects of inbound tourism, tourism service quality, multiplicative effects, and the efficient use of regional tourism and recreational potential. Their approaches provide useful tools for evaluating particular socioeconomic processes, but generally do not establish an integrated framework covering the multidimensional impact of inbound tourism.

Uzbek researchers, including M.T. Alimova, N.E. Ibadullaev, Z.N. Turaev, and Z. Alimardonova, have contributed to the theoretical and methodological foundations of regional tourism development, tourism potential utilization, inbound tourism, infrastructure development, destination competitiveness, and sustainable tourism. Their studies have strengthened the conceptual and institutional foundations of tourism development in Uzbekistan. Nevertheless, a comprehensive methodology for assessing the combined socioeconomic impact of inbound tourism at the regional level remains insufficiently developed.

The review demonstrates that existing approaches provide substantial methodological experience but remain fragmented in terms of regional, multidimensional assessment. Most studies examine economic, social, or infrastructural indicators separately, without integrating their combined effects into a single comparative framework. This limitation is particularly relevant to developing and transition economies, where regional statistical data may be fragmented and territories differ considerably in tourism potential, infrastructure, and economic structure.

Therefore, a comparative assessment of the principal tourism impact measurement methods is necessary to determine their strengths, limitations, data requirements, methodological transparency, capacity to capture multidimensional effects, and suitability for cross-regional comparison in Uzbekistan. The results are presented in Table 1.

The data in Table 1 demonstrate that existing methodologies differ in both their research objectives and the assessment tools they employ. International approaches, such as the Tourism Satellite Account (TSA), Input-Output Analysis, and general equilibrium (CGE) models, provide a comprehensive assessment of tourism's economic contribution, but they require significant statistical data and are primarily focused on the national level. Econometric models allow for the identification of quantitative relationships between tourism and socioeconomic indicators, but generally fail to capture the comprehensive nature of tourism's impact on regional development.

The most promising approach is to use an integrated approach that combines a system of tourism, economic, social, and infrastructure indicators into a single assessment metric. However, an analysis of existing research shows that a universal methodology adapted to the conditions of Uzbekistan's regions and providing a comprehensive assessment of the impact of inbound tourism on the socioeconomic development of these regions is currently lacking.[14]

Thus, the identified scientific gap justifies the need to develop a proprietary comprehensive assessment methodology based on a system of integrated indicators. The proposed methodology will not only determine the impact of inbound tourism on the development of each region but also enable comparative analysis, identify problem areas, and formulate scientifically based recommendations for improving regional tourism policy.[15].

Table 1. Comparison of methods for assessing the impact of inbound tourist flow on the socio-economic development of regions

Methodology	The essence of the technique	Advantages	Restrictions	Possibility of use in Uzbekistan
Tourism Satellite Account (TSA)	Assessing the contribution of tourism to national economy through the system of tourism satellite accounts	✓ Internationally recognized standard ✓ Provides a comprehensive assessment of the economic contribution of tourism ✓ Allows comparison of results between countries	X Requires a large amount of statistical information XFocused primarily on the national level XLimited application for assessing individual regions	**Limited applicability** Due to lack of a full-fledged regional system of satellite tourism accounts
Input-Output Analysis (inter-industry balance)	Determination of direct, indirect and induced effects of tourism through the analysis of inter-industry relationships	✓ Allows to determine the multiplier effect of tourism ✓ Assess the impact on various sectors of the economy	X Complexity of calculations X Necessity availability of detailed inter-industry tables	**Limited** applicable Due to insufficient detail of regional statistics
Computable General Equilibrium (CGE)	Modeling the impact of tourism activities on the economy, taking into account the interrelations between all sectors	✓ Allows for a comprehensive assessment of the economic consequences of changes in tourist flows ✓ Takes into account the interrelations between all sectors of the economy	X High complexity of the model X Significant requirements for initial data and software	**Can be applied** primarily in large-scale scientific research with the necessary statistical base
Econometric models	Research of the dependence of socio-economic indicators on the parameters of tourist flow using methods of correlation and regression analysis	✓ Allows you to quantify the impact of individual factors ✓ To identify statistically significant relationships	X Results depend on quality statistical data X Significant requirements for initial data and software	**Applicable** If available reliable regional statistical data
Integral index	A comprehensive assessment based on combining several indicators into a single integrated indicator	✓ Provides a comprehensive assessment ✓ Allows for comparison and ranking of regions ✓ Convenient for monitoring and making management decisions	X Requires scientific justification for the composition of indicators and determination of weighting factors	**The most promising** to assess the impact of inbound tourist flow on the socio-economic development of regions
System of statistical indicators	Analysis of individual tourism and socio-economic indicators without forming a single integrated indicator.	✓ Simplicity of calculations ✓ Availability of official statistical information	X It does not allow for a comprehensive assessment of the impact of inbound tourist flow and comparison of regions using a single criterion	**Widely used** **In statistical practice, however, it requires improvement.**
The proposed Autoristic technique	A comprehensive assessment of the impact of inbound tourism flows using an integrated index	✓ Provides a comprehensive assessment ✓ Takes into account regional characteristics ✓ Allows for comparative analysis of regions	x Requires testing and scientific justification of weighting factors	Fully adapted to the conditions of the region of Uzbekistan and aimed at improving regional tourism policy.

