

# Data Analysis of Behavioral Intention of Beijing Residents in the Post-Epidemic Era

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**Abstract:** The COVID-19 pandemic has dealt a major blow to the tourism industry. Since the normalization of domestic epidemic prevention and control, tourism consumption has started the 'internal circulation' mode, and the domestic tourism market has recovered steadily. It is necessary to re-evaluate the dynamic changes in tourism development. Traditional statistical methods are no longer suitable for research, and the application of the Internet and big data provides new ideas for solving tourism development problems. This study collected data on Beijing residents' tourism market in three quarters, using tourism consumer behavior theory and behavioral intention theory to establish a behavioral intention model, using analytic hierarchy process and expert evaluation method to construct a tourism intention evaluation system. The time changes and characteristics of tourists' travel intentions and preferences are described and analyzed. Finally, based on information technology, it provides suggestions for the development of the tourism market.

## 1 INTRODUCTION

Since April 2020, China's economy has continued to recover steadily, and tourism consumption has opened an "internal cycle" model. The post-epidemic period is based on China's national conditions. The interval refers to the period from the normalization of domestic epidemic prevention and control on April 29, 2020, to the complete end of the epidemic (Fishbein & Ajzen 1975). During this period, the epidemic continued to affect people's lives. To better adapt to the dynamic changes in the tourism market, the tourism industry needs to use the Internet, big data, artificial intelligence, and other technologies to meet the diversified needs of tourists and improve the connotation and quality of tourism services (Ajzen & Driver 1992). Therefore, this study takes Beijing as a case study to construct a behavioral intention model, conduct a third-quarter tourism market survey, and analyze the changing trends and characteristics of Beijing residents' tourism consumption behavior. This study will help tourism practitioners to understand market changes more comprehensively and in detail and provide micro-guidance for tourism consumption stimulus policies with the help of information technology.

## 2 THEORETICAL MODEL

Based on relevant literature and theory at home and abroad, this paper constructs a post-epidemic tourism behavior intention model (Fig. 1). The model is divided into two parts: Travel intention (the possibility, expectation, attitude); Travel preferences (travel motivation, resource preferences, travel time, travel companions).

This paper mainly studies the subjective psychological state of tourists from the perspective of tourism intention. First, the willingness to travel, that is, whether residents are willing to travel in the next month; second, travel expectation, people judge whether their travel can achieve the purpose or meet their needs; third, travel attitude, that is, subjective support for the epidemic travel activities; fourth, epidemic perception, people subjectively evaluate the impact of the epidemic on their travel willingness and travel plans (Eagly & Chaiken 1993). We need to comprehensively measure tourists' travel intentions by constructing a travel intention evaluation system. In addition, this paper also studies the travel purpose, resource preference, travel scope, travel time, travel companions, and other tendencies. This section involves multiple types of choices, using questionnaires to collect data.

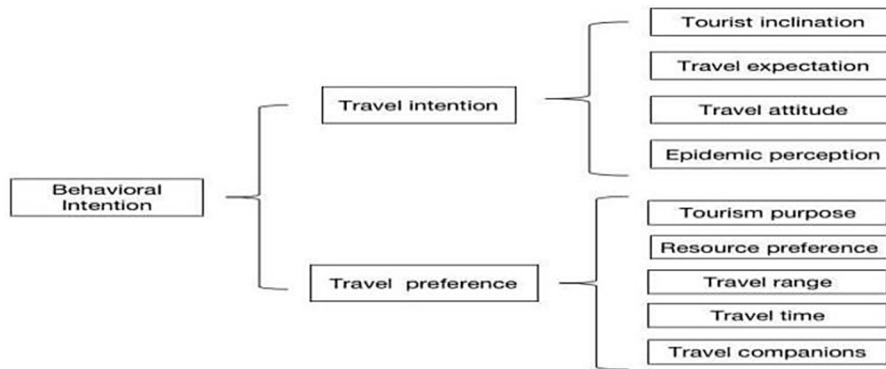


Figure 1: Epidemic travel intention model (hand-painted).

Table 1: Travel intention judgment matrix (hand-painted).

	Travel inclination	Travel expectation	Travel attitude	Epidemic perception
Travel inclination	1.00	4.00	3.60	3.80
Travel expectation	0.25	1.00	2.04	2.19
Travel attitude	0.28	0.49	1.00	2.67
Epidemic perception	0.26	0.46	0.37	1.00

### 3 TRAVEL INTENTION EVALUATION INDEX SYSTEM

Based on the evaluation model, the expert evaluation method is used to construct a pairwise comparison matrix and calculate the weight of each index. The analytic hierarchy process to determine the index weight steps are as follows:

#### 3.1 Judgment Matrix

The evaluation indexes of travel intention in this paper are divided into four categories: travel intention, travel expectation, travel attitude, and epidemic perception. In this way, the evaluation index system of Beijing residents' travel intention is constructed (Yang 2008). Based on the evaluation model, the expert evaluation method is used to construct a pairwise comparison matrix (Table 1).

