

STATISTICAL ANALYSES OF TOURISM IN UZBEKISTAN: AN EMPIRICAL TEST OF TOURISM A-B-C (T-ABC) MODEL

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Abstract. We empirically test the relationship between tourism performance and multiple tourism dimensions, namely, tourism Attractions (A), Basics (B), and Context (C). We test the Tourism A-B-C model using data from regions of Uzbekistan. The results serve to state out major trends, which focus on further research on this topic globally, and also they might be useful in diversifying interventions to improve the impacts in the tourism industry advancement. Tourism is distinguished by high investment multiplier. One sum included in the tourism industry will generate 4 sums in other industries. According to the World Tourism Organization, 11% of the world's gross national product, 10% of investments, 11% of world consumption and 5% of tax revenues account for tourism.

Uzbekistan is a country with potential for an expanded tourism industry. Many of its Central Asian cities were main points of trade on the Silk Road, linking Eastern and Western civilizations. Today the museums of Uzbekistan store over two million artifacts, evidence of the unique historical, cultural and spiritual life of the Central Asian peoples that have lived in the region. Uzbekistan attracts tourists with its historical, archeological, architectural and natural treasures.

Keywords: Uzbekistan tourism, tourism infrastructure, tourism potential tourism performance, regional economic development, tourism A-B-C model

Introduction

According to the Statistical Internet Survey, carried out in May 7-August 27, 2018, the largest proportion of those surveyed (39%) visit the country because of their

interest in the architectural and historical sites of Uzbekistan. The next-largest group (24%) visit Uzbekistan to observe its culture, way of life and customs. Cultural Tourism is the only major product Uzbekistan is providing to visitors since its independence. Samarkand, Bukhara and Khiva are hot spots of tourism. Tourist activities in Uzbekistan range from outdoor activities, such as rock-climbing, to exploration of its rich archeological and religious history.

Uzbekistan is located on the Great Silk Road and many neighboring countries (including Kazakhstan, Kyrgyz Republic, Tajikistan and Turkmenistan) promote their countries based on their location along the Great Silk Road. The World Tourism Organization's Silk Road Office was opened in Samarkand. This office was commissioned to coordinate the efforts of international organizations and national tourism offices of countries located on the Silk Road.

At present the country is gradually implementing complex measures to diversify the national economy, to develop regions, to create new jobs, to increase the incomes and living standards of the population, as one of the strategic sectors of the country's investment attractiveness. Uzbekistan has a huge tourism and recreational potential, with a total of 7,400 sites of cultural heritage, of which 209 are four museums – the Ichan Qala in Khiva, the historic center of Bukhara, the historic center of Shahrisabz, Samarkand City and is included in the UNESCO world heritage list. Every year the number of foreigners visiting the Republic of Uzbekistan is increasing. In the last 15 years, foreign citizens' visits to Uzbekistan have risen to

15,5 times, from 442,1 thousand in 2002 to 5346,2 thousand in 2018. The number of foreigners visiting Uzbekistan in 2018 was 8594,800, which is 6,5 times more than in 2002.

There are near seven billion people and about 200 countries around the world, we can say that citizen of country has the right to travel other country of his choice. In the current globalized process, for example, Chile, which is far from Uzbekistan, can establish international tourism relations. The reason a person leaves their habitual environment is to look for tourist amenities such as conditions, historical places, and nature recourses that are not in that usual environment. Destination decisions mean that the selected state is more competitive in tourism than in other countries. The current activities of international tourism organizations aim to study the factors that influence the tourism industry of countries in its innovative development.

In February 2019 WTO hosted an international conference on "Sustainable Development and Factors Affecting Tourism". The conference presented an international index that shows the innovative development of tourism in countries. There are several statistical methods that analyze the factors that meet these indices and affect the innovative development of tourism.

This research paper is divided into four sections. The next section is the material and research methods. In this section, the theory behind the T-ABC model is reviewed and we analyze methodology of T-ABC model. In Section 3 comparative numerical data for the 14 regions of Uzbekistan is tabulated and discussed, and conclusions are drawn about the strengths and weaknesses of the 14 regions based on a variety of statistics. The number of tourists' arrivals in each country is also compared. We advances hypotheses regarding the relationship between tourism attractions, basics, and context on one hand, and tourism performance on the other. In Section four offers a discussion of the research results and implications for the regional economic development of Uzbekistan.