	that combines tourism, economic, social and infrastructure indicators	✓ Forms practical recommendations for improving tourism policy		

Development of an original methodology for comprehensive assessment. The development of an original methodology for assessing the impact of inbound tourism on regional socioeconomic development is based on the need to integrate the multidimensional effects of tourism into a unified assessment framework. The analysis of existing approaches demonstrated that most methods focus on individual tourism indicators or specific socioeconomic effects and therefore do not provide a comprehensive regional assessment. To address this limitation, the proposed methodology integrates methodological principles, indicator selection criteria, a calculation algorithm, and an integrated index.

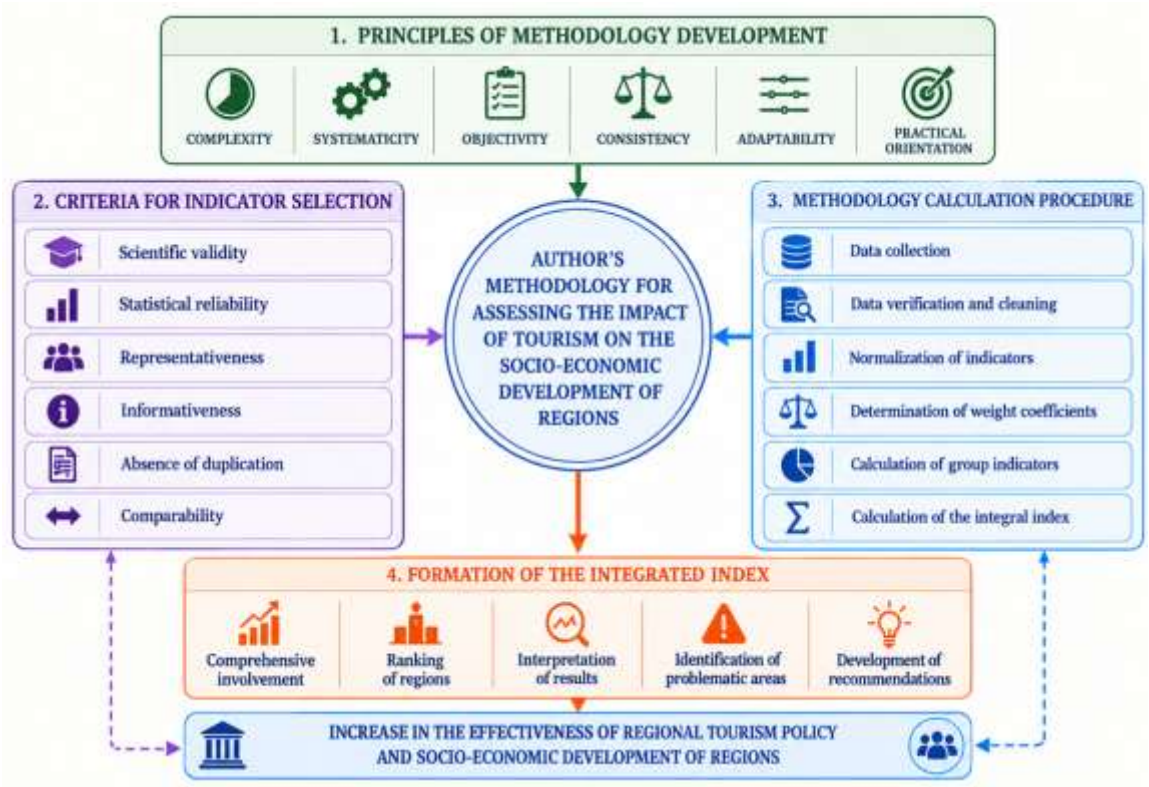


Figure 2. Assessment of tourism impact on socio-economic development of regions

As shown in Figure 2, the methodology consists of four interconnected blocks: methodological principles, criteria for selecting indicators, the calculation algorithm, and the formation of an integrated index. The methodological foundation is based on the principles of comprehensiveness, systematicity, objectivity, comparability, adaptability, and practical orientation. The selection of indicators is guided by statistical accessibility, informativeness, representativeness, comparability, and the absence of duplication, ensuring that the indicator system adequately reflects the socioeconomic effects of inbound tourism.

The calculation procedure comprises five sequential stages: (1) collection and verification of official statistical data; (2) normalization of indicators to a common dimensionless scale; (3) determination of weighting coefficients; (4) calculation of partial indices for the main dimensions of impact, including economic, social, and infrastructural

components; and (5) aggregation of partial indices into an integrated index. This sequence ensures consistency, comparability, and reproducibility of the assessment results.

The resulting integrated index provides a comprehensive measure of the impact of inbound tourism on regional socioeconomic development and enables regions to be compared on a common scale. It can be used to assess the effectiveness of tourism potential utilization, identify development constraints, distinguish regions with different levels of tourism impact and potential, and formulate differentiated policy recommendations. The interpretation scale and development