According to the constructed judgment matrix, the hierarchical sorting operation is carried out to calculate the geometric mean of each row vector and then normalized. Finally, the index weight and the maximum eigenvalue are obtained. The specific calculation process is as follows:

First, find the geometric mean  $m_i$  of elements of each row of judgment matrix A:

$$m_1 = \sqrt[4]{1.00 \times 4.00 \times 3.60 \times 3.80} = 2.72$$

$$m_2 = \sqrt[4]{0.25 \times 1.00 \times 2.04 \times 2.19} = 1.03$$

$$m_3 = \sqrt[4]{0.28 \times 0.49 \times 1.00 \times 3.67} = 0.78$$

$$m_4 = \sqrt[4]{0.26 \times 0.46 \times 0.37 \times 1.00} = 0.46$$

The vector is normalized to obtain.

$$Wu_1 = \frac{m_1}{\sum_{i=1}^4 m_i} = 0.546$$

Similarly,  $Wu_2=0.206$ ,  $Wu_3=0.156$ ,  $Wu_4=0.092$

Therefore, the weight vector can be obtained  $WA = (0.546, 0.206, 0.156, 0.092)$

Then,

$$A * WA = (0.546, 0.206, 0.156) * \begin{bmatrix} 1.00 & 4.00 & 3.60 & 3.80 \\ 0.25 & 1.00 & 2.04 & 2.19 \\ 0.28 & 0.49 & 1.00 & 2.67 \\ 0.26 & 0.46 & 0.37 & 1.00 \end{bmatrix} = (2.282, 0.863, 0.655, 0.388)$$

$W_i$  is to obtain the index weight, and the maximum eigenvalue of the judgment matrix is calculated by the obtained index weight  $W_i$ :

Table 2: Travel intention evaluation index score (hand-painted).

	Time		
	2021.8.1-8.7	2021.9.23-9.30	2021.12.24-12.31
Travel inclination	3.43	3.19	2.68
Travel expectation	3.66	3.52	3.43
Travel attitude	3.08	3.76	3.06
Epidemic perception	2.30	2.53	2.09

$$\lambda_{\max} = \frac{\sum_{i=1}^5 A_{ii} W_i}{n \sum_{i=1}^5 W_i} = \frac{2.282/0.546 + 0.863/0.206 + 0.655/0.156 + 0.388/0.092}{5} = 4.194$$

Finally, define the consistency ratio  $CR = 0.072$ , less than 0.1, therefore, the judgment matrix is consistent.

### 3.2 Calculating Overall Travel Intention Value

Through the weight and Likert scale score of the travel intention index (as shown in Table 2), we can calculate the total score of travel intention at different stages. The total score is expressed by  $T$ ,  $T_1=3.32$ ,  $T_2=3.29$ ,  $T_3=2.84$ . This paper uses the five-level Likert scale measurement, so when the score is greater than 3, the travel intention is positive.

## 4 QUESTIONNAIRE DESIGN AND SURVEY

Based on the literature review, the questionnaire is divided into four parts: The first part is the basic information about tourists, including tourists' gender, age, occupation, education, residence, and so on (Hu 2019). The second part is the residents' travel intention, including travel intention, travel expectation, travel attitude, and epidemic perception, which are all measured by the Likert five-level scale. The third part is the tourism preferences of tourists, including tourism purposes, resource preferences, the scope of travel, travel time, and travel companions. The questionnaire was distributed and collected in three quarters from 1/8/2021 to 31/9/2021. After removing the problem samples, 413 valid questionnaires were collected. Among them, 304 valid sample questionnaires with obvious willingness to travel after the epidemic. Through SPSS reliability measurement, the reliability of the tourism intention questionnaire is 0.746, the reliability of the tourism psychology questionnaire is 0.91, and the overall

reliability of the tourism intention is 0.63, showing good reliability and meeting the survey requirements.

## 5 RESULT

After the epidemic, the overall travel intention of Beijing residents showed a downward trend. In the first quarter and the second quarter, Beijing residents' travel intentions are higher, and in the third quarter, travel intention is very low. It shows that the overall domestic tourism market has recovered well, the tourism demand is high, and the travel intention will fluctuate significantly due to the rebound of the epidemic.

In terms of travel purposes: After the epidemic, people's travel purposes is stable, and leisure and relaxation are the main motivations for tourists to travel. From the perspective of the time change, the demand for entertainment and leisure is rising, and travel choices are more diverse. In terms of resource preference: after the epidemic, dominated by domestic tourism, natural scenery, and leisure and entertainment tourism products are more in line with the needs of tourists. In terms of time, with the improvement of the domestic epidemic prevention and control situation, the control policies of various scenic spots and entertainment venues have become more relaxed, and tourists have more travel options. In terms of the scope of travel: Overall, Beijing residents are more willing to choose suburbs and surrounding provinces and cities in the later stages of the epidemic. Affected by the epidemic prevention and control policy, the risk of close travel is low. Followed by other provinces and cities, a small number of tourists choose Beijing. In terms of travel time: tourists mainly short-term travel within three days and the travel time will change according to holidays and vacation policies. In terms of travel companions: tourists are more inclined to travel with family, friends, or partners. When the outbreak is worse, the demand for travel with family increases because it is safer.

## 6 CONCLUSIONS

First, in the later stage of the epidemic, the domestic tourism market has recovered well, and tourists have a high intention to travel. The domestic travel environment is safe and stable, but safety issues are still the primary factor hindering travel.

Second, the impact of the epidemic on tourists' travel intentions is direct and long-standing. The rebound of the epidemic will bring fluctuations in tourists' travel intentions. With the maturity of epidemic prevention and control, the impact of the epidemic on tourists' travel intentions will gradually weaken, and tourists' confidence in tourism activities will gradually increase.

Third, leisure and relaxation after the epidemic has become the main purpose of tourists' travel. Natural scenery and leisure and entertainment tourism products are more in line with post-epidemic tourism needs. The natural environment is safer and can relax people's long-term depression to a greater extent.

Fourth, in the later stage of the epidemic, the demand for short-term close-range tourism products increased, and family travel became a trend. At the same time, tourists pay more attention to the health and safety of the tourism process, including the environment of the tourist destination, tourist companions, scenic traffic, and so on.

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