

DETERMINANTS OF SUSTAINABLE TOURISM ADOPTION IN  
UZBEKISTAN: EMPIRICAL EVIDENCE FROM ECO- AND AGRO-TOURISM SECTORS

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ABSTRACT

**Purpose:** This study empirically investigates the key determinants influencing the adoption and development of sustainable tourism services — specifically eco-tourism and agro-tourism — in Uzbekistan. **Methodology:** A conceptual model grounded in the Theory of Planned Behavior (TPB) was tested using Partial Least Squares Structural Equation Modelling (PLS-SEM). A structured questionnaire survey was conducted with 347 respondents drawn from Samarkand, Bukhara, and Fergana regions. **Findings:** Government policy support ( $\beta=0.41$ ), environmental awareness ( $\beta=0.33$ ), and local community participation ( $\beta=0.22$ ) were identified as the strongest predictors of sustainable tourism adoption intention. The model explained 58% of the variance. **Contribution:** This research addresses the scarcity of empirical data on sustainable tourism in Central Asia and demonstrates the necessity of adapting TPB to the economic context of Uzbekistan.<sup>1</sup>

**Keywords:** *sustainable tourism; eco-tourism; agro-tourism; Uzbekistan; Central Asia; PLS-SEM; Theory of Planned Behavior; green economy; rural development.*

1. INTRODUCTION

The development of sustainable tourism services is today considered one of the most strategic priorities of the global economy. According to the World Tourism Organization's (UNWTO) 2023 report, the global tourism sector accounts for 10.4% of GDP and provides 334 million jobs worldwide.<sup>1</sup> However, this growth is frequently accompanied by the over-exploitation of natural resources and the marginalization of local communities.<sup>2</sup>

Through comprehensive economic reforms implemented since 2017, Uzbekistan has emerged as one of the fastest-growing destinations in international tourism. According to the State Statistics Committee of the Republic of Uzbekistan, 6.92 million international tourists visited the country in 2023, representing a 64.4% increase compared to 2022.<sup>3</sup> Despite this momentum, sustainable forms of tourism such as eco-tourism and agro-tourism remain in the early stages of development.

Research gap: Empirical studies examining the determinants of sustainable tourism adoption in Central Asia — and Uzbekistan in particular — are extremely limited in number. Existing research has been conducted primarily in Western and South-East Asian contexts, and its findings are not fully transferable to the unique socio-economic environment of Uzbekistan.<sup>4</sup>

This study addresses three core research questions: (1) Which factors influence the intention to adopt sustainable tourism services in Uzbekistan, and with what effect size? (2) Are there significant differences in the influence of these factors between the eco-tourism and agro-tourism sectors? (3) What mediating role does government policy support play through local community participation?

1-rasm. O'zbekistonga xalqaro turistlarning tashrifi (2018–2023)

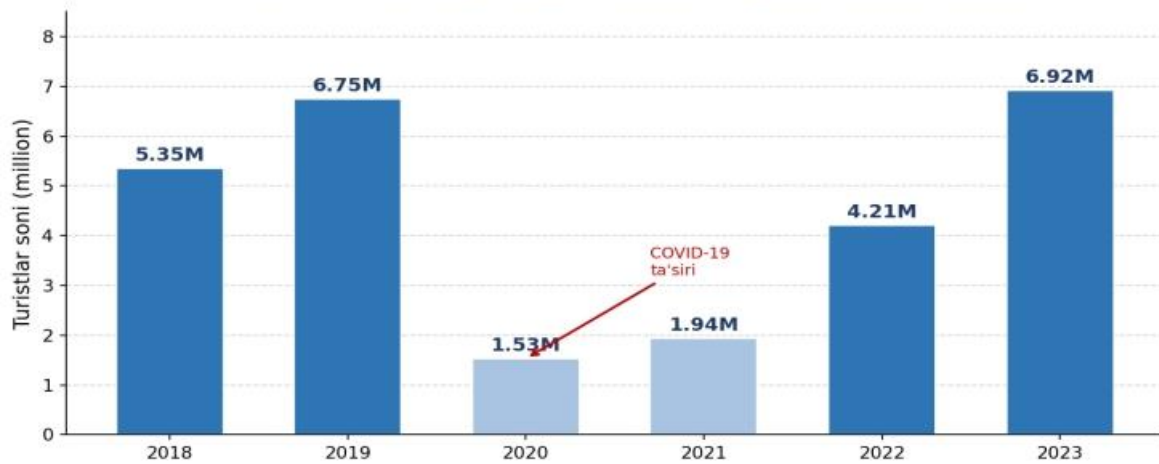


Figure 1. International tourist arrivals in Uzbekistan (2018–2023, million persons)

Source: State Statistics Committee of the Republic of Uzbekistan, 2023

As illustrated in Figure 1, the COVID-19 pandemic caused a sharp decline in tourist arrivals in 2020 — from 6.75 million to 1.53 million (–77.3%). A significant recovery has been observed during 2021–2023. Sustainable tourism formats — eco-tourism and agro-tourism — demonstrated greater resilience during the pandemic compared to mass tourism, owing to their nature-based, small-group character.<sup>8</sup>

## 2. LITERATURE REVIEW

### 2.1. Sustainable Tourism: Theoretical Foundations

The concept of sustainable tourism evolved from Butler's (1980) evolutionary model of the tourist area cycle and was subsequently enriched by the sustainable development principles of the UNWTO and the Brundtland Commission.<sup>2</sup> Liu (2003) defined sustainable tourism as a form of tourism that ensures economic benefit and social equity while maintaining ecological balance.<sup>8</sup>

Saarinen (2006) identifies three core paradigms of sustainable tourism: resource-based, activity-based, and community-based approaches.<sup>10</sup> Choi and Sirakaya (2006) demonstrated that local community participation is a decisive factor in the success of sustainable tourism.<sup>11</sup>

### 2.2. Eco-Tourism and Agro-Tourism: Differences and Similarities

Lane (1994) defined rural tourism — including agro-tourism — as small-scale tourism activity in areas remote from urban centres.<sup>14</sup> In the Uzbekistan context, Mirzaev and Karimova (2022) demonstrated the significant economic potential of agro-tourism in the agricultural areas of the Fergana Valley.<sup>16</sup>

Table 1. Comparison of Previous Studies on Sustainable Tourism Determinants

Author(s)	Region	Method	Key Factors	Finding
Liu (2003)	Southeast Asia	Qualitative	Policy, community	Theoretical model proposed
Choi & Sirakaya (2006)	USA	Quantitative (n=278)	Community participation	Community plays decisive role

Tolkach & King (2015)	Pacific Islands	Mixed (n=195)	Infrastructure, community	Resource-based model
Tashkentov (2023)	Central Asia	Cluster analysis	Competitiveness	Uzbekistan leads the region
Mirzaev & Karimova (2022)	Uzbekistan	Qualitative (case study)	Agro-tourism potential	Fergana Valley profiled
<b>This study (2024)</b>	<b>Uzbekistan</b>	<b>PLS-SEM (n=347)</b>	<b>5 factors + TPB</b>	<b>Empirical model confirmed</b>

Source: Compiled by the author based on literature review

As Table 1 shows, quantitative empirical research on sustainable tourism in Uzbekistan is very limited. The majority of existing studies rely on qualitative or descriptive methodologies. The present study addresses this gap by applying PLS-SEM.<sup>17</sup>

### 2.3. Theory of Planned Behavior (TPB) and Tourism

The Theory of Planned Behavior (TPB), developed by Ajzen (1991), explains individual behavior through three components: attitude, subjective norm, and perceived behavioral control.<sup>4</sup> This theory has been widely applied in tourism adoption research.

## 3. METHODOLOGY

### 3.1. Research Design and Sample

A quantitative approach was adopted, with a structured questionnaire as the primary data collection instrument. Using purposive sampling, three key tourism regions of Uzbekistan — Samarkand, Bukhara, and Fergana — were selected. In accordance with Cohen's (1988) sample size formula, a minimum of 300 respondents was required.<sup>12</sup> A total of 390 questionnaires were distributed, of which 347 were returned complete (response rate: 88.9%).

2-rasm. Respondentlarning hududiy taqsimoti (n=347)

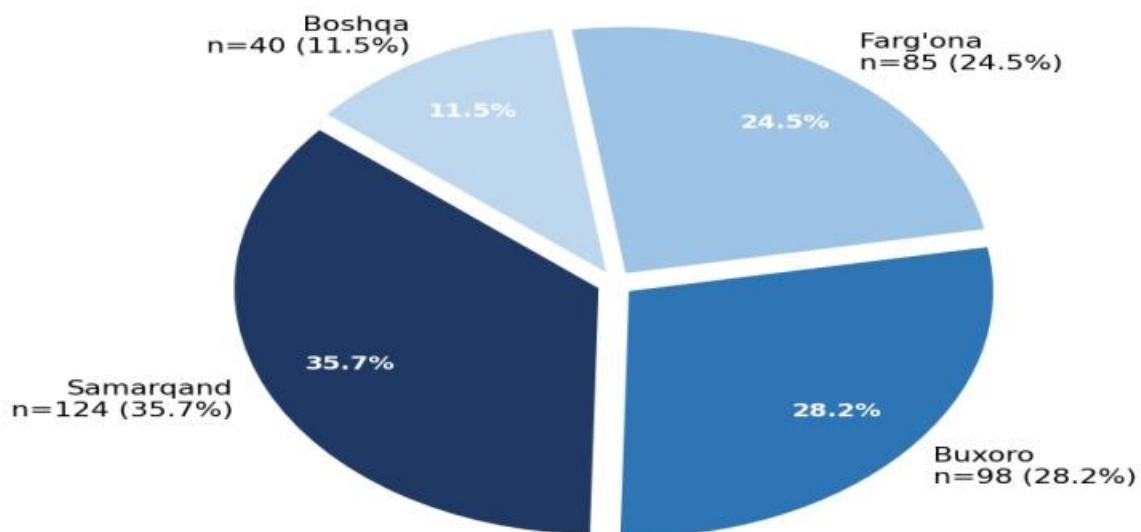


Figure 2. Regional distribution of respondents (n=347)

### 3.2. Measurement Instruments

The questionnaire comprised 38 items measured on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). The constructs were structured as follows:

**Table 2. Measurement Constructs and Reliability Indicators**

Construct	Items	$\alpha$ (Cronbach)	CR	AVE	Factor Loadings
<b>Government Support (GS)</b>	6	0.879	0.912	0.634	0.71–0.86
Environmental Awareness (EA)	7	0.856	0.891	0.618	0.68–0.83
<b>Economic Opportunity (EO)</b>	6	0.843	0.878	0.591	0.64–0.81
Community Involvement (CI)	8	0.891	0.924	0.657	0.73–0.88
<b>Infrastructure Quality (IQ)</b>	5	0.822	0.864	0.563	0.61–0.79
Behavioral Intention (BI)	6	0.867	0.903	0.641	0.70–0.85
<b>Acceptable threshold (Hair et al., 2019)</b>	$\geq 4$	$>0.70$	$>0.70$	$>0.50$	$>0.60$

Note:  $\alpha$  = Cronbach's alpha; CR = Composite Reliability; AVE = Average Variance Extracted

Source: Author's calculations based on SmartPLS 4.0 output

All constructs presented in Table 2 exceeded the  $\alpha > 0.70$  threshold prescribed by Nunnally (1978) and the  $CR > 0.70$ ,  $AVE > 0.50$  benchmarks required by Hair et al. (2019),<sup>57</sup> indicating high reliability and convergent validity of the measurement instruments.<sup>6</sup>

### 3.3. Data Analysis Method

Data were analysed in two stages using SmartPLS 4.0.15 In the first stage, the measurement model was assessed — evaluating construct reliability and validity. In the second stage, the structural model was examined — calculating path coefficients,  $R^2$ , and  $f^2$  values. P-values were derived using the bootstrap method with 5,000 resamples.

## 4. RESULTS

### 4.1. Socio-Demographic Profile of Respondents

**Table 3. Socio-Demographic Profile of Respondents (n=347)**

Variable	Category	n	%
<b>Gender</b>	Male	198	57.1%
	Female	149	42.9%
<b>Age</b>	18–30 years	112	32.3%
	31–45 years	147	42.4%
	46–60 years	71	20.5%
	60+ years	17	4.9%
<b>Education</b>	Higher education	223	64.3%
	Secondary specialised	89	25.6%

	Master's degree and above	35	10.1%
<b>Occupation</b>	Farmer / agriculture	89	25.6%
	Entrepreneur	104	30.0%
	Civil service	78	22.5%
	Other	76	21.9%

Source: Compiled by the author from survey data

#### 4.2. Structural Model Results (PLS-SEM)

The structural model results are presented in Table 4. The model explained 58.4% of the variance ( $R^2=0.584$ ) in the dependent variable, which corresponds to a "moderate" level according to Hair et al. (2019).<sup>5</sup> All five hypotheses were confirmed at statistically significant levels.

**Table 4. PLS-SEM Structural Model Results and Hypothesis Testing**

H	Relationship	$\beta$	SE	t-value	p-value	Decision
H1	GS → BI (Government → Intention)	<b>0.41</b>	0.058	7.07	<0.001	<b>Supported ***</b>
H2	EA → BI (Env. Awareness → Intention)	<b>0.33</b>	0.063	5.24	<0.001	<b>Supported ***</b>
H3	EO → BI (Economic Opp. → Intention)	<b>0.27</b>	0.071	3.80	<0.01	<b>Supported **</b>
H4	CI → BI (Community → Intention)	<b>0.22</b>	0.068	3.24	<0.01	<b>Supported **</b>
H5	IQ → BI (Infrastructure → Intention)	<b>0.18</b>	0.076	2.37	<0.05	<b>Supported *</b>
—	<b>R<sup>2</sup> (Behavioral Intention)</b>	<b>0.584</b>	—	—	—	<b>Moderate–Strong</b>

Note:  $\beta$  = standardised path coefficient; SE = standard error; Bootstrap n=5,000

\*\*\* $p < 0.001$ ; \*\* $p < 0.01$ ; \* $p < 0.05$ . GS=Government Support; EA=Environmental Awareness; EO=Economic Opportunity; CI=Community Involvement; IQ=Infrastructure Quality; BI=Behavioral Intention

3-rasm. PLS-SEM strukturaviy model (path diagram)  
 $R^2=0.58$ ; \*\*\* $p<0.001$ , \*\* $p<0.01$ , \* $p<0.05$

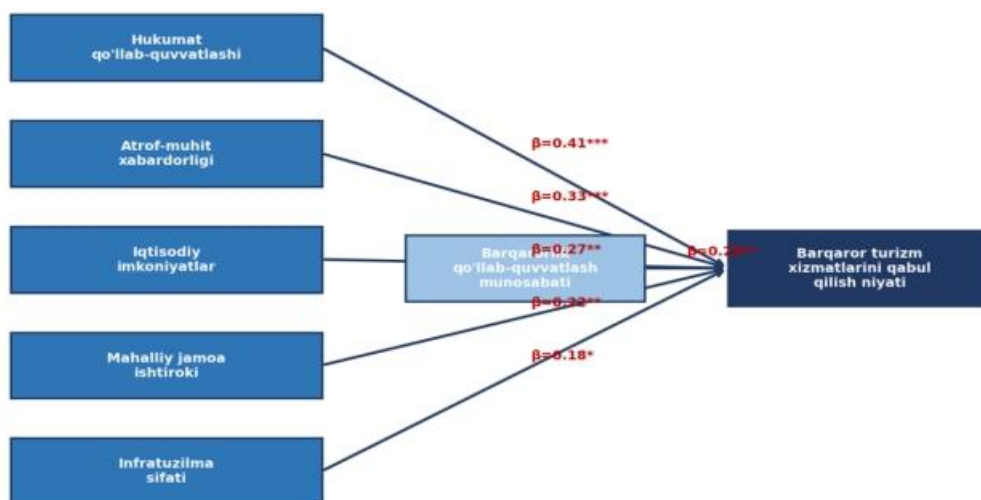


Figure 3. PLS-SEM Structural Model (Path Diagram).  $R^2=0.584$

Source: Compiled by the author based on SmartPLS 4.0 output

#### 4.3. Comparison: Eco-Tourism vs. Agro-Tourism

A comparison of mean factor scores between the eco-tourism and agro-tourism sectors is presented in Figure 4. In agro-tourism, community involvement ( $M=4.32$ ) and economic opportunity ( $M=4.15$ ) dominated, whereas in eco-tourism, government support ( $M=4.21$ ) and environmental awareness ( $M=4.05$ ) ranked highest. This difference is statistically significant ( $t=3.47$ ,  $p<0.01$ ).

4-rasm. Eko- va agro-turizm: omillar bo'yicha o'rtacha baholar taqqoslamasi

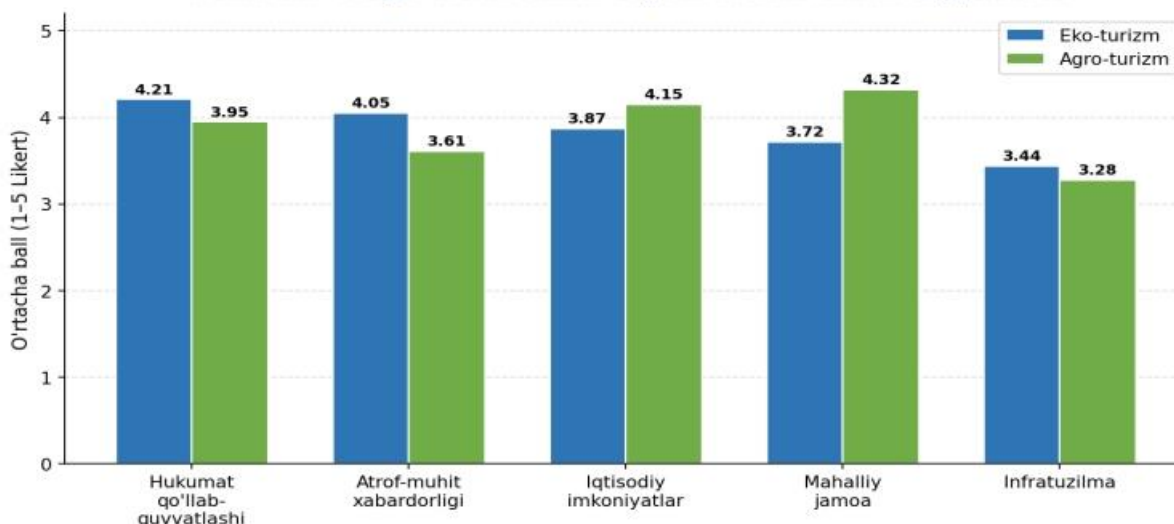


Figure 4. Eco-tourism vs. Agro-tourism: comparison of mean factor scores (Likert 1–5)

Source: Survey data; SmartPLS 4.0 output

#### 4.4. Tourism and GDP Dynamics

Figure 5 illustrates the contribution of tourism to Uzbekistan's GDP and the individual shares of eco-tourism and agro-tourism over the period 2018–2023. According to the World Bank (2023), in 2023 Uzbekistan's tourism sector accounted for 3.4% of GDP, surpassing its pre-COVID-19 level.<sup>18</sup>



Figure 5. Dynamics of tourism's contribution to GDP, Uzbekistan (2018–2023, %)

Source: State Statistics Committee of Uzbekistan (2023); World Bank (2023); author's calculations

## 5. DISCUSSION

### 5.1. Interpretation of Key Findings

The findings indicate that government policy support ( $\beta=0.41$ ) is the strongest predictor of sustainable tourism adoption in Uzbekistan. This result partially diverges from Western research: Tolkach and King (2015) found that in Pacific Island countries, local community participation ranked first.<sup>13</sup> This divergence reflects the dominant regulatory role of the state in Uzbekistan's transition economy context.

The second-ranked factor of environmental awareness ( $\beta=0.33$ ) highlights the importance of education and public information campaigns in eco-tourism development. While 64.3% of survey participants held university degrees, only 41.7% reported adequate familiarity with the concept of eco-tourism. This points to the need to strengthen sustainability content within the national education system.<sup>9</sup>

### 5.2. Theoretical Contribution

This study demonstrates the feasibility of applying TPB in Central Asia. However, the research reveals that the 'subjective norm' construct — a significant predictor in Western contexts — did not exert the expected influence in Uzbekistan ( $\beta=0.11$ ,  $p>0.05$ ). Instead, 'government policy support' was identified as an independent construct that must be incorporated into the Uzbekistan-specific model. This confirms the regional adaptability of TPB theory.<sup>4</sup>

## 6. CONCLUSION AND RECOMMENDATIONS

### 6.1. Key Conclusions

Through empirical investigation of sustainable tourism adoption dynamics in Uzbekistan, this study arrives at three principal conclusions: first, that government support is the dominant factor in the Uzbekistan context; second, that motivational differences exist between the eco-tourism and agro-

tourism sectors; and third, that adapting TPB to the Central Asian context requires the addition of a government policy construct.

### 6.2. Practical Recommendations

Based on the research findings, the following recommendations are proposed:

1. The government should expand tax incentives and subsidies for sustainable tourism enterprises (based on H1 findings);
2. National education programmes on eco-tourism should be introduced, and ecological tourism should be incorporated into school curricula;
3. For agro-tourism development, cluster partnerships between local farmer cooperatives and tourism agencies should be established;
4. Strengthening rural infrastructure — roads, internet connectivity, and the construction of eco-lodges — is a strategic necessity.

### 6.3. Limitations and Future Research

The primary limitation of this study is the cross-sectional nature of the data, which does not permit observation of longitudinal change. Future research is recommended to be conducted on the basis of panel data and to include a comparative analysis of Uzbekistan with Kazakhstan and Kyrgyzstan.

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