Evaluation of Hefei, Nanjing and Wuhan Tourism Competitiveness

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Abstract: Current study made a contrastive analysis of the tourism competitiveness of Hefei, Nanjing and Wuhan by using AHP method associated with establishing a tourism competitiveness index system. The differences of their tourism competitiveness and the decisive factors for that were discussed. The conclusions will be used as the scientific basis for future decision-making concerning the improvement of Hefei overall tourism competitiveness.

1 Introduction

At present, urban tourism has become the theme of modern tourism. Therefore, the study of urban tourism cannot be ignored. Urban tourism competitiveness is an important part of urban competitiveness and a source of sustainable development for urban tourism. The competitiveness of urban tourism is related to the endowment of tourism resources. It is restricted by various factors such as the management strategy of tourism enterprises, the management level of tourism departments, economic development status, political situation and social security, and urban cultural environment ^[1]. This paper gives an objective evaluation of the tourism competitiveness of Hefei, Nanjing and Wuhan by establishing a comprehensive evaluation index system, and finds the differences in tourism competitiveness of the three cities and the decisive factors that lead to the difference, in order to improve Hefei City. The overall competitiveness of tourism proposes a scientific basis for decision-making.

2 Study area

Hefei, Nanjing and Wuhan are the capital cities. The tourism industry has strong complementarity, broad development prospects and good cooperation potential. With a long history, Hefei is a city of harmony between nature and humanity, history and modernity. Nanjing is one of the ancient capitals of the Six Dynasties. It has both natural landscapes and historical relics. Wuhan has the advantage for convenient transportation location and the advantage of opening international routes. It has long been known as the "Nine Provinces Wanted". With the in-depth implementation of the strategy of the rise of Central China, tourists at home and abroad continue to pay attention to tourism along the Yangtze River. How to

better integrate resources, make full use of favorable conditions, strengthen regional cooperation, and achieve complementary advantages become the common theme of the three places ^[2-3].

3 Tourism competitiveness evaluation index system

Choosing effective evaluation indicators and constructing a reasonable and complete evaluation index system of tourism competitiveness is the premise and basis for correctly evaluating tourism competitiveness. The establishment of the urban tourism evaluation index system is a comprehensive work, which requires many considerations and arrangements. Based on the specific situation of tourism in Hefei City, this paper divides the tourism competitiveness evaluation index system into urban tourism competition performance, urban tourism competition potential and urban tourism environment support. Each subsystem is divided into several secondary and tertiary indicators. Finally, 24 subdivision indicators are determined to evaluate the tourism competitiveness of Hefei ^[4-5].

4 Tourism competitiveness research and evaluation methods

4.1 Selection of samples

This paper selects Nanjing and Wuhan as the comparative analysis cities with Hefei, mainly because the three cities are typical tourist cities in the middle and lower reaches of the Yangtze River, and also the provincial capitals. Through empirical analysis, they can choose the tourism development strategy of Hefei. Provide evidence. Moreover, the three cities are relatively close in space, frequent in connection, and economically developed. They have similar tourism core

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attractions, making comparative analysis more targeted.

4.2 Determination of the weight of indicators at each level

The determination of index weight is an important part of evaluation. Because there are many factors affecting the competitiveness of urban tourism and the relationship is complicated, this paper uses AHP to determine the weight of indicators to improve the systematic evaluation. After establishing the hierarchical structure model, constructing the judgment matrix and consistency test, the weight values of the indicators at each level are obtained [6-8].

This paper divides the evaluation index system of urban tourism competitiveness into four layers (Table 1). According to the methods and steps of the AHP method described above, the judgment matrix is constructed by integrating multiple experts to obtain the criterion layer index weight of the urban tourism competitiveness evaluation index system, and after the consistency test, the tourism performance competitiveness and the weight of the tourism environment support force are 0.2, the weight of the tourism competitiveness is 0.6. The sub-criterion layer and the basic-index layer are classified according to their importance according to

their importance, and the percentage of the layer is determined by multiplying the percentage of the above layer by the percentage. The weight of each specific indicator of the sub-criterion layer and the basic-index layer, such as the percentage of overseas tourists in this layer is 0.055, and the weight value of the upper city tourism performance competitiveness is 0.2, according to the above method, the weight value of the overseas tourist number is 0.011^[9-10].