Material and research methods. Number of inbound tourists and international tourism receipts – both deemed as key measures for assess for our research, we have selected the T-ABC model, one of the most powerful methods for influencing the innovative development of tourism. First, it has a new model, and secondly, it fully meets the requirements of international indices that assess tourism innovation. The model was proposed by 2018 by Al Manrai and S. Friedeborn, University of Delaware Universities, one of the world's leading tourism research centers.

To be able to develop the theory behind our study of tourism in the fourteen regions in Uzbekistan, we must first introduce the T-ABC Model. The Model dimensions, namely, attractions, basics or necessities, and context or environment, were first identified by Manrai and Manrai [1] and later introduced as the Tourism ABC (or T-ABC) model in Manrai, Manrai, and Friedeborn [2]. The Model (see Fig. 1) includes critical considerations that tourists take into account in their destination choice.

Applied to the Uzbekistan context, the T-ABC Model dimension A stands for "attractions" (historical places and natural resources of tourism), dimension B stands for "basics" (accommodation, transportation etc.) and dimension C stands for "context" (crime, safety of country environment, etc.). Tourism attractions include all that may draw a tourist to a destination; interest is sparked in a destination when there are unique attractions, such as historical and natural resources of tourism opportunities, in the case of this study.

Once a competitive advantage is established, then destination management and sustainability become important factors in maintaining competitiveness [2]. Tourists seeking new experiences do not want to relinquish familiar comforts and, especially, the security of their home environment [3]. Tourism basics support the initial attraction of destinations: while tourism attractions establish a motivation for travel, tourism basics support that motivation [2].

Tourism basics include accessibility and affordability, including the ability to reach the destination, and the infrastructure that must be in place to welcome tourists, including security, and luxuries such as internet and personal banking access.

Tourism context is comprised of factors that could create a favorable impression, making it more likely that tourists would travel to a destination. Alternatively, there are factors that make tourists wary of travelling to destinations, such as health risks, pollution, quality of life, medical care, or literacy [2]. Strong, enforced regulations promoting a high quality of life and a sustainable tourism industry that ensures quality services for tourists are essential[2]. Importantly, tourism performance is a critical dimension of the T-ABC model. Tourism performance of destinations is assessed by Fig. 1. The Tourism-ABC model. determining the number of tourists and tourist expenditures. International tourist arrivals, international inbound tourists visiting from abroad, and international tourism receipts, expenditures by inbound international visitors from abroad, are deemed key measures used to assess tourism performance[4], but other dimensions, such as travel and tourism industry's total contribution to GDP and to employment, capture important information as well[2].

Results and discussion. The administrative territorial division consists of the Republic of

Karakalpakstan, twelve regions and the city of Tashkent. Uzbekistan has a favorable climate, with a certain degree of seasonal and daily fluctuations, a dry and hot summer with summers, a humid climate, and a changeable winter. Average temperature ranges from + 5.3 ° to -6 ° in January and +26 ° to + 32 ° in July.

The pearl of Central Asia is a mountainous region with the most temperate and fertile soil, capable to fully absorb the sun's rays for almost 320 days a year, with the vast amounts and quantities of all the elements of the Mendeleev periodical system. The unique nature of Uzbekistan, with its arid hot climate, rich historical and archaeological heritage, high spiritual values, traditions, national craftsmanship, and outstanding qualities and qualities of its people. The international community is widely recognized by the fact that the bee Republic has sufficient potential to become one of the world's tourist centers.

Uzbekistan has a great historical and cultural heritage - more than 7,300 ancient and architectural and archeological sites. Most of them are located in Samarkand, Bukhara, Khiva, Shahrisabz, Termez, Kokand and Tashkent. More than 200 historical monuments and sites in our country are included in the UNESCO Cultural Heritage List.

In general, one of the main purposes of the visitors of the Republic is to see the rich historical resources of the country.

