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The Role of Muslim-Friendly Tourism Competitiveness in the Development of Ziyarah Tourism in Uzbekistan: Evidence from GMTI Indicators, 2015–2025

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Abstract: This study examines the role of Muslim-friendly tourism competitiveness in the development of Ziyarah tourism in Uzbekistan between 2015 and 2025. Using Global Muslim Travel Index (GMTI) indicators, it constructs a Ziyarah Tourism Readiness Index (ZTRI) to assess how religious tourism infrastructure influences tourism performance. Employing a log-linear econometric model in an exploratory time-series framework, the analysis provides preliminary evidence on the impact of ZTRI, accessibility factors, and external shocks such as COVID-19 on tourist arrivals. The findings indicate that while Muslim-friendly services—such as halal dining and prayer facilities—positively relate to tourism growth, their statistical impact is limited. In contrast, accessibility factors, including visa liberalization and transport connectivity, emerge as the primary drivers of tourism demand. The study concludes that Ziyarah tourism development requires an integrated approach combining infrastructure, policy reforms, and improved accessibility to strengthen Uzbekistan’s competitiveness in the global Islamic tourism market.

Keywords: Ziyarah Tourism, Muslim-Friendly Destination Competitiveness, Global Muslim Travel Index (GMTI), Tourism Accessibility, Islamic Tourism Development.

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1. Introduction

Ziyarah tourism, a form of religious travel centered on visits to Islamic heritage sites, has become an increasingly important segment of global tourism, particularly in Muslim-majority countries. In recent years, Uzbekistan has emerged as a notable destination in this sector due to its rich Islamic heritage, association with prominent scholars, and the preservation of numerous sacred sites. This growth has been further supported by government-led reforms, including visa liberalization, infrastructure development, and improvements in transport connectivity.

The concept of Muslim-friendly tourism competitiveness plays a central role in this development. The Global Muslim Travel Index (GMTI) provides a widely recognized framework for assessing such competitiveness, evaluating factors such as the availability of halal services, access to prayer facilities, ease of travel, safety, and destination marketing. Between 2015 and 2025, Uzbekistan’s performance in the GMTI has shown a generally positive trajectory, reflecting both policy advancements and continuing structural challenges.

Despite this progress, there remains a limited body of empirical research examining the relationship between Muslim-friendly infrastructure and the development of Ziyarah tourism in Uzbekistan. This study seeks to address this gap by introducing a Ziyarah Tourism Readiness Index (ZTRI), constructed using key GMTI indicators, and by analyzing its relationship with tourism performance over the period 2015–2025.

Accordingly, the study aims to evaluate whether improvements in Muslim-friendly infrastructure contribute to the growth of Ziyarah tourism. It also considers the influence of accessibility, policy reforms, and external shocks—most notably the COVID-19 pandemic—thereby offering insights into strategies for strengthening Uzbekistan’s position within the global Islamic tourism market.

Literature Review

Religious tourism has increasingly been recognized as a significant segment of global travel, encompassing journeys motivated by spiritual, cultural, and experiential considerations. Scholars commonly define religious tourism as “contemporary patterns of visitation to places of religious importance or pilgrimage” [1]. Within this broader framework, Islamic travel traditions make a clear distinction between obligatory pilgrimages, such as Hajj, and voluntary forms of visitation, most notably *ziyarah*, which plays a central role in shaping Muslim travel behavior. Ziyarah tourism is generally understood as a form of religiously motivated travel that complements major pilgrimages, constituting “an integral part of Islamic religious tourism alongside Hajj and Umrah” [2].

Ziyarah tourism also represents a form of religious travel centered on visits to sacred sites of historical and cultural importance, usually connected to significant religious figures or events, and valued deeply by adherents of specific belief systems [3]. More specifically, *ziyarah* refers to visits to sacred Islamic sites, including shrines, tombs of saints, and historically significant religious locations. These practices are often described as “a form of religious mobility distinct from formal pilgrimage obligations” [4], emphasizing their voluntary, flexible, and often localized nature. In this context, *ziyarat* is closely associated with “Islamic holy places and sacred sites visited by Muslims” [5], underscoring its strong connection to spiritual geography and the preservation of religious heritage.