matrix presented below provide the basis for translating the index results into specific regional development priorities. Thus, the proposed methodology provides a unified framework for measuring the multidimensional impact of inbound tourism and supports evidence-based decision-making in regional tourism policy. At the same time, the practical implementation of the methodology requires the establishment of a clear sequence of calculation procedures, ensuring a unified approach to the processing of statistical information, the formation of a system of indicators and obtaining an objective integrated assessment. The developed proprietary methodology was tested using official statistical data from the Republic of Uzbekistan for 2025. To create the integrated index, key indicators were selected that most fully characterize the impact of inbound tourism on the socioeconomic development of regions. The principles of comprehensiveness, statistical accessibility, comparability, and information content were considered in selecting the indicators. The initial data used for further calculations are presented in Table 3.

Table 3. Key Tourism Indicators by the Republic and Regions

Region	Number of foreign tourists visiting in 2025, people.	Volume of tourism services provided in 2025, billion soums.	Number of people employed in the tourism sector in 2025, people	Number of accommodation facilities in 2025, units
Republic of Uzbekistan	**11,679,600**	**226,955.8**	**308 162**	**4,442**
Republic of Karakalpakstan	401 200	12,385.5	16,817	89
Andijan region	542,300	15,147.3	20,567	133
Bukhara region	807 700	11,576.6	15,719	386
Jizzakh region	334 100	6,949.1	9,436	110
Kashkadarya region	870 900	19,981.2	27 131	260
Navoi region	337,100	6,885.9	9,350	113
Namangan region	643,500	23,631.6	32,087	120
Samarkand region	1,452,200	25,977.9	35,273	556
Surkhandarya region	433,700	9,760.8	13,253	132
Syrdarya region	163,600	4,365.2	5,927	42
Tashkent region	992 800	16,110.2	21,875	419
Fergana region	1,203,600	22,806.9	30,967	435
Khorezm region	707,000	12,632.9	17 153	271
Tashkent	2,789,900	38,743.7	52,607	1,376

The data presented in **Table 3** demonstrate significant regional differentiation in tourism development. The highest values are observed in Tashkent City and the Samarkand, Fergana, and Tashkent regions, reflecting their concentration of tourism resources, developed infrastructure, and substantial volume of tourism services. Lower values in other regions indicate the existence of untapped potential for inbound tourism development.

