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Article

Regional Tourism Competitiveness Assessment At Mezo-Level: An Integral Index Approach for Uzbekistan

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Abstract: This study develops and applies a comprehensive methodology for assessing regional tourism competitiveness at the mezo (regional) level, with Uzbekistan's 14 administrative regions serving as the empirical context. An integral competitiveness index (THR) is constructed from 86 indicators organized into four composite sub-indices: tourist demand stability (TTB), tourism infrastructure development (TIR), tourism resource potential (TRS), and tourist attractiveness (TJ). Sub-index weights are determined via expert assessment involving 52 specialists, while indicator values are normalized using Z-standardization followed by min-max rescaling to ensure comparability across heterogeneous measurement units. Empirical results reveal significant inter-regional disparities: Tashkent City (THR = 7.86) and Samarkand Region (THR = 7.06) emerge as the leading destinations, while Syrdarya Region (THR = 4.69) and Karakalpakstan Republic (THR = 4.56) lag considerably behind. The findings demonstrate that competitive position is determined by differentiated factor profiles rather than a single dominant dimension, underscoring the need for region-specific policy interventions. The proposed methodology provides a replicable analytical framework applicable to other transition economies seeking evidence-based tourism development strategies.

Keywords: tourism competitiveness; integral index; regional tourism; mezo-level analysis; Uzbekistan; expert assessment; Z-standardization; transition economy, JEL Classification: L83, O18, R11, R58.

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1. Introduction

Tourism has emerged in recent decades as one of the most dynamic and resilient sectors of the global economy, consistently outpacing GDP growth and functioning as a primary vehicle for foreign exchange earnings, employment generation, and infrastructure development [1]. In transition economies — countries undergoing systemic transformation from centrally planned to market-oriented systems — tourism occupies a particularly strategic position, offering a pathway for diversification away from commodity exports and Soviet-era industrial structures [2], [3]. Among Central Asia's five republics, Uzbekistan possesses arguably the most concentrated endowment of tangible cultural heritage: its historic cities of Samarkand, Bukhara, Khiva, and Shakhrisabz collectively house nine UNESCO World Heritage Sites [4]. The reform era initiated from 2016 onward — abolition of exit visas, e-visa and visa-free regimes for over 90 countries, currency liberalization, and privatization of state-owned hospitality assets [5] — drove international arrivals from 2.69 million in 2017 to 6.74 million in 2023, a compound annual growth rate of approximately 16.6 percent, while tourism's GDP contribution rose from 1.7 to an estimated 2.8 percent [6].

Despite this impressive aggregate trajectory, growth has been spatially uneven: the historic triangle of Tashkent, Samarkand, and Bukhara captures the overwhelming majority of international visitor flows, while 10 of the 14 administrative regions receive comparatively modest inbound tourism and possess underdeveloped hospitality infrastructure [7]. This spatial concentration creates an economic vulnerability — over-reliance on a small number of saturated heritage sites — and a missed opportunity to leverage the diverse natural, recreational, and agro-tourism resources distributed across the country's varied geography.

Destination competitiveness, initially developed for firms [8] and subsequently extended to nations [9], is broadly understood as a destination's ability to deliver tourism experiences that outperform alternative destinations on dimensions valued by visitors, while generating returns for residents and preserving natural capital [10]. A critical but often overlooked distinction concerns spatial scale: the dominant international benchmarks operate at the national level and are ill-suited to capture intra-national variation, yet the relevant unit for infrastructure investment, land-use planning, and destination marketing is typically the region. This constitutes what the present paper terms the mezo-level gap in tourism competitiveness research — the absence of systematic, multi-indicator assessment frameworks calibrated to regional data architectures in transition economies.