Tourism destination competitiveness has been extensively theorized in the literature, with two frameworks proving particularly influential. Ritchie and Crouch [6] conceptualize destination competitiveness as the ability of a destination to increase tourism expenditure, attract visitors, and provide satisfying experiences in a sustainable manner, emphasizing the interplay between core resources, supporting factors, and destination management. Building on this, Dwyer and Kim [7] propose an integrated model that distinguishes between inherited and created resources, situational conditions, and demand factors, arguing that competitiveness is ultimately mediated by destination management and policy. Both frameworks highlight that competitiveness is multidimensional and cannot be reduced to a single factor such as resource endowment or service quality alone. The Global Muslim Travel Index (GMTI) operationalizes these principles within the Islamic tourism context, assessing destinations across access, communications, environment, and services dimensions [8]. By constructing the ZTRI from GMTI sub-indicators, this study treats Muslim-friendly infrastructure as one component within a broader competitive system — an approach consistent with the multidimensional logic of destination competitiveness frameworks.

A key dimension influencing Muslim travel experiences is the availability of halal-compliant services. Among these, the provision of halal food is consistently identified as the most critical factor. Existing studies emphasize that “halal food is by far the most crucial requirement that a destination should provide for Muslim travellers” [9], highlighting the central importance of dietary compliance in shaping both travel decisions and overall satisfaction.

Beyond dietary needs, the ability to fulfill religious obligations during travel is equally essential. Muslim travellers require access to facilities that support daily worship, as they “need to perform daily prayers and to find halal food at the point of need” [10]. In line with this, Dabamona and Chompupor [11] identify prayer rooms and Sharia-compliant facilities as fundamental requirements for Muslim tourists, reinforcing the need to integrate religious infrastructure into tourism services in a systematic manner.

More broadly, the concept of halal tourism extends beyond the provision of individual services to encompass a comprehensive system aligned with Islamic principles. Destinations are expected to deliver “halal or Muslim-friendly services such as food and prayer facilities” to effectively meet the expectations of Muslim travellers [12]. This also involves adherence to Islamic guidelines in service provision, including the availability of appropriate facilities and environments, such as “separate prayer rooms and halal provisions” [13].

Addressing these requirements through the consistent provision of halal food, accessible prayer facilities, and Sharia-compliant services is therefore essential for the development of competitive, inclusive, and sustainable tourism destinations.

2. Materials and Methods

2.1 Data Sources and Description

This study utilizes annual data covering the period from 2015 to 2025 (table 1) to examine the relationship between Muslim-friendly tourism competitiveness and the development of Ziyarah tourism in Uzbekistan. The primary data source is the Global Muslim Travel Index (GMTI), which provides a comprehensive set of indicators for assessing the performance of destinations in attracting Muslim travelers.

Table 1. GMTI Indicators and Tourism-Related Variables for Uzbekistan (2015–2025).

Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
rank	29	28	28	32	22	—	16	9	13	14	17
score	52	53.6	54.1	47.7	55	—	65	62	63	64	67
connectivity	—	—	61	—	35	—	39	37	44	50	53
Visa requirements	—	48.3	50	62	77	—	—	80	80	76	77
Transport infrastructure	—	—	—	10	53	—	74	74	71	67	71
Communication proficiency	19	19	19	13	12	—	26	23	21	27	27
Destination marketing or digital presence	40	—	—	—	—	—	43	53	32	35	54
Stakeholder awareness or outreach	—	—	25	—	—	—	65	66	53	52	52

Basic utilities or enabling climate	—	—	—	33	39	—	41	41	25	84	91
General safety	89.5	86	84	92	94	—	100	76	84	100	84
Faith restrictions	—	—	—	—	100	—	100	100	100	42	88
sustainability	—	—	—	—	—	—	—	55	39	25	48
accessibility	—	—	—	—	—	—	—	—	—	83	34
Visitor arrivals	17.4	21.2	21.3	20	—	—	35	35	82	75	54
Halal dining	70	70	70	—	—	—	75	75	75	90	85
Prayer places	80	80	80	80	80	—	90	90	90	80	90
airport	27.5	50	48.3	48	48	—	80	80	80	29	80
Heritage experiences	—	—	—	10	31	—	—	31	27	40	35
accommodation	40	34.1	33.2	34	34	—	34	34	34	—	60

* No GMTI report was published for 2020; the year is excluded from the dataset.

The dataset includes key variables such as overall GMTI scores and rankings, along with a range of sub-indicators that capture different dimensions of Muslim-friendly tourism. These dimensions include connectivity, visa requirements, transport infrastructure, communication proficiency, destination marketing, stakeholder awareness, basic utilities, general safety, faith-related restrictions, sustainability, and accessibility. In addition, sector-specific indicators — such as halal dining, availability of prayer facilities, airport services, accommodation, and heritage experiences — are incorporated to more accurately reflect the characteristics and requirements of Ziyarah tourism.