Table 1.
Statistical estimation of tourism attractiveness in Uzbekistan based on Delphi model
(from 1-7 points)

		Karakalpakstan R.	Andijan	Bukhara	Jizzakh	Kashkadarya	Navoi	Namangan	Samarkand	Surkhandarya	Syrdarya river	Tashkent	Fergana	Khorezm	The city of Tashkent
1	World Heritage List			√		√			√					√	

2	Natural tourist resources	4,7	2,7	3,6	5,1	4,2	4,3	3,4	4,8	5,6	2,8	5,2	4,0	3,8	4,0
3	Historical tourist resources	4,7	2,6	6,9	2,3	4,1	3,3	2,7	6,9	5,0	1,8	3,2	4,2	6,2	4,9

Table 1 shows the statistical analysis of tourism attractiveness in Uzbekistan. The places included in the UNESCO list are just historical places. Our analysis shows that other countries include tourism resources not only historically, but also natural tourism resources. This, in turn, will increase the attractiveness of tourism in these countries. Only four Bukhara, Samarkand, Khorezm and Kashkadarya regions are included in the World Heritage List.

According to experts, who participated in the statistical assessment of tourism attractiveness in Uzbekistan based on Delphi model, it was found that Jizzakh, Surkhandarya and Tashkent regions have more tourist attraction resources than other regions. In fact, there are natural tourist resources in Tashkent region that respond to all seasons.

Samarkand, Bukhara and Khorezm regions were awarded the highest points in terms of attractiveness of historical resources.

Samarkand has many attractive tourism facilities and is one of the main tourist cities of Uzbekistan. In recent years, a number of documents related to Samarkand region, such as the Presidential Decree No. PP-3609 "On Additional Measures for the Further Development of Tourism in Samarkand Province for 2018-2019" and the International University of Tourism "Silk Road", 3815 Declared. In addition, the adoption of the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated

30 June 2017 "On measures to accelerate the development of tourism potential of Samarkand and Samarkand region in 2017-2019" will allow to increase the flow of tourists and further employment through tourism. which, in turn, will enhance the role of tourism in the economy of Samarkand region.

We will analyze in B of the ABC model of **tourism services**. Uzbekistan is one of the two countries in the world that crosses two countries to access the sea. Uzbekistan can only be visited by air, rail or land. The most difficult aspect of tourism in Uzbekistan is air travel. Currently, Uzbekistan Airways operates 30 foreign aircrafts. With their help, the national airline operates flights to 20 cities in Europe, America, the Middle East and Asia. In 2018, Uzbekistan Airways increased by 17% to 3,17 million passengers. This indicator is calculated for all incoming and outgoing visitors.

As of 2018, there are 816 hotels in the country, with a fund of about 40,000, of which 14,000 are located in Tashkent. Our research shows that there are not enough hotels in the seasonal times, but almost the same as the prices of European hotels and the price is increasing substantially every year. As for the city of Paris, the number of hotels in the city and surrounding areas is 4,260. We have these national levels 5 and a half times lower than that of the country, only 816 hotels worldwide.

Table 2
Statistical assessment of tourism services in Uzbekistan based on Delphi model (up to 1-7 points)

		Karakalpakstan R.	Andijan	Bukhara	Jizzakh	Kashkadarya	Navoi	Namangan	Samarkand	Surkhandarya	Syrdarya river	Tashkent	Fergana	Khorezm	The city of Tashkent
1	Quality of roadway	3,6	4,3	4,9	3,2	3,9	4,0	3,9	5,4	3,2	3,4	4,9	4,3	4,8	5,9
2	Quality of hotels	4,0	4,2	5,0	3,6	4,2	4,1	3,9	5,4	3,6	3,0	4,8	4,8	5,0	5,8
3	Quality of restaurants	3,4	5,1	5,4	4,2	4,6	4,1	4,2	6,0	3,9	3,2	5,4	4,8	5,3	6,3
4	Availability and condition of sanitary and hygiene facilities	2,4	3,6	4,1	2,8	2,9	3,2	3,0	4,3	2,8	2,7	3,8	3,2	3,6	4,8
5	Knowledge of tourism staff	3,9	4,7	5,8	4,3	4,3	4,3	4,6	6,1	4,1	3,8	5,0	4,9	5,3	5,7
6	Financial and medical services	2,7	3,1	3,4	2,9	2,9	3,0	3,2	3,9	2,8	2,6	3,6	3,0	3,3	4,4

According to experts, who participated in the statistical assessment of tourism services in Uzbekistan based on the Delphi model, it is clear that there are problems with tourist safety in Uzbekistan. According to our research, medical services in tourist facilities of the country are in poor condition.