This paper makes three contributions. First, it constructs and validates a mezo-level Integral Regional Tourism Competitiveness Index (THR) adapted to Uzbekistan's statistical architecture, drawing on 86 indicators collected annually by the State Statistics Committee and the State Committee for Tourism Development. Second, it applies the index to generate the first systematic, multi-dimensional competitiveness ranking of all 14 Uzbekistani regions. Third, it derives a regional typology mapping observed competitiveness profiles to differentiated policy strategies. Section 2 reviews the relevant literature; Section 3 describes data and methodology; Section 4 presents results; Section 5 discusses policy implications; Section 6 concludes.

Literature Review

Theoretical frameworks for destination competitiveness

The most widely cited theoretical framework for destination competitiveness is the Conceptual Model developed by Ritchie and Crouch [10], [11]. Drawing on Porter's (1990) diamond model of national competitive advantage, it organizes determinants into five hierarchical categories: core resources and attractors, supporting factors and resources, destination management, destination policy and planning, and qualifying and amplifying determinants. A systematic review by Crouch [12] identified 36 determinants of destination competitiveness, ranking core attractions and destination awareness as most critical while highlighting infrastructure quality and destination management as the primary policy levers.

A complementary framework was proposed by Dwyer and Kim [13], whose Integrated Model retains the multi-dimensional structure of Ritchie-Crouch but distinguishes inherited resources (natural, cultural, and heritage endowments that can only be preserved or degraded) from created resources (tourism superstructure, entertainment, events), and explicitly connects supply-side competitiveness factors to market performance — arrivals, expenditure, and satisfaction. Porter's (1990) diamond model, adapted to tourism by several scholars, maps factor conditions onto natural and cultural resource endowments, demand conditions onto market sophistication, and related/supporting industries onto transport, hospitality, and financial services; its emphasis on the systemic interdependence of competitive factors resonates strongly with the multi-dimensional approach adopted in the present study.

Composite index approaches

The most prominent composite index of tourism competitiveness at the national level is the World Economic Forum's Travel and Tourism Development Index (TTDI), covering 119 economies across five subindexes and 17 pillars [14]. Its principal limitation for the present study is its exclusive focus on the national level: a country's TTDI score reflects average conditions across all regions and cannot identify where within a country

competitive advantages and structural constraints are concentrated, since many TTDI indicators are unavailable or lack meaningful variation at sub-national scale.

A growing literature has developed composite indices at the regional or destination-cluster level. Pérez and Nadal [15] constructed a Regional Tourism Competitiveness Barometer for Spain's coastal autonomous communities, demonstrating significantly heterogeneous regional profiles. Goffi et al. [16] developed a 72-indicator Destination Competitiveness Index for Italian regions emphasizing sustainability dimensions underrepresented in the TTDI, revealing a persistent north-south divide driven largely by infrastructure disparities. Mazanec et al. [17] applied latent class analysis to European city tourism data, identifying five distinct competitive positioning clusters — an approach that anticipates the regional typology developed in Section 4.6 and demonstrates the value of moving beyond simple ranking to identify structurally distinct competitive types requiring differentiated strategic responses. Knezevic Cvelbar et al. [18] showed that perceived destination competitiveness in European city breaks is significantly predicted by cultural richness, safety, and value for money — factors mapping closely onto the TRS and TJ sub-indices employed below.

Competitiveness research in transition economies

The literature on tourism competitiveness in post-Soviet and transition economies has expanded since the early 2000s. Hall [2] highlighted the dual challenge facing post-socialist destinations: simultaneously upgrading Soviet-era infrastructure while dismantling the institutional legacy of state-controlled tourism organizations, finding that institutional reform capacity was a stronger predictor of post-transition tourism growth than resource endowment per se. Williams and Balaz [3], examining Slovakia and the Czech Republic, attributed significant intra-country regional disparities primarily to differential infrastructure investment histories and the spatial distribution of heritage assets — concluding that heritage endowment explains less cross-regional variance in arrivals than infrastructure quality, a finding highly relevant to Uzbekistan and confirmed below. For Central Asia specifically, Novelli et al. [19] examined tourism governance in Kyrgyzstan and Tajikistan, emphasizing border management and regional cooperation as competitiveness determinants; however, no prior study has constructed a multi-dimensional composite index of regional tourism competitiveness for Uzbekistan based on official statistical data — the gap the present paper addresses.

