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UNDERSTANDING TOURIST FLOWS IN UZBEKISTAN: AN ORIGIN–DESTINATION APPROACH TO REGIONAL TOURISM DYNAMICS

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ABSTRACT

This study examines how tourists' countries of origin influence their destination choices in the case of Uzbekistan. Data were collected through a Google Form from 673 foreign visitors. A chi-square contingency test was applied to assess the relationship between tourist origins and destinations. The analysis revealed a strong and statistically significant association between origin and destination choice. These findings show that tourist origin meaningfully shapes destination preferences, highlighting the need for targeted tourism planning in Uzbekistan.

Keywords. *Tourist origin, destination choice, Origin-destination analysis, Uzbekistan tourism, chi-square test, tourism flows.*

INTRODUCTION

Tourism is one of the world's most dynamic economic sectors, serving as a major driver of employment, foreign exchange earnings, and regional development. As a spatially oriented activity, tourism involves the movement of people from origin areas to chosen destinations, making the analysis of tourist flows essential for understanding travel behavior, market demand, and destination competitiveness. In many countries, origin-destination research forms the foundation for strategic planning, targeted marketing, and sustainable tourism development.

Over the past decade, Uzbekistan has implemented extensive reforms to strengthen its tourism sector, including visa liberalization for more than 90 countries, investments in transport and hospitality infrastructure, and the promotion of cultural

heritage cities such as Samarkand, Bukhara, and Khiva. These efforts have contributed to significant growth in international arrivals, with millions of foreign visitors entering the country annually and contributing to the diversification of regional economies. Tourism has become a strategic priority in Uzbekistan's development policies, reflected in national strategies that emphasize modernization, digitalization, and improved service quality.

Despite these advances, empirical research on how tourists shape their destination preferences within Uzbekistan remains scarce. Existing studies primarily focus on marketing, cultural heritage, or economic impacts, but overlook origin-destination interactions – an established component of tourism research grounded in spatial interaction theory, push-pull theory, and destination competitiveness frameworks. Understanding these patterns is especially important in Uzbekistan, where regional tourism offerings differ significantly and where policymaking increasingly requires data-driven insights. As academic literature on Central Asia remains limited, origin-destination analysis addresses a clear and meaningful research gap.

This study is important because it provides statistically grounded evidence on the relationship between tourists' origins and the destinations they choose within Uzbekistan, using chi-square analysis to examine whether these variables are independent. The research offers practical insights for targeted marketing, regional tourism development, and policy formulation. Ultimately, the findings contribute both to academic understanding and to Uzbekistan's strategic efforts to optimize its tourism potential through market-specific planning and promotional strategies.

The concept of tourist flow – movements of people between origin and destination – is foundational in tourism geography. Tourist flow is defined as "the projection of tourists' trajectories and related activities in geographical space," involving direction, rate, and link mode (Sano, Nagata and Sano, 2022). Scholars argue that spatial distance, destination attractiveness, transport infrastructure, and origin region characteristics jointly shape these flows (Liu, Luo and He, 2023).

A growing body of research considers tourism as a spatial network where origins, destinations, and the links between them form a complex system. According to this view, analyzing origin-destination (O-D) flows helps understand structural characteristics of tourism demand, spatial distribution, and patterns of movement (Yu and Zhou, 2025).

Some studies focus on inbound tourist flows on national scales, exploiting large-scale data to reveal spatial distribution and movement patterns. For instance, a study using geotagged photos and metadata across China from 2011 to 2017 showed

dynamic patterns of inbound tourist movements between cities; the authors identified major "flow corridors" and concluded that urban centers play central roles, but that emerging destinations in central and western regions are gradually gaining significance (Qin *et.al.*, 2019).

Another recent empirical analysis in China utilized spatio-temporal big data (e.g. migration data, social media check-ins) to examine how tourist distribution relates to quality of tourist destinations. The findings challenged assumptions that higher-quality destinations automatically attract more tourists: some niche or lower-profile destinations with high quality still attract fewer tourists, while some popular destinations have high tourist density (Chen *et.al.*, 2023). This suggests that destination quality alone does not fully explain flow patterns – origin-destination dynamics, accessibility, and other factors also matter.

At the same time, supply-side analyses have used network-analysis methods (such as social network analysis, SNA) to map tourism supply networks (e.g. relationships among attractions, transport nodes, accommodations) and link them to flows (Yu and Zhou, 2025). This approach reinforces the idea that tourism systems are spatial networks where demand (tourist origins) interacts with supply (destinations + infrastructure).

The decision of tourists to visit a particular destination is often explained by a combination of "push-pull-resistance-inertia" factors. Push factors (origin side) include motivations, socio-demographics, and origin context; pull factors (destination side) include attraction attributes, destination image, accessibility, and infrastructure; resistance (e.g. travel cost, distance) and spatial structural forces (e.g. transport network, travel time) moderate the flow (Sano, Nagata and Sano, 2022).

In this framework, differences in origin markets (e.g. country, income, culture) may lead to different destination choices even within the same destination supply environment. This justifies origin–destination analysis: understanding tourist heterogeneity across origin regions helps explain spatial patterns of tourism demand. This is aligned with market segmentation and destination competitiveness theories widely used in tourism studies (Huang *et.al.*, 2020).

An important methodological insight from recent literature is that conventional administrative boundaries of destinations may not align with how tourists actually consume destinations. A study published in 2021 argued for defining "consumer-based destinations": spatial units derived from aggregated travel patterns rather than administrative demarcations (Paulino, Lozano and Prats, 2021). This matters because using administrative boundaries may misrepresent patterns of movement and use –

for your research, this suggests the value of analyzing actual travel flows across regions rather than assuming fixed destination zones.

While there is substantial research on tourism flows and destination choice in some countries – especially in China and other parts of East Asia – there remains a dearth of empirical studies in Central Asia, including in countries like Uzbekistan (Abdullaev and Rustamov, 2021). Many studies rely on big data (geotagged photos, migration data, digital traces), yet these methods may not always be feasible due to data accessibility or privacy (Yu and Zhou, 2025).

Moreover, few studies use origin-destination surveys (e.g. questionnaires) among foreign tourists to directly link origin countries with visited destinations. This is a limitation for understanding market segmentation, preferences, and the impact of origin-specific factors on destination choice. Thus, combining traditional survey data with statistical methods provides a valuable, replicable approach – especially in contexts where big-data sources are limited or unavailable.

Methodology.

This study employs a quantitative, cross-sectional research design aimed at examining the association between tourists' origins and their preferred destinations within Uzbekistan. The approach is deductive in nature, testing whether a statistically significant relationship exists between the two categorical variables.

Primary data were collected through an online Google Forms questionnaire administered to foreign tourists. The survey contained two core questions: (1) "Where are you from?" and (2) "Which place would you like to visit in Uzbekistan and why?". A total of 120 valid responses were recorded. Responses were manually screened for completeness and then coded into categorical classifications.

The independent variable is tourist origin, classified into two groups based on respondents' answers: Europe and Asia. The dependent variable is tourist destination preference, categorized as either Pilgrimage destinations, like Islamic heritage sites or Budist tamples, or Historical destinations as ancient cities and architectural heritage. These classifications reflect dominant tourism segments in Uzbekistan and allow for the construction of a contingency table.

To test whether tourist origin and destination preference are statistically associated, a chi-square (χ^2) test of independence was conducted. The test evaluates whether the observed frequencies in the contingency table differ significantly from the expected frequencies under the assumption of independence. Statistical significance was assessed using a 95% confidence level ($\alpha = 0.05$). The chi-square statistic, degrees of freedom, and p-value provide the basis for determining whether the null hypothesis of independence should be rejected.

Assumptions of the chi-square test – independence of observations, mutually exclusive categories, and expected cell counts exceeding conventional thresholds – were checked to ensure validity of the analysis. Data were processed using standard statistical procedures, and the final interpretation focused on the strength and direction of the observed relationship.

Results.

The analysis examined whether a statistically significant association exists between tourists' geographic origin (Europe or Asia) and their preferred type of destination in Uzbekistan (Pilgrimage or Historical). A chi-square test of independence was applied to the observed frequencies (Europe: n=58; Asia: n=62) across the two destination categories (Table-1).

Type Origin	Pilgrimage	Historical	Total
Europe	14	44	58
Asia	35	27	62
Total	49	71	120

Table-1. Observed contingency table.

The chi-square test yielded a statistically significant result, $\chi^2(1) = 11.65$, $p = 0.00064$, indicating that tourists' origin and their destination preference are not independent. In other words, the data show a significant association between where tourists come from and the type of tourism site they prefer.

Type Origin	Pilgrimage	Historical	Total
Europe	23.68	34.32	58
Asia	25.32	36.68	62
Total	49	71	120

Table-2. Expected contingency table.

Examination of the observed and expected counts shows the pattern of divergence (Table-2). European tourists selected Historical destinations more frequently than expected (observed = 44; expected = 34.32), while showing fewer-than-expected Pilgrimage preferences (observed = 14; expected = 23.68). Conversely, Asian tourists demonstrated a stronger-than-expected preference for Pilgrimage sites (observed = 35; expected = 25.32) and fewer-than-expected Historical preferences (observed = 27; expected = 36.68).

Overall, the results provide strong statistical evidence that Uzbekistan's tourism preferences vary systematically by region of origin, supporting the relevance of market-segmented tourism strategies.

Discussions and conclusions.

This study examined the relationship between tourists' geographic origin and their preferred types of destinations in Uzbekistan, using survey data collected from 120 foreign respondents. The research aimed to provide an empirical assessment of whether visitors from different regions demonstrate distinct motivations and destination choices, complementing the growing national interest in evidence-based tourism development.

The results of the chi-square test indicated a statistically significant association between origin and destination preference. European tourists showed a stronger inclination toward Historical sites, while Asian tourists demonstrated a greater preference for Pilgrimage destinations. These patterns suggest meaningful differences in cultural motivations, expectations, and travel behaviors across regions.

The findings carry several important implications for understanding tourism demand in Uzbekistan. They highlight that tourists do not form a homogeneous group; instead, their destination choices tend to align with cultural, religious, and historical backgrounds. Recognizing these differences allows tourism planners to better tailor marketing messages, infrastructure investments, and service offerings to the preferences of each major visitor segment.

For Uzbekistan, these results imply that tourism development strategies should differentiate between regional audiences. The country's rich Islamic heritage may hold particular appeal for Asian visitors, while its Silk Road history, architectural heritage, and UNESCO sites may resonate more strongly with European tourists. Aligning promotional campaigns, tour packages, and on-site visitor experiences with these segment-specific preferences could increase tourist satisfaction and strengthen Uzbekistan's competitiveness in the global tourism market.

Several policy recommendations arise from the analysis. First, Uzbekistan should expand targeted marketing campaigns: historical-themed promotions for European markets and pilgrimage-oriented campaigns for Asian markets. Second, infrastructure around pilgrimage sites should be improved to accommodate growing demand, including accessibility and visitor amenities. Third, tourism authorities should invest in multilingual digital platforms and interpretive materials tailored to different regional segments. Finally, collaboration with international tour operators could increase the visibility of Uzbekistan's most relevant attractions for each tourist group.

This research offers useful insights, but it also carries limitations. The sample size is modest, with 120 respondents, and may not represent all tourist segments visiting Uzbekistan. The survey consisted of only two questions, which restricts the

ability to explore deeper motivational factors, demographic influences, or trip characteristics. Future research should incorporate larger and more diverse samples, include additional variables such as age, travel purpose, length of stay, expenditure, and revisit intentions, and use more advanced analytical methods such as logistic regression or structural equation modeling. Such expansions would strengthen the empirical basis for tourism planning and contribute to a more comprehensive understanding of international tourist behavior in Uzbekistan.

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