Since the indicators are measured in different units and vary considerably in scale, their direct comparison would not provide an objective basis for integrated assessment. Therefore, the initial data were normalized to a common dimensionless scale before calculating the partial and integrated indices. **The Min–Max normalization method** was applied, transforming each indicator to a range from 0 to 1. For each indicator, the best-performing region receives a value of 1 and the lowest-performing region a value of 0, while intermediate values reflect the relative position of the remaining regions. The direction of each indicator was considered so that higher normalized values consistently represented more favorable conditions.

The Min–Max method was selected due to its computational simplicity, interpretability, preservation of relative differences between regions, and compatibility with the five-level interpretation scale used in the study. Although the method is sensitive to extreme values and depends on the composition of the regional sample, these limitations were addressed by verifying the initial data for anomalies and applying the same set of regions and reference period across all indicators. The resulting normalized values provide a comparable basis for calculating partial and integrated indices.

$$\boldsymbol{Z}ij = \frac{X_{ij} - X_{j,min}}{X_{j,max} - X_{j,min}}$$

Where:

$\boldsymbol{Zij}$ - normalized value of the j-th indicator for the i-th region;

$\boldsymbol{X_{ij}}$ - the actual value of the j-th indicator for the i-th region;

$\boldsymbol{X_{j,min}}$ - the minimum value of the j-th indicator among the regions studied;

$\boldsymbol{X_{j,max}}$ - the maximum value of the j-th indicator among the regions studied.

According to formula (1), normalization is performed separately for each of the four indicators included in the author's assessment methodology. The calculations result in normalized values ranging from 0 to 1, reflecting the relative position of each region for the corresponding indicator. The resulting normalization results are presented in Table 4 and serve as the basis for calculating partial indices for tourism, economic, social, and infrastructure components - Table 4.

It should be noted that the Min-Max method assigns a value of 1.000 to the region with the highest value for the relevant indicator, and a value of 0.000 to the region with the lowest value. In the study population, the highest values for all four indicators were recorded in the city of Tashkent, while the lowest were in the Syrdarya region. These regions form the upper and lower boundaries of the normalized value range and serve as benchmarks for comparative assessment of the remaining regions.

Table 4. Results of normalization of indicators for assessing the impact of inbound tourist flow on the socio-economic development of the regions of the Republic of Uzbekistan

Region	Number of foreign tourists visiting in 2025, people.	Volume of tourism services provided in 2025, billion soums.	Number of people employed in the tourism sector in 2025, people	Number of accommodation facilities in 2025, units
Republic of Karakalpakstan	0.090	0.233	0.233	0.035
Andijan region	0.144	0.314	0.314	0.068
Bukhara region	0.245	0.210	0.210	0.258
Jizzakh region	0.065	0.075	0.075	0.051
Kashkadarya region	0.269	0.454	0.454	0.163
Navoi region	0.066	0.073	0.073	0.053
Namangan region	0.183	0.560	0.560	0.058
Samarkand region	0.491	0.629	0.629	0.385
Surkhandarya region	0.103	0.157	0.157	0.067
Syrdarya region	0,000	0,000	0,000	0,000
Tashkent region	0.316	0.342	0.342	0.283
Fergana region	0.396	0.536	0.536	0.295
Khorezm region	0.207	0.240	0.240	0.172
Tashkent	1,000	1,000	1,000	1,000