Methodological approaches to composite index construction

The construction of composite indices involves methodological choices that determine the validity of the resulting measure. The OECD's Handbook on Constructing Composite Indicators [20], [21] identifies indicator selection, normalization, and weighting as the most consequential steps. Raw indicator values drawn from official statistics are typically expressed in heterogeneous units that cannot be directly aggregated without transformation. Min-max rescaling alone is sensitive to extreme values: where one region has a dramatically higher value than all others — as is the case for Tashkent City on several indicators in the present dataset — rescaled values for all other regions compress into a narrow range that obscures genuine variation. A two-step approach — Z-standardization followed by min-max rescaling — addresses this by first removing distributional distortion from outliers, then rescaling to a common [0,1] interval [20], [22]. On weighting, normative expert-based weighting is particularly appropriate when there is a theoretical basis for expecting differential importance of dimensions and when the intended audience includes policy-makers requiring transparent, interpretable weights grounded in professional consensus rather than statistical abstraction [22]

The foregoing review identifies the specific gap that the present paper addresses: while theoretical frameworks for destination competitiveness are well developed, their empirical operationalization at the mezo level remains limited in transition economies generally and is entirely absent for Uzbekistan specifically, despite the country possessing one of the most statistically mature regional tourism data architectures in Central Asia.

2. Materials and Methods

Conceptual framework and indicator system

The THR is constructed from four composite sub-indices capturing distinct dimensions of regional tourism competitiveness. Tourist Demand Stability (TTB) covers 10 indicators of inbound and domestic visitor flows. Tourism Infrastructure Development (TIR) is the most comprehensive dimension with 49 indicators across accommodation, transport, digital infrastructure, and service providers. Tourism Resource Potential (TRS) captures heritage assets, cultural facilities, and human capital through 18 indicators. Tourist Attractiveness (TJ) is assessed through 9 thematic indices covering ecological, historical-cultural, pilgrimage, agritourism, ethnographic, mountain, recreational, and destination appeal dimensions. All 86 variables are sourced from official 2023 publications of the State Statistics Committee and the State Committee for Tourism Development.

Expert weighting procedure

Sub-index weights were determined through structured expert assessment involving 52 specialists in tourism economics, regional development, and hospitality management. Each expert assigned importance scores from 0 to 5 to each of the four sub-indices. The individual weight assigned by expert i to sub-index j is computed as $EVij = Eij / \Sigma j\ Eij$, where Eij is the score assigned by expert i to sub-index j. The consensus weight across all experts is $Wj = (\Sigma i\ EVij) / n$, with n = 52.

Table 1 summarizes the distribution of expert scores and the resulting consensus weights (the full disaggregated scoring matrix for all 52 experts is available from the author upon request). Expert scores cluster tightly around 4 on the 0–5 scale for all four sub-indices, with standard deviations between 0.87 and 1.10, indicating broad agreement on the importance of each dimension.

Table 1
Expert Assessment Score Distribution and Consensus Sub-Index Weights (n = 52)

Sub-Index	Min Score	Max Score	Mean Score	SD	Consensus Weight (Wj)
Tourist Demand Stability (TTB)	1	5	4.10	0.99	0.250
Infrastructure Development (TIR)	2	5	3.98	1.10	0.243
Resource Potential (TRS)	2	5	4.12	0.87	0.255
Tourist Attractiveness (TJ)	1	5	4.13	0.98	0.253

Source: Author's expert survey.

The near-equal consensus weights (W1 = 0.250, W2 = 0.243, W3 = 0.255, W4 = 0.253) indicate strong convergence of expert opinion: no single dimension is perceived to dominate overall regional tourism competitiveness, supporting a balanced composite specification and validating the equal-importance assumption underlying the four-block framework.

