Cluster analysis of tourist reception person-times in Chinese provinces in 2017

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Abstract: Since reform and opening up, gradually to the development of tourism industry in China, after entering the 21st century is more into a period of rapid development, in 2017 the national tourist trips over 5 billion person-time, however the provincial tourist hotels in our country and the specific situation of the tourism income but there is a big difference, this article through to our country's 31 provincial level administrative units on the number of domestic and foreign visitors reception, tourism income of clustering analysis, the clustering partition in 31 provincial level administrative unit, find out the commonness and characteristics, as well as some problems in the development of, and puts forward some Suggestions on the development of tourism and the train of thought.

1. Introduction

In 2017, China's per capita GDP has reached us $8,582.94, the number of public holidays has reached 117 days, the era of mass tourism has arrived, and the number of international tourist reception is also showing an upward trend. At present, tourism has become a strategic pillar industry of the national economy. At the same time in the rapid development of tourism, the tourism development between different regions and different provinces in our country is not balanced, the proportion of domestic and overseas tourists are also different, this paper, by using clustering analysis to our country 31 provinces (municipalities directly under the central government, autonomous regions, Hong Kong, Macao and Taiwan, except the number of tourists, tourism income of clustering analysis, source, in order to found our country regional tourist hotels and tourist income differences, thus for our country to harmonization development of tourism, tourism corresponding policies for local governments to provide theory basis.

2. Index determination

In 2011, the national bureau of statistics divided China into four major economic zones: the eastern, central, western and northeastern regions.

The east includes: Beijing, Tianjin, Hebei, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong and Hainan.

The central part includes：Shanxi, Anhui, Jiangxi, Henan, Hubei and Hunan.

The western regions include：Inner Mongolia, Guangxi, Chongqing, Sichuan, Guizhou, Yunnan, Tibet, Shaanxi, Gansu, Qinghai, Ningxia and Xinjiang.

Northeast China includes：Liaoning, Jilin and Heilongjiang.

However, it is inevitable that a further analysis based on the division of geographical location will inevitably produce certain one-sidedness if the tourism industry is simply classified based on geographical location.

The purpose of classification in this paper is to combine regions with similar incomes in tourism reception into one category, avoid the unreasonableness of purely dividing by geographical location, and make regional classification more representative. Therefore, this paper selects and collects the relevant tourism data of 31 provinces (municipalities directly under the central government and autonomous regions) in China, and takes eight items as the selected indicators, including domestic

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tourist person-times, inbound tourist person-times, total tourist person-times, domestic tourist income, tourist foreign exchange income and domestic and foreign tourist income.

3. Data Sources

In order to ensure the authority of various data, this paper obtains the main data of various indicators according to the statistical bulletin of national economic and social development of 31 provinces (municipalities directly under the central government and autonomous regions) in 2017, and calculates some data through local websites and relevant calculations.

Table 1 statistics table of tourist receptions and incomes in China

The serial number	region	Domestic tourists (ten thousand person-times)	Inbound tourists (10,000 person-times)	Total number of tourists (10,000)	Total revenue of domestic tourism (100 million yuan)	Foreign exchange income from tourism (us $100 million)	Total revenue of tourism (100 million yuan)
1	Beijing	29000.00	392.60	29392.60	5122.40	51.20	5468.80
2	Tianjin	20754.94	345.06	21100.00	3292.18	37.52	3545.44
3	Hebei	57000.00	160.20	57160.20	6089.60	7.60	6140.90
4	Shanxi	56000.00	95.71	56095.71	5338.60	3.50	5360.20
5	Inner Mongolia	11461.20	184.80	11646.00	3358.60	12.50	3440.10
6	Liaoning	50318.40	278.80	50597.20	4620.70	17.80	4740.80
7	Jilin	19092.90	148.43	19241.33	3456.50	7.66	3507.04
8	Heilongjiang	16304.20	103.90	16408.10	1876.60	4.80	1909.00
9	Shanghai	31845.27	873.01	32718.28	4025.13	68.10	4484.81
10	Jiangsu	74287.30	370.10	74657.40	11307.50	42.00	11662.20
11	Zhejiang	62788.00	1212.00	64000.00	8764.37	82.76	9323.00
12	Anhui	62600.00	549.20	63149.20	6002.40	28.80	6196.90
13	Fujian	37534.06	775.41	38309.47	4570.77	75.88	5083.10
14	Jiangxi	57253.50	188.90	57442.40	6435.10	6.30	6477.63
15	Shandong	77981.00	490.40	78471.40	8991.05	31.00	9200.30
16	Henan	66511.00	307.32	66818.32	6667.97	12.3	6751.00
17	Hubei	63547.00	353.00	63900.00	5417.475	14.3	5514.00
18	Hunan	67000.00	322.70	67322.70	7085.20	13.00	7172.60
19	Guangdong	40700.00	3647.56	44347.56	10667.02	196.50	11993.40
20	Guangxi	40400.00	482.52	40882.52	4047.65	21.64	4191.36
21	Hainan	6633.07	111.94	6745.01	766.03	6.81	811.99
22	Chongqing	53871.86	358.35	54200.00	3176.55	19.48	3308.04
23	Sichuan	67000.00	336.20	67336.20	8825.40	14.50	8923.10
24	Guizhou	74284.89	132.54	74417.43	7096.29	3.04	7116.81
25	Yunnan	56700.00	667.69	57367.69	6682.58	35.50	6922.23
26	Tibet	2527.08	34.35	2561.43	366.01	1.98	379.37
27	Shaanxi	51900.00	383.74	52283.74	4630.26	27.04	4813.59
28	Gansu	23897.30	7.88	23905.18	1578.70	0.21	1580.11
29	Qinghai	3477.08	7.02	3484.10	378.94	0.38	381.53
30	Ningxia	3090.80	12.36	3103.16	275.22	0.37	277.72
31	Xinjiang	10490.69	234.82	10725.51	1751.60	10.54	1821.97

Main data source: statistical bulletin of national economic and social development of 31 provinces (municipalities directly under the central government and autonomous regions) in 2017

4. Analysis Methods

4.1 data analysis method adopted in this paper

In this paper, the method of system cluster analysis in statistical analysis is used. System clustering is a kind of clustering method commonly used in practical work. Its advantage is that it can cluster samples and variables. At the same time, it can provide a variety of distance measurement methods and result representation methods.

4.2 overview of the basic ideas of system clustering analysis

The clustering analysis method considers n samples or variables as different n classes, and then combines the two classes that are close in distance (for sample clustering) or close in nature (for variable clustering) into one class. From these n-1 class species, you find the two closest classes to merge, and so on, until all the samples or variables are merged into one class. The whole process can be drawn into a cluster diagram, according to the