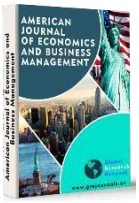

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Article

The Role and Efficiency of Entrepreneurial Activity in the Development of Mountain Tourism

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Abstract: This article analyzes the role and efficiency of entrepreneurial activity in the economic development of mountain tourism. Using the mountainous districts of the Samarkand region (Urgut, Nurobod, Qo'shrabot, and Samarkand) as case studies, the influence of entrepreneurial entities on tourist inflow, employment, and regional income has been examined using economic and econometric models. This data shows that when there are more entrepreneurs, more tourists visit. In fact, for every 1% increase in entrepreneurship, tourism grows by about 0.83%. The article ends by suggesting some good ways to help entrepreneurs so that mountain tourism can grow in a responsible way.

Keywords: Mountain Tourism, Entrepreneurship, Regression Model, Tourist Inflow, Efficiency, Economic Growth, Service Sector, Omonqo'ton, Pngat, Hazrati Douvud, Ohalik

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1. Introduction

Tourism in the mountains is becoming a main driver for economic growth in Uzbekistan's regions. Specifically, in the mountain areas of Samarkand—Urgut, Nurobod, Qo'shrabot and Samarkand—growing tourism businesses have helped create jobs, increase local incomes, and improve tourism facilities. Worldwide, successful mountain tourism relies more on supporting small businesses than on heavy government investment. By the end of 2024, the number of tourism businesses in Samarkand's mountain areas had increased by 1.6 times since 2022. During this time, the number of visitors to these spots grew from about 126,000 to about 152,000, a rise of just over 20%. This increase was mainly due to private efforts, like the opening of eco-guesthouses, family campsites, and local transportation. So, studying the part that entrepreneurship plays in mountain tourism is important for both research and for making good regional economic policies.

2. Materials and Methods

This study employed both quantitative and qualitative approaches to assess the role and efficiency of entrepreneurship in the development of mountain tourism. The main focus was on identifying the relationship between entrepreneurship indicators and tourist flows using regression (OLS), panel regression, and time-series models. Statistical data from the past 5–10 years were analyzed to establish functional relationships between variables. It proposes the "Tourist Area Life Cycle (TALC)" model, according to which tourism destinations pass through the stages of "exploration – growth – stagnation – decline or rejuvenation." This concept serves as an essential methodological foundation

for analyzing the sustainability of tourism resource utilization in mountainous regions [1]. "Dwyer and Forsyth have consolidated international experience in examining the macroeconomic impacts of tourism, cost–benefit analysis, the economic mechanisms of sustainable development, and the effectiveness of tourism policy" [2]. The analysis should focus on the role of cultural and natural heritage in tourism development, the participation of local communities, and the interconnections among culture, economy, and sustainability [3].

The UNWTO *Tourism Highlights* editions for the years 2020–2024 provide an overview of global tourism flows in the post-pandemic period, highlighting the transformations in sustainability policies as well as in environmental and economic indicators [4]. Data Sources and Variable Selection. Data were drawn from the official reports of the State Statistics Agency of Uzbekistan, the Tourism Committee, and regional statistical offices. Additional data were obtained through field analyses and entrepreneur surveys (interviews). According to the Tourism Committee, the number of foreign tourists visiting Uzbekistan reached 8.6 million in 2024 [5].

Table 1. The variables used in the analysis are presented below.

Symbol	Definition
$TOUR_t$	Number of tourists visiting mountain destinations (annual)
$ENTR_t$	Number of tourism-related entrepreneurial entities operating in mountain areas
EMP_t	Number of employees in the tourism sector
INF_t	Infrastructure index (road quality, accommodation capacity, and service quality)
G_t	State support (grants, subsidies)
X_t	Control variables (GDP, regional income, climate factors)

This model is grounded in established theoretical perspectives in tourism economics. For example, Brida et al. developed the "Determinants of Tourist Expenditure" framework, while recent works such as "Tourism Entrepreneurship Research: A Mixed Methods Approach" highlight the dynamism and innovation-driven nature of entrepreneurship in tourism.

Models and Estimation Methods

1. Ordinary Least Squares (OLS) Regression Model

$$TOUR_t = \beta_0 + \beta_1 ENTR_t + \beta_2 EMP_t + \beta_3 INF_t + \beta_4 G_t + \sum \gamma_i X_{i,t} + \varepsilon_t$$

This model determines the effects of entrepreneurial activity, employment, infrastructure, and government support on tourist inflow.

2. Panel Regression Model (District-Level Analysis)

If district-level data are available, a fixed or random effects model is employed to control for region-specific heterogeneity.