Indicator normalization

Raw indicator values are normalized through a two-step procedure. First, Z-standardization: $Zi = (xi - \bar{x}) / \sigma$, where xi is the observed value for region i, $\bar{x}$ is the cross-regional mean, and σ is the standard deviation. Second, min-max rescaling of Z-scores to [0, 1]: $Nk = (Zi - Zmin) / (Zmax - Zmin)$. This two-step procedure removes the distorting influence of Tashkent City's outlier values while preserving interpretability of the normalized scores across all regions.

Integral index calculation

Each composite sub-index Cj is the weighted average of its normalized constituent indicators, with equal weights (1/nj) applied within each sub-index. The Integral Regional Tourism Competitiveness Index is then THR = W1·TTB + W2·TIR + W3·TRS + W4·TJ, with $0 \leq THR \leq 10$.

3. Results and Discussion

Overall competitiveness rankings

Table 2 and Figure 1 present THR and sub-index scores for all 14 regions. Results reveal substantial inter-regional disparities: the top-ranked region (Tashkent City, THR = 7.86) scores approximately 70 percent higher than the bottom-ranked (Karakalpakstan Republic, THR = 4.56). Seven of the 14 regions fall below the national mean of 5.83.

Table 2
Regional Tourism Competitiveness Index Scores, Uzbekistan (2023)

Region	TTB	TIR	TRS	TJ	THR	Rank
Tashkent City	**9.00**	**8.02**	**7.42**	**7.01**	**7.86**	**1**
Samarkand Region	5.67	6.16	6.38	9.98	7.06	2
Tashkent Region	5.90	6.61	4.54	8.21	6.31	3
Fergana Region	5.13	5.46	6.16	7.48	6.06	4
Bukhara Region	4.83	5.38	5.85	7.66	5.94	5
Khorezm Region	4.64	5.30	5.80	7.70	5.87	6
Kashkadarya Region	4.65	4.70	5.63	7.82	5.71	7
Surkhandarya Region	4.72	4.80	5.19	7.43	5.55	8
Namangan Region	5.24	4.97	4.57	6.95	5.44	9
Jizzakh Region	4.39	4.35	4.85	7.39	5.25	10
Andijan Region	4.55	4.38	5.43	6.34	5.19	11
Navoi Region	4.40	4.46	5.36	5.40	4.91	12
Syrdarya Region	4.02	4.18	5.95	4.55	4.69	13
Karakalpakstan Rep.	4.32	4.36	4.90	4.66	4.56	14

Note: TTB = Tourist Demand Stability; TIR = Infrastructure Development; TRS = Resource Potential; TJ = Tourist Attractiveness; THR = Integral Index. Source: Author's calculations.

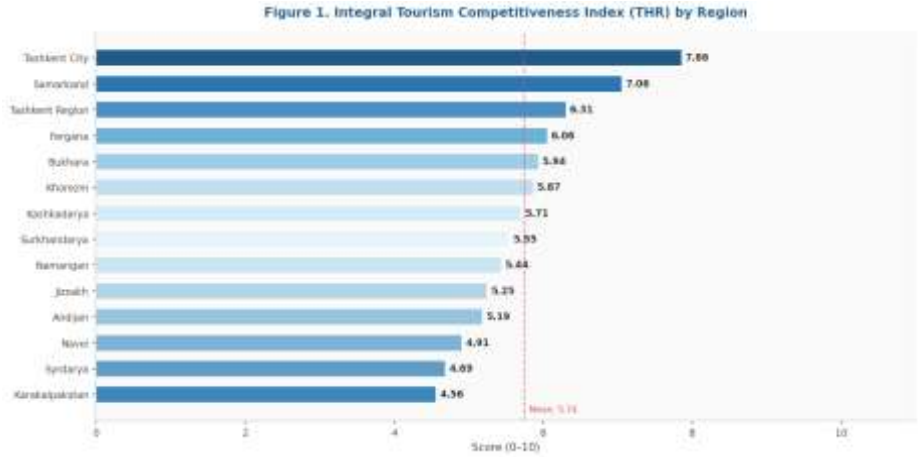

Figure 1. Integral Tourism Competitiveness Index (THR) by Region (2023). Red dashed line = national mean (5.83). Source: Author's calculations.