The trend related to ranking shows that Uzbekistan's position remained fairly stable between 2015 and 2017, before worsening slightly in 2018. From 2019 onward, the country began to improve noticeably, likely reflecting the impact of tourism reforms. Although the COVID-19 period posed challenges, Uzbekistan's ranking rebounded strongly afterward, reaching its best level around 2022. In the following years (2023–2025), there is a slight decline, but the overall performance remains significantly better than in the earlier years (figure 1).

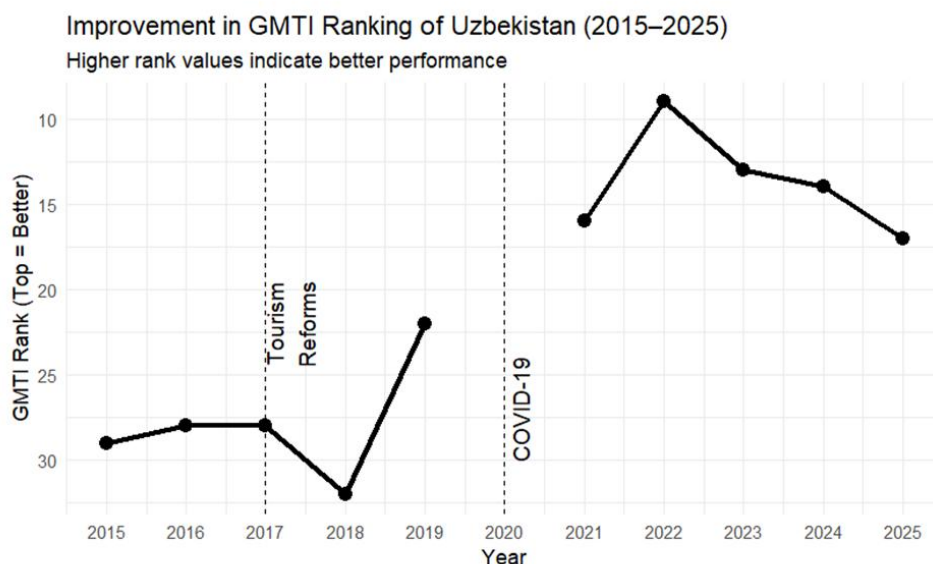


Figure 1. Uzbekistan’s ranking in the Global Muslim Travel Index (GMTI) from 2015 to 2025.

To measure tourism performance, the study employs indicators such as international tourist arrivals and tourism revenue. These variables serve as proxies for tourism demand and economic impact, respectively. Due to the absence of disaggregated data on Ziyarah-specific arrivals, a composite proxy is constructed to approximate Ziyarah tourism conditions, allowing for a more targeted analysis within existing data constraints.

2.2 Construction of Indexes

In order to better capture the multidimensional nature of Ziyarah tourism, a Ziyarah Tourism Readiness Index (ZTRI) is developed. This index combines key GMTI sub-indicators that are directly relevant to religious tourism, including:

- Prayer places (religious infrastructure)
- Halal dining (Muslim-friendly services)
- Heritage experiences (Islamic cultural and pilgrimage appeal)
- Accommodation (tourist facilities)

Higher values of the ZTRI indicate a more developed and supportive environment for Ziyarah tourism, reflecting the extent to which a destination meets the specific needs of religious travelers.

In addition to the ZTRI, two supplementary composite indexes are constructed to further structure the analysis:

- **Access Index:** This index includes variables such as visa requirements, transport infrastructure, and connectivity, reflecting the overall ease of entry and mobility for tourists.
- **Service Index:** This index incorporates halal dining, prayer facilities, and heritage experiences, capturing the quality and availability of Muslim-friendly tourism services.

The construction of these indexes allows for a more systematic examination of how different dimensions of tourism competitiveness contribute to tourism outcomes.

2.3 Econometric Model Specification

The study employs econometric analysis based on time-series data. Given the relatively small sample size of ten observations, the models are intentionally parsimonious and the findings should be interpreted as exploratory and indicative rather than definitive. This approach is consistent with small-sample econometric practice in tourism research,

where data availability is structurally limited, particularly for emerging destinations and newly tracked indices [14], [15].

The baseline model takes the form of a log-linear regression, which enables the estimated coefficients to be interpreted in percentage terms:

$$\ln(Y_t) = \beta_0 + \beta_1 X_t + \beta_2 Z_t + \beta_3 D_t + \varepsilon_t$$

where:

Y_t represents the dependent variable (tourist arrivals or tourism revenue),

X_t represents the Ziyarah Tourism Readiness Index (ZTRI),

Z_t represents control variables such as the Access Index,

D_t represents dummy variables capturing structural changes,

ε_t is the error term.