Tourist car rental services are also one of the downside of the tourism infrastructure, with an average of 2,58 points in Uzbekistan. Tourist car rental services were found to be better only in Tashkent and Samarkand.

The professional status and availability of guides is 3,37 points due to the lack of guides in the regions during the tourist season who can speak several languages and provide interesting information on history, culture and all matters.

Based on the data in Table 2 we can say that logistics and road infrastructure in almost all regions are on average points out of close to 5, and it should be noted that tourism is not only economic but social. If road conditions and logistics infrastructure are in line with international standards, it will not only promote tourism, but also many other, in general, lifestyle.

The availability and condition of hotels is explained by the lack of hotels in tourist centers. Our research has revealed that even the most powerful tourist centers in Samarkand, Bukhara, Khorezm, hotels, their status, knowledge and skills of tourists, and several other tourist infrastructures preclude the development of tourism.

There is a solution to this: firstly, one should bring tourism infrastructure and tourism services to international standards, and then the other, and so on. If we make tourism services competitive in only three regions of Samarkand, Bukhara and Khorezm, tourism will be one of the most localized sectors of the economy.

We analyze the status of the external factors of item C of the ABC model. Many citizens of the world do not know enough about Uzbekistan. For example, many Europeans consider Uzbekistan a very dangerous place to travel because it is a country bordering Afghanistan.

Table 3
Statistical assessment of external factors in Uzbekistan based on Delphi model
 (from 1-7 points)

		Karakalpakstan R.	Andijan	Bukhara	Jizzakh	Kashkadarya	Navoi	Namangan	Samarkand	Surkhandarya	Syrdarya river	Tashkent	Fergana	Khorezm	The city of Tashkent
1	Friendliness of people	4,9	6,0	5,8	5,2	5,2	5,2	5,8	6,1	5,4	5,1	5,4	5,9	6,0	6,1
2	WI-FI zones and the availability of Internet speed	3,4	4,0	4,8	3,4	3,7	3,7	3,6	4,8	3,3	3,2	4,6	4,1	3,9	5,2
3	The supply of the electric power	3,4	3,7	4,2	3,2	3,6	3,6	3,4	4,3	3,2	3,1	4,1	3,8	3,4	5,9

The attitude of the local population to the tourists and the culture of communication is one of the strong external factors. According to this indicator, all regions have a level of about 5 points, and the local population in general needs to develop tourism and tourism culture.

In the age of information technology, people cannot imagine themselves without the Internet and communication services, so we

have added WI-FI and Internet speeds to look at external factors. Although this figure is 5,2 points better in Tashkent, there is still much to be done in this area compared to developed countries .

The sustainability index is included in the International Tourism Competitiveness Index and is therefore included in the list. Against this background, the highest score in Tashkent is 5,9.

Table 4
 ABC model and its analysis

		Tourism attractiveness A	Tourism basics B	Tourism context C
	Uzbekistan	4,2	4,1	4,4
1	Samarkand	5,8	5,3	5,1
2	Surkhandarya	5,3	3,6	3,8
3	Bukhara	5,2	4,9	4,9
4	Khorezm	5,0	4,6	4,4
5	The Republic of Karakalpakstan	4,7	3,3	3,8
6	Tashkent .	4,4	5,7	5,7
7	Kashkadarya	4,2	3,6	4,0
8	Tashkent	4,2	4,4	4,7
9	Fergana	4,1	4,1	4,4
10	Navoi	3,8	3,4	4,1

11	Jizzakh	3,7	3,3	3,8
12	Namangan	3,1	3,6	4,2
13	Andijan	2,6	4,0	4,4
14	Syrdarya river	2,3	2,9	3,7

In this table, the ABC model described, the region of Samarkand is higher than in other regions attractive, the city of Tashkent, the highest tourism services, tourism and external factors that were identified. Increasing tourism attractiveness in Tashkent will result in increased tourist inflow and revenue.

Our analysis shows that Surkhandarya region also has a strong tourist attraction, which includes more natural resources than historical resources.

In general, several regions of Uzbekistan have both natural and historical resources, sufficient tourism attractiveness, and tourism development in many respects.

In the ABC model, tourism efficiency is determined by the tourists and tourism revenue. However, the methodology for determining the tourist flow and tourism revenue is not applied in Uzbekistan. Therefore, we calculated the correlation chart by referring to the ABC model of the foreign tourists staying in the hotels of the provinces, based on the 1st Tourism Report.