The resulting normalized values do not reflect the absolute level of tourism development, but rather characterize the relative position of each region within the study population. This ensures comparability of indicators regardless of their units of measurement and creates a methodological basis for calculating sub-indices for tourism, economic, social, and infrastructure components, as well as for the subsequent formation of an integrated index for assessing the impact of inbound tourism on the socioeconomic development of regions in the Republic of Uzbekistan. Normalized values obtained for each of the studied indicators are used to determine partial indices characterizing individual components of the impact of inbound tourism on the socioeconomic development of regions. Calculating partial indices allows us to systematize the normalization results and generate a quantitative assessment of the tourism, economic, social, and infrastructural components of the developed methodology. Since each component in this study is represented by a single representative indicator, the value of the partial index is taken to be equal to the corresponding normalized value of the indicator. This approach ensures the comparability of the results and provides the basis for the subsequent formation of the integrated index.

Formula (2)

$$I_k = \frac{\sum_{j=1}^{m} Zij}{m}$$

Ik **-** private index of the corresponding component;

Zij **-** normalized value of the j-th indicator of the i-th region;

m **-** the number of indicators included in the corresponding group

Since in the developed methodology each group includes one indicator (m=1), the calculation of partial indices is carried out according to the formulas:

$$I_T = Z_T$$

$$I_E = Z_E$$

$$I_S = Z_S$$

$$I_{Inf} =, Z_{Inf}$$

Where:

I_T – Tourism partial index;

I_E – Economic partial index;

I_S – Social partial index;

I_{Inf} – Infrastructure parial index.

The calculation yields four sub-indices for each region, reflecting the level of development of tourism, economic, social, and infrastructure components. The resulting values serve as an intermediate result of the author's methodology and are used to calculate an integrated index, providing a comprehensive assessment of the impact of inbound tourism on the socioeconomic development of the regions of the Republic of Uzbekistan.

To obtain a comprehensive assessment of the impact of inbound tourism on the socioeconomic development of regions, the individual indices are combined into a single integrated index. The integrated index is a summary indicator reflecting the combined impact of tourism, economic, social, and infrastructure components, and allows for the comparative development of each region to be determined based on a single assessment criterion. The integrated index is calculated as the arithmetic mean of the individual indices, ensuring equal consideration of all components of the author's methodology and enabling an objective, comprehensive assessment of the process under study. Formula (2)

$$I=\frac{I_T+I_E+I_S+I_{Inf}}{4}$$

I - integral index for assessing the impact of inbound tourist flow on the socio-economic development of the region;

I_T – tourism index

I_E – economic index

I_S – social index

I_{Inf} - infrastructure index

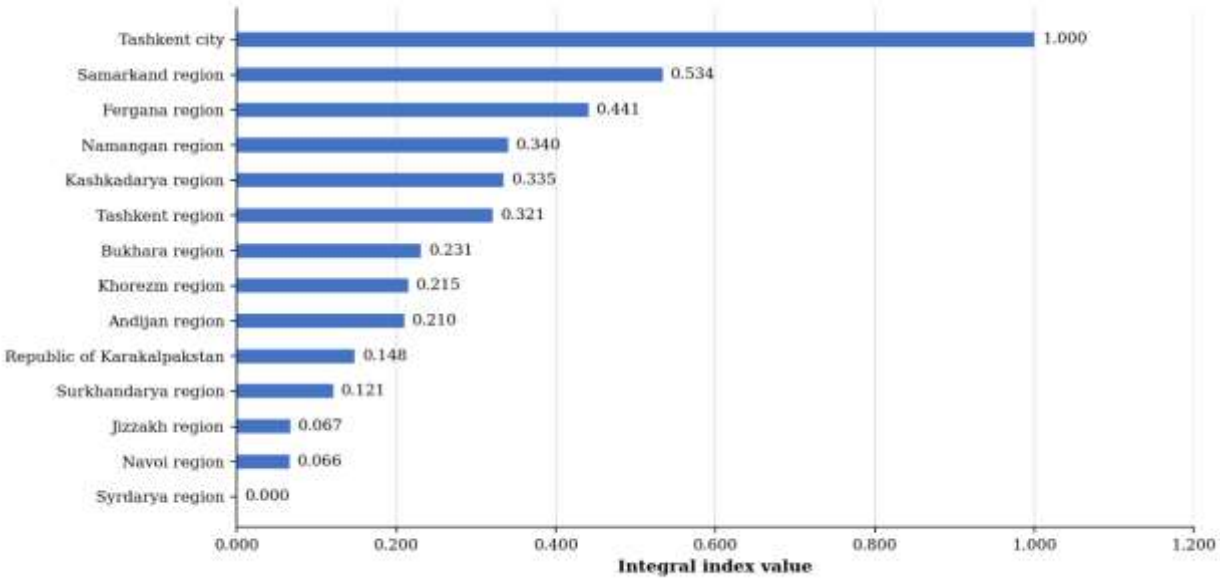
The resulting integrated index values allow for a comprehensive comparative assessment of the regions of the Republic of Uzbekistan based on the impact of inbound tourism on their socioeconomic development, identifying regions with high and low levels of tourism development, and forming the basis for their subsequent ranking. The integrated index calculation results are presented in Table 5.