4.3 Dimensionless index

Since the physical meanings of the indicators are different, it is determined that the indicator data cannot have a unified dimension, and the unified assessment cannot be performed. Therefore, the collected indicators are not quantified, and the conversion formula^[11-12] is:

$$P_i = 10 \times D_i / \sum_{i=1}^n D_i \quad (1)$$

In this formula, P_i is a dimensionless index after conversion of an index, D_i is the index value before conversion, and $\sum D_i$ is the sum of the indicators in all evaluation cities^[13-14].

Table 1 The index system of city tourism competitiveness

Target Layer	Criterion layer	Sub-criterion layer	Basic-index layer
Tourism competitive-ness	Tourism competition potential	Tourist resource conditions	Tourism resource grade
			Tourism resource monopoly
			Tourism resource richness
			Tourism resource awareness
		Tourism economic conditions	Geographic conditions
			Per Capita GDP
			Per capita disposable income
		Tourism technology talent	Residents travel expenses
			Number of normal high school students
			Number of ordinary colleges and universities
	Tourism environment support	Tourism natural environment	Number of tourism industry personnel
			Per capita green area
			Urban greening coverage
			Industrial waste water discharge compliance rate
		Urban tourism basic function	Comprehensive utilization of industrial solid waste gas
			Annual passenger traffic
			Bus popularity
		Urban tourism human environment	Number of star hotels
			Residents' attitude towards tourists
Tourism performance competitiveness	Tourism performance competitiveness		Urban tourism policy environment
			Number of overseas visitors
			Number of visitors from Hong Kong, Macao and Taiwan
			Star hotel revenue
			International tourism foreign exchange income

Note: There are two columns in the sub-criterion layer and basic-index layers: the first column is the percentage of the indicator in the layer, and the second column is the weight of the indicator at the layer.

4.4 Calculation method of comprehensive competitiveness

Substitute the weights and score values of each evaluation indicator into the mathematical model of the weighted summation calculation:

$$F = \sum_{i=1}^n W_i P_i \quad (2)$$

Among them, F is the comprehensive competitiveness of urban tourism, P_i is the index after dimensionless, and W_i is the weight value [15].

5 Comparative analysis of tourism competitiveness between Hefei, Nanjing and Wuhan

According to the non-class quantitative processing method introduced in the previous article, the indicators of Hefei, Nanjing and Wuhan are transformed, and the dimensionless index value of urban tourism competition performance is obtained, and then weighted and summed to obtain the comprehensive score and ranking of urban tourism competitiveness [16].

Table 2 Comprehensive score of city tourism competitiveness

City	He fei	Nanj ing	Wu han
Tourism competition potential score	1.46	2.24	2.37
Tourism environment support score	0.65	0.73	0.62
Tourism competition performance score	0.14	1.36	0.50
Comprehensive score of tourism competitiveness	1.04	1.76	1.64
Ranking	3	1	2

6 Conclusions

From the comparison of evaluation results (Table 2), comprehensive tourism competitiveness in Hefei is located at the end of the three cities, tourism competition performance and tourism competition potential are significantly weaker than Nanjing and Wuhan, the tourism environment supports force is slightly stronger than Wuhan, slightly worse than Nanjing.

In the last, Hefei has only a large advantage in the number of colleges and universities and the number of ordinary institutions of higher learning, which is also consistent with Hefei's reputation as a national "science

and education city". Through comprehensive comparison, Hefei has a certain gap compared with the cities of Wuhan and Nanjing, especially in terms of tourism resources and tourism economic conditions.

In terms of tourism environment support, the scores of the three cities are roughly equal, Nanjing ranked first, while Hefei and Wuhan ranked second and third with smaller gaps. In terms of urban tourism and natural environment, the per capita green area of Hefei is slightly lower than that of Wuhan, which is higher than that of Wuhan. The green coverage area has been built far more than the other two cities, which is consistent with the title of "garden city" owned by Hefei. Hefei's industrial wastewater discharge compliance rate is slightly higher than that of Nanjing, slightly lower than Wuhan; the comprehensive utilization rate of solid waste is slightly higher than that of Wuhan, lower than Nanjing, and these two areas need to be further improved.

In terms of the tourism performance, the comprehensive scores and indicators of Hefei's tourism competition performance are smaller than other cities, indicating that the city's tourism performance is less competitive.

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