The preferred model specification used in this study is:

$$\ln(\text{Tourism Revenue}_t) = \beta_0 + \beta_1 \text{ZTRI}_t + \beta_2 \text{AccessIndex}_t + \beta_3 \text{CovidDummy}_t + \varepsilon_t$$

2.4 Dummy Variables

To account for structural breaks and external shocks, several dummy variables are introduced into the model:

- a) **Reform Dummy (2017–2025)**: captures the impact of tourism liberalization policies.
- b) **COVID-19 Dummy (2020–2021)**: reflects the negative shock associated with the global pandemic.
- c) **Recovery Dummy (2022–2025)**: represents the post-pandemic recovery phase.
- d) **Visa Reform Dummy (2018–2025)**: captures improvements in travel facilitation and entry conditions.

These variables help isolate the effects of policy changes and global disruptions, allowing for a clearer interpretation of the underlying relationships.

2.5 Limitations of the Methodology

The most significant methodological limitation of this study is its small sample size of ten annual observations, which constrains statistical power and limits the generalizability of the findings. This constraint is structural rather than discretionary – the GMTI has only been published since 2015, and the absence of a 2020 report due to the COVID-19 pandemic further reduces the available data points. In response, the study adopts an explicitly exploratory orientation, treating the econometric results as preliminary evidence rather than definitive conclusions. This is a recognized approach in tourism research contexts where index-based data series are short by nature, and where the value of early analysis lies in establishing a methodological foundation for future work as data accumulates.

Despite these limitations, the adopted methodology provides a structured and analytically robust framework for examining the role of Muslim-friendly tourism competitiveness in Uzbekistan. It also offers a useful foundation for future research, particularly as more detailed and disaggregated data become available.

2.6 Diagnostic Tests

To assess the reliability of the econometric estimates, a series of diagnostic tests were conducted across all three model specifications. Serial correlation was examined using the Durbin-Watson test, yielding values of 1.799, 2.306, and 2.138 for Models 1, 2, and 3 respectively – all within the acceptable range around 2.0, indicating no evidence of first-order autocorrelation. Heteroskedasticity was assessed via the Breusch-Pagan test, with p-values of 0.798, 0.385, and 0.527 respectively, confirming homoskedasticity of residuals across all specifications. The normality of residuals was evaluated using the Shapiro-Wilk test, which is particularly suited to small samples; p-values of 0.189, 0.956, and 0.611 indicate no significant departure from normality. Multicollinearity among predictors was

assessed through Variance Inflation Factors (VIF), with maximum values of 1.11, 1.99, and 2.52 across the three models—well below the conventional threshold of 5. Additionally, HC3 robust standard errors were estimated for all models to further safeguard the reliability of inference.

Table 2. Diagnostic Test Results Across All Model Specifications.

Test	Model 1	Model 2	Model 3
Durbin-Watson	1.799	2.306	2.138
Breusch-Pagan (p)	0.798	0.385	0.527
Shapiro-Wilk (p)	0.189	0.956	0.611
VIF (max)	1.11	1.99	2.52
Conclusion	No serial corr.	Homoskedastic	Residuals normal, no multicollinearity

3. Results and Discussion

3.1 Overview of Empirical Results

The econometric analysis provides detailed insights into the relationship between Muslim-friendly tourism competitiveness and tourism development in Uzbekistan over the period 2015–2025. Across all models, the results point to a consistent pattern: while Ziyarah-related infrastructure exhibits a theoretically expected positive association with tourism demand, its empirical impact remains weak and statistically insignificant. In contrast, accessibility—capturing visa liberalization, transport connectivity, and ease of entry—emerges as the most robust and influential determinant of tourist arrivals.

3.2 Baseline Model: ZTRI and Tourist Arrivals

The baseline model examines the effect of the Ziyarah Tourism Readiness Index (ZTRI) on tourist arrivals while controlling for the COVID-19 shock and post-2017 tourism reforms.

Table 3. Determinants of Tourist Arrivals in Uzbekistan (2015–2025).