Sub-index profiles

Tashkent City registers a markedly higher TTB (9.00) than all other regions, reflecting its dominance as the national gateway and business travel hub; Tashkent Region (5.90) and Samarkand Region (5.67) follow, while most regions cluster between 4.0 and 5.3, indicating that demand remains geographically concentrated and has not yet diffused to secondary destinations (Figure 2). Infrastructure disparities are similarly pronounced (Figure 3): Tashkent City (TIR = 8.02) and Tashkent Region (TIR = 6.61) lead significantly, while Jizzakh (4.35) and Karakalpakstan (4.36) have notably underdeveloped accommodation and service ecosystems, representing structural bottlenecks that suppress overall competitiveness.

TRS shows less dispersion than demand or infrastructure (Figure 4): Tashkent City (7.42) leads, followed by Samarkand (6.38) and Fergana (6.16); Syrdarya Region's above-average TRS (5.95) suggests latent resource endowments not yet converted into competitive visitor outcomes, likely due to accessibility and product development constraints. Samarkand Region (TJ = 9.98) nearly achieves a perfect score on Tourist Attractiveness, driven by its UNESCO World Heritage Sites, pilgrimage tourism, and global brand identity; Kashkadarya (7.82) and Khorezm (7.70) also perform strongly, yet their THR scores are suppressed by infrastructure gaps — a key infrastructure-attractiveness disconnect visible in Figure 5.

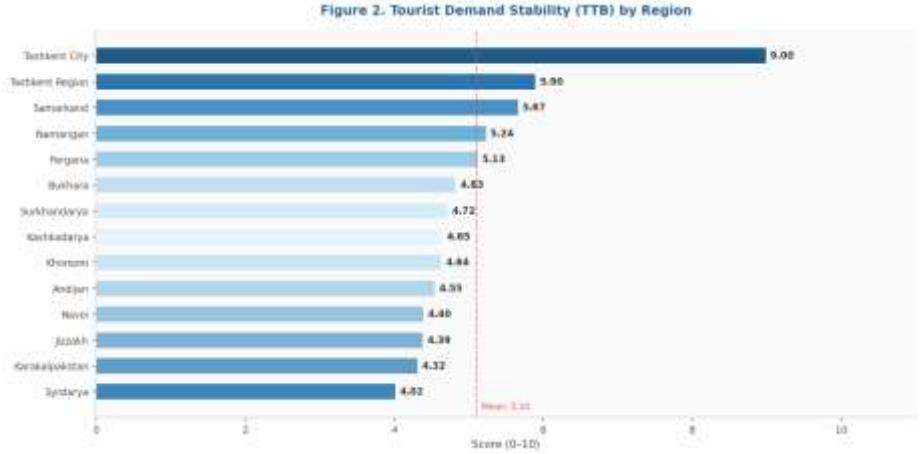

Figure 2. Tourist Demand Stability (TTB) by Region. Source: Author's calculations.