Table 5

Correlation between the ABC model and the tourists staying overnight in the regional hotels

	Y	A	B	C
Y	1			
A	0,72	1		
B	0,89	0,58	1	
C	0,81	0,38	0,95	1

From the table data we can see that there is a strong correlation between tourists and tourism services.

Now, economically analyzing these changes, we will explore the relationship between the ABC model and the tourists staying at regional hotels in 2018.

Y - the tourists staying at regional

hotels in 2018

X₁- A, that is, tourism

attractiveness.

X₂ - B, tourism services

X₃ - C, tourism context

$$\log_{10} y = x_1 + x_2 + x_3$$

Table 6

Results of the regression equation

Variables	Coefficient	Std. error	t –statistics	Probably
Const.	-1,01	1,53	-0,66	0,53
X₁	0,33	0,17	2,01	0,07
X₂	0,19	0,68	0,29	0,78

X_3	0,62	0,83	0,75	0,47
R^2	0,86			
Adjusted R^2	0,82			

This table shows variables flow of tourists and tourism attractiveness, tourism services, external factors, the amount of the rights of the relationship between the amount of regression. It also presents standard errors, statistics, and probabilities. R^2 is, the above

factors explain 86 % of the variation in the dependent variable Y.

This statistical sampling regression equation using the Y importance of the changes in part explain whether or not that is

used to verify the hypothesis. We construct zero and one-sided alternative hypotheses as follows :

$$H_0 : r^2 = 0$$

$$H_1 : r^2 > 0$$

$\alpha = 0,05$ significance level for the F :

$$F_{t= F_{\alpha}(k-1; n-k) = F_{0.05}(3; 10) = 2,62}$$

Table 7

Analyze of variance:

dispersion source	Degree of freedom (DF)	Squares Total (SS)	MS	F- ratio
Regression	3	7,10	2,37	21,24
Residual squares	10	1,11	0,11	
Total	13	8,21		

$$F \text{ value is } F = \frac{SSR/(k-1)}{SSE/(n-k)} = 21,24$$

Here ,

n - number of observations;

k – number of variables ;

SSR - sum of squares of regression;

SSE is the sum of the residual squares.

Rule: H_0 is rejected because $F_j < F$.

Consequently, the attractiveness of tourism, tourism services, and external factors are influenced by factors influencing the tourists.

The purpose of the t-test in the model is to test whether the coefficients of the generalized set of linear regression equations differ significantly from zero, that is, they are not random.

Zero and one -sided build hypotheses are as follows:

$$H_0 : b_1 \leq 0 \quad H_0 : b_2 \leq 0 \quad H_0 : b_3 \geq 0 \quad H_0 : b_4 \geq 0$$

$$H_1 : b_1 > 0 \quad H_1 : b_2 > 0 \quad H_1 : b_3 < 0 \quad H_1 : b_4 < 0$$

$\alpha = 0.05$ significance level, the critical value of T, we find:

$$t_t = t_{\alpha}(n-k) = t_{0.05}(10) = 1,71$$

Now, find a sampling of the value of t . In order to do this, we first need to clarify some of the statistical values we need.

Standard error of regression coefficients:

$$S_{b_1} = 1,53; S_{b_2} = 0,17; S_{b_3} = 0,68; S_{b_4} = 0,83;$$

Rule : $t_t < |t_i|$ ($i = 1,2,3,4,5$) is the H_0 hypothesis is rejected in all cases. Therefore, setting a regression equation to estimate the positive rates of b_2, b_3 and b_4 ratio of negative numbers. The chosen model was successfully passed F- test and t- test

The final regression equation:

$$\log_{10}y = -1,01 + 0,33x_1 + 0,19x_2 + 0,62x_3$$

Conclusions. The regression equation between the ABC model and the tourists suggests that external factors influence the flow of tourists, the need to strengthen Uzbekistan's position in the international tourism indexes, and to boost external advertising. In conclusion, we can say that tourism is one of the most important sectors of the economy. This is due to the fact that the value added in the tourism industry is four times higher than in other areas, and it is possible to make the economy faster due to the diversification of the national economy, the rapid development of the regions, the creation of new jobs, raising the incomes and living standards of the population.

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