Variables	(1) Baseline Model	(2) Access & Service	(3) Final Model
ZTRI	0.0358 (0.0219)	—	-0.0146 (0.0295)
Access Index	—	0.0769* (0.0309)	0.0519* (0.0242)
Service Index	—	-0.0536 (0.0436)	—
COVID	-0.4284 (0.5619)	0.5588 (0.6423)	0.0640 (0.5209)
Reform	0.8858* (0.4136)	—	—
Constant	0.7225 (1.4078)	2.3909 (1.2781)	1.5227 (1.1611)

Notes: Dependent variable: $\ln(\text{arrivals})$. Standard errors in parentheses. * $p < 0.10$.

The estimated coefficient for ZTRI is positive (0.0358), suggesting that improvements in Ziyarah tourism readiness are associated with increases in tourist arrivals—a one-point increase in ZTRI corresponds to an approximate 3.6% increase in arrivals. However, this coefficient is not statistically significant ($p > 0.05$). The COVID-19 variable exhibits a

pronounced negative effect (-0.428), while the reform dummy is positive (0.885) and statistically significant at the 10% level.

3.3 Extended Model: Access and Service Indexes

This specification improves explanatory power considerably ($R^2 = 0.735$). The Access Index has a positive coefficient (0.0769) and is statistically significant at the 10% level ($p = 0.068$), implying a one-point increase in accessibility is associated with an approximate 7.7% increase in tourist arrivals. The Service Index is negative (-0.0536) and not statistically significant, suggesting service-related improvements were not the primary drivers of tourism growth during the study period.

3.4 Final Model: Combined Effects of Access and ZTRI

The final model explains approximately 65.6% of the variation in tourist arrivals ($R^2 = 0.656$). The Access Index remains the most influential variable (coefficient 0.0519 , $p = 0.098$). The ZTRI variable is not statistically significant and has a small negative coefficient (-0.0146), suggesting that Ziyarah tourism infrastructure plays a complementary rather than independent role.

3.5 Discussion of Key Findings

The empirical results yield several important insights. First, accessibility factors—particularly visa liberalization, transport infrastructure, and connectivity—emerge as the primary drivers of tourism growth. Second, although ZTRI is theoretically expected to support tourism demand, it does not exhibit strong statistical significance, suggesting that religious tourism infrastructure alone is insufficient without complementary accessibility improvements. Third, tourism reforms implemented after 2017 have had a clearly positive impact on tourist arrivals. Fourth, the COVID-19 pandemic had a substantial negative effect on tourism, reflecting widespread disruption caused by global travel restrictions.

3.6 Implications

The findings indicate that Uzbekistan's recent tourism growth has been driven primarily by structural reforms and improvements in accessibility, rather than by the development of Muslim-friendly services alone. For Uzbekistan to fully realize its potential as a leading Ziyarah tourism destination, it is essential to continue enhancing accessibility while simultaneously improving the quality, integration, and visibility of Muslim-friendly services.

Policy Recommendations

Based on these findings, several policy implications can be identified:

- Greater priority should be given to further improving visa regimes, transport connectivity, and overall international accessibility.
- Continued investment in Ziyarah tourism infrastructure is necessary; however, such investments should be integrated into broader tourism development strategies.
- Marketing efforts should more effectively promote Uzbekistan's Islamic heritage in order to translate infrastructure improvements into increased tourist demand.
- Policymakers should strengthen the resilience of the tourism sector by preparing for external shocks, including global pandemics and similar disruptions.

Limitations and Future Research

This study is subject to several limitations. Most notably, the small sample size constrains the statistical power of the models, while the lack of direct data on Ziyarah-specific tourist flows necessitates the use of proxy indicators. These limitations may affect the precision of the estimated relationships.

Future research could address these constraints by expanding the dataset, incorporating panel data across multiple countries, or employing more detailed tourism segmentation to better capture the dynamics of Ziyarah tourism.

4. Conclusion

This study set out to examine what drives Ziyarah tourism development in Uzbekistan, and the findings offer a clear answer. Accessibility—through visa liberalization, transport connectivity, and structural reforms—consistently emerges as the primary determinant of tourist arrivals, while Muslim-friendly infrastructure, captured through the ZTRI, plays a meaningful but complementary role. These results suggest that religious tourism readiness generates the greatest impact when embedded within a broader enabling environment rather than pursued in isolation.

Beyond the Uzbekistan case, this study contributes a replicable methodological tool—the ZTRI—that can be applied to other destinations with significant Islamic heritage assets, extending the empirical base of the Islamic tourism competitiveness literature.

The study's main constraint is its ten-observation sample, and future research should expand to cross-country panel data and incorporate demand-side traveler surveys. For policymakers, the takeaway is integrative: accessibility and religious infrastructure are not competing priorities—they are mutually reinforcing ones.

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