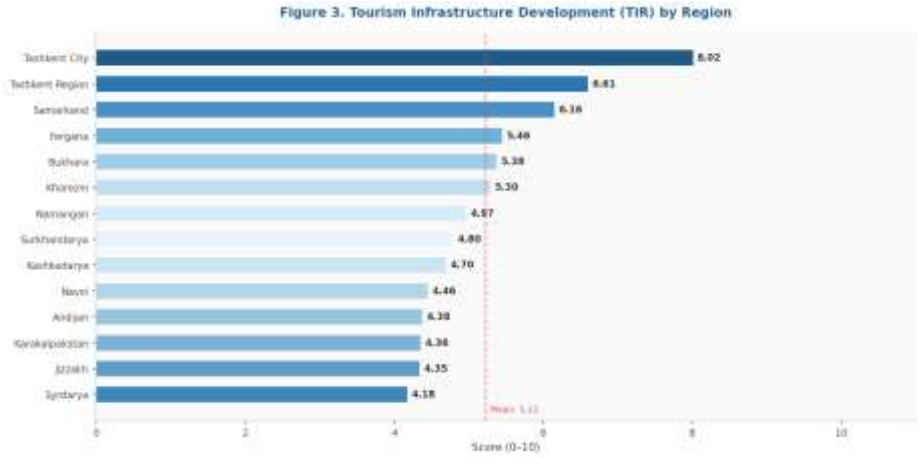

Figure 3. Tourism Infrastructure Development (TIR) by Region. Source: Author's calculations.

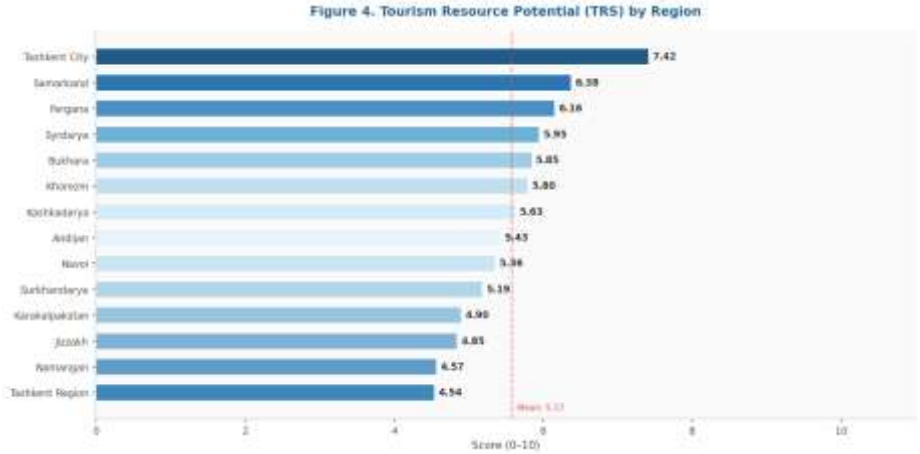

Figure 4. Tourism Resource Potential (TRS) by Region. Source: Author's calculations.

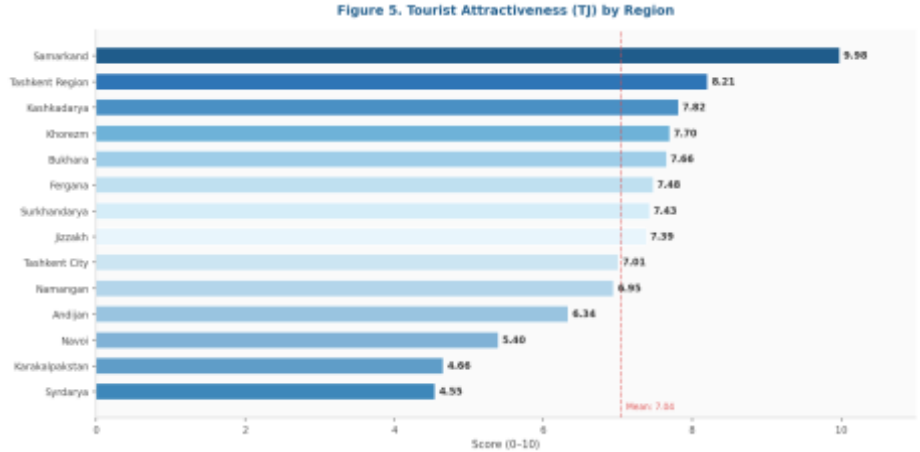

Figure 5. Tourist Attractiveness (TJ) by Region. Source: Author's calculations.

Regional typology

Table 3 derives a four-type regional typology from the observed competitiveness profiles, providing an operational bridge between diagnostic assessment and differentiated policy action.