Table 5. Integrated index for assessing the impact of inbound tourism on the socio-economic development of the regions of the Republic of Uzbekistan

Region	Integral index
Republic of Karakalpakstan	0.148
Andijan region	0.210
Bukhara region	0.231
Jizzakh region	0.067
Kashkadarya region	0.335
Navoi region	0.066
Namangan region	0.340
Samarkand region	0.534
Surkhandarya region	0.121
Syrdarya region	0,000
Tashkent region	0.321
Fergana region	0.441
Khorezm region	0.215
Tashkent	1,000

The results of calculating the integrated index indicate significant differences between regions of the Republic of Uzbekistan in terms of the impact of inbound tourism on their socioeconomic development. The highest integrated index values were recorded in the city of Tashkent and the Samarkand, Fergana, Namangan, Kashkadarya, and Tashkent regions, due to the high concentration of tourism resources, developed infrastructure, significant volume of tourism services, and higher employment rates in the tourism sector. At the same time, comparatively low values of the integral index are observed in the Syrdarya, Navoi, and Jizzakh regions and the Republic of Karakalpakstan. The obtained results indicate the need for additional measures aimed at developing tourism infrastructure, expanding the range of tourism services, increasing the investment attractiveness of the regions, and more effectively utilizing existing tourism potential. It should be noted that the integral index reflects the relative position of regions within the study population. A value of 1.000 is assigned to a region with the highest values for the studied indicators, while a value of 0.000 corresponds to a region with the lowest values within the sample.

Figure 4. Ranking of the regions of the Republic of Uzbekistan by the integral index of the impact of inbound tourist flow on socio-economic development



Source: calculated by the author based on 2025 data.

Thus, the developed proprietary methodology enables a comprehensive assessment of the impact of inbound tourism on the socioeconomic development of regions in the Republic of Uzbekistan based on a system of interrelated tourism, economic, social, and infrastructure indicators. Consistent application of the proposed algorithm, including the collection of initial data, its normalization, calculation of the integral index, and ranking of regions, ensures the objectivity, comparability, and reliability of the obtained results. The practical value of the developed methodology lies in its potential for monitoring the effectiveness of tourism industry development, identifying interregional disparities, determining priority areas for government support, and improving the effectiveness of management decisions. The proposed methodological approach can serve as a scientific and methodological basis for developing regional tourism development programs and improving government regulation of tourism activities.

The classification results demonstrate substantial regional differentiation. Tashkent City occupies the highest position with an index of 1.000, reflecting its leading relative performance across the selected indicators. At the same time, the relatively lower positions of historically prominent destinations such as Bukhara and Khorezm indicate that destination recognition alone does not necessarily translate into a proportionally high socioeconomic effect. This may be associated with factors such as tourist expenditure retention, length of stay, seasonality, and the development of complementary services; however, these relationships require further empirical verification.

The Syrdarya region's index of 0.000 should not be interpreted as an absence of tourism activity. Rather, it represents the lowest relative position within the study sample under the Min–Max normalization procedure. Overall, the results confirm considerable spatial differentiation in the socioeconomic impact of inbound tourism and support the need for differentiated regional policy rather than uniform measures. For leading regions, policy priorities should focus on maintaining competitiveness, diversifying tourism products, developing business and event tourism, and improving service quality. Regions with medium and relatively low levels require stronger tourism branding, accommodation and transport infrastructure, and investment attraction, while regions with very low values require basic infrastructure development, improved accessibility, and the activation

of underutilized tourism resources. The differentiated development priorities corresponding to each integral index level are presented in Figure 4.

IVTR/level	Infrastructure & access	Products &resources	Markets& branding	Business& investment	Skills& service	Programmes &technology
0.80-1.00 VERY HIGH	-	High-value products MICE tourism	International marketing & branding	-	-	Digitalisation Smart solutions
0.60-0.79 HIGH	-	Gastronomy Events - Ecotourism	Targeted market promotion	Private sector Small business	Quality & standarts	-
0.40-0.59 MEDIUM	Accomodation Transport - Signage	-	Regional tourism brands	Attract tourism investmant	Staff training Service culture	-
0.20-0.39 LOW	Basic infrastructure Visitor centres	-	Domestic tourism promotion	Tourism entrepreneurship	-	Regional tourism programmes
0.00-0.19 VERY LOW	Road Accomodation	Resource inventory & mobilisation	Public awareness	-	Staff training	Integrated developmant

Figure 4. Reginal development direction matrix throughout integral index

The matrix highlights a shift in policy emphasis across the five IVTR categories. For regions with very low index values, priorities centre on basic infrastructure, the mobilisation of tourism resources, staff training and integrated development programmes. At the low and medium levels, greater emphasis is placed on entrepreneurship, domestic tourism promotion, transport connectivity, regional branding and investment attraction. Regions in the high category require product diversification, targeted promotion and improved service standards, while those in the very high category prioritise high-value products, international branding, digitalisation and MICE tourism. These differences support a differentiated approach to tourism policy rather than a uniform set of interventions. The matrix identifies the measures emphasised in the original framework; blank cells do not imply that other policy dimensions are irrelevant. Its practical application should therefore combine the IVTR classification with an assessment of each region's resources, constraints and institutional capacity.

4. Conclusion

The study allowed us to develop a comprehensive methodological approach to assessing the impact of inbound tourism on the socioeconomic development of regions in the Republic of Uzbekistan. Based on an analysis of domestic, Russian, and international scientific research, it was found that existing methodologies focus primarily on assessing individual aspects of tourism activity or on the national level of analysis and do not provide a comprehensive assessment of regional differences.

The study substantiated an integrated assessment system that combines tourism, economic, social, and infrastructure indicators into a single integrated index. The use of statistical data normalization and an integrated approach ensured the comparability of the studied indicators and allowed for an objective assessment of the impact of inbound tourism on the socioeconomic development of the regions of the Republic of Uzbekistan. Testing the methodological approach using data from regions of the Republic of Uzbekistan revealed significant differences among regions in terms of tourism development and its impact on socioeconomic processes. The results served as the basis for ranking regions, identifying problem areas, and substantiating priority public policy measures in tourism.

The research's scientific novelty lies in the development of an integrated approach to assessing the impact of inbound tourism, including a proprietary system of indicators, a scale for interpreting results, and a matrix for selecting priority development areas for regions. The use of these tools enables a transition from quantitative assessment to the development of differentiated management decisions that take into account the level of development of each region. The practical value of the study is determined by the possibility of using the proposed methodological approach by government bodies, the Tourism Committee of the Republic of Uzbekistan, regional authorities and research organizations in monitoring tourism development, comparative assessment of regions, determining priorities for state support and improving regional tourism policy. The obtained results expand the scientific and methodological foundations for studying the impact of inbound tourism on regional development and can serve as a basis for further improvement of strategic management mechanisms for the tourism industry of the Republic of Uzbekistan in the context of sustainable socio-economic development.

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