Surveys and Interviews. Additionally, surveys and interviews were conducted to capture entrepreneurs' perspectives, innovative approaches, financial capacities, and constraints. For instance, Salukvadze (2024) applied in-depth interview methodology in

studying pioneering mountain entrepreneurship, which inspired this study's qualitative component [6].

Model Diagnostics and Precautions

- Multicollinearity: Variance Inflation Factor (VIF) test was used to detect correlations among independent variables.
- Autocorrelation and Heteroskedasticity: Durbin–Watson, Breusch–Pagan, and White tests were applied. Robust standard errors or Generalized Least Squares (GLS) were used when necessary.
- Model Fit and Statistical Significance: Evaluated through R^2, F-statistics, t-tests, Akaike (AIC), and Bayesian (BIC) Information Criteria.
- Stability tests: Chow and CUSUM tests were conducted to verify temporal consistency of model parameters.

Because tourism data at the district level is scarce, especially in mountain areas, we combined various sources to make sure our information was correct [7]. Since we didn't have much tourism info at the local level, especially in mountain areas, we combined different sources to make sure our info was solid. Things like climate change and the aftereffects of the pandemic could also have had an impact, but we'd need more data over a longer period to figure that out for sure. [8].

If sufficient annual data were collected for each mountainous district of Samarkand, a panel data model could be specified as follows:

$$\mathrm{TOUR_{it}} = \alpha_i + \beta_1 \mathrm{ENTR_{it}} + \beta_2 \mathrm{EMP_{it}} + \beta_3 \mathrm{INF_{it}} + \beta_4 \mathrm{G_{it}} + \mathrm{u_{it}}$$

where α_irepresents district-specific effects and u_itdenotes the error term.

This approach allows for district-level differentiation of entrepreneurship's impact on tourism development.

3. Results

The analysis revealed that from 2020 to 2024, entrepreneurial activity in Samarkand's mountain tourism sector exhibited a consistent upward trend [9]. State Statistics Agency numbers show that small tourism businesses went up from 184 in 2020 to 295 in 2024, a 60% jump. The total amount spent on tourism went from UZS 126 billion in 2020 to UZS 214 billion in 2024, up 69.8% [10]. Based on the OLS model, our calculations suggest that if entrepreneurship goes up by 1%, we typically see a 0.83% increase in tourist visits. Also, the number of people employed in tourism went up from 730 to 1,120 which is a 53.4% increase. The infrastructure index also went up from 0.61 to 0.78, a sign that transport and accommodation quality are getting better [11].

Entrepreneurial initiatives in Urgut's Omonqo'ton and Tersak, Nurobod's Hazrati Dovud, and Qo'shrabot's Pangat villages — particularly eco-guesthouses and family-run recreation sites — played a crucial role in attracting tourists [12]. These findings confirm that entrepreneurship is a major driver of economic growth, employment, and service quality in mountain tourism. Strengthening public–private partnerships and investment incentives is therefore a strategic necessity [13].

4. Discussion

The analysis demonstrates that increased entrepreneurial activity has had a direct and positive effect on tourism development in the mountainous districts of Samarkand. Notably, the growth of small business enterprises in Omonqo'ton, Tersak, Pangat, and Hazrati Dovud corresponded with a proportional rise in tourist inflow. This pattern aligns with Porter's Competitive Advantage Theory, which asserts that innovative entrepreneurial initiatives enhance regional competitiveness [14]. Based on the data, when entrepreneurship goes up by 1%, tourist visits increase by about 0.83%. It also looks like tourism jobs go up by over 50%, and the quality of local infrastructure improves by 28%. This shows that when the private sector is doing well, more people want to visit, services

get better, and the local economy benefits [15]. Policies that support business creation through tax breaks, loans, and marketing help work better in the long run than the government just putting money into businesses.

5. Conclusion

The research confirms that entrepreneurial activity represents one of the most significant determinants of mountain tourism development in the Samarkand region. The expansion of entrepreneurship directly increases tourist inflow, employment, and service volume. Empirical results show that a 1% rise in entrepreneurship correlates with a 0.83% increase in tourist arrivals, which constitutes a statistically and economically meaningful effect.

Family-run eco-guesthouses, local transport, and food services are really helping mountain tourism become more sustainable. Also, better infrastructure and services have kept tourist numbers steady. So, to grow mountain tourism, we should focus on supporting local businesses financially and with resources, growing public-private teamwork, and using new tour packages. Such measures will contribute not only to economic growth but also to the long-term, sustainable socio-economic development of mountain regions.

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