Table 3
Regional Competitiveness Typology and Policy Directions

Type	Regions	Recommended Policy Direction
I — Consolidated Leaders	Tashkent City, Samarkand, Tashkent Region	Shift toward quality enhancement: premium segments (MICE, medical, gastronomic tourism), higher tourist expenditure, carrying-capacity management.
II — Resource-Rich, Infrastructure-Constrained	Bukhara, Khorezm, Kashkadarya	Targeted investment in accommodation, transport, and digital tourism services through public-private partnerships to release latent competitiveness.
III — Demand-Stable, Experience-Deficient	Fergana, Namangan, Surkhandarya	Multi-day thematic routes, gastronomic and ethnographic products, and regional festivals to extend length of stay and per-visitor revenue.
IV — Emerging Markets	Navoi, Jizzakh, Syrdarya, Andijan, Karakalpakstan	Foundational investment in ecological, agri-, and heritage tourism, supported by entrepreneur capacity-building and domestic market targeting.

Source: Author's classification, derived from Table 2.

Discussion and Policy Implications

The typology in Table 3 carries a clear implication for national tourism planning: a uniform, one-size-fits-all development strategy is poorly matched to the heterogeneity of regional competitiveness profiles documented above. Type I regions have largely exhausted the gains available from further volume growth and require investment oriented toward yield and sustainability; Type II regions possess resource and attractiveness endowments comparable to Type I but are held back by infrastructure deficits that public-private investment vehicles could plausibly close within a single planning cycle. The divergence between TJ and THR observed in Khorezm, Kashkadarya, and Bukhara is the empirical signature of exactly the infrastructure-attractiveness disconnect identified in the transition-economy literature [3]: heritage and resource endowment are necessary but not sufficient conditions for competitive performance.

From a methodological standpoint, the near-equal consensus weights across the four sub-indices (range 0.243–0.255) validate the multi-dimensional framework adopted in this study and caution against the use of single-indicator proxies — such as UNESCO site counts or hotel-bed capacity alone — as shorthand measures of regional tourism competitiveness, a practice that remains common in Uzbekistan's regional planning documents. The Z-standardization and min-max rescaling procedure employed here is explicitly designed to be replicable by national statistical agencies and planning ministries with limited technical infrastructure, and could plausibly be adapted by other transition economies in Central Asia and beyond facing comparable data architecture constraints.

Several limitations qualify these findings. The study's cross-sectional design and exclusive reliance on official statistical data preclude causal inference and omit demand-side validation through visitor satisfaction surveys; the 86-indicator system, while data-feasible, has not been subjected to confirmatory factor analysis to test its empirical

dimensionality. These limitations point directly to the future research agenda outlined in the conclusion.

4. Conclusion

This paper has presented the first systematic, multi-dimensional assessment of regional tourism competitiveness across all 14 regions of Uzbekistan. The Integral Regional Tourism Competitiveness Index (THR), constructed from 86 indicators across four theoretically grounded composite dimensions and calibrated through expert weighting (n = 52) and two-step normalization, reveals a competitive landscape characterized by significant inter-regional disparities and heterogeneous factor profiles.

Three findings are of particular scientific and policy relevance. First, the near-equal consensus weights across the four sub-indices validate the multi-dimensional framework: no single dimension dominates, and single-indicator proxies are insufficient for competitiveness assessment. Second, the pronounced divergence between TJ and THR in regions such as Khorezm, Kashkadarya, and Bukhara demonstrates that high attractiveness and resource endowment are necessary but not sufficient — infrastructure remains the binding constraint in these regions. Third, the four-type regional typology derived empirically provides an operational basis for differentiated policy strategies that aggregate national statistics cannot supply.

Future research should incorporate time-series analysis using the expanding panel of regional tourism statistics available from 2017 onward, integrate qualitative governance indicators, and apply confirmatory factor analysis to test the empirical dimensionality of the 86-indicator system. A companion macro-level study in this article series benchmarks Uzbekistan's national TTDI performance against Eurasian comparators; the mezo-level findings presented here are intended to complement that analysis by identifying where, within the country, the structural constraints it documents are most heavily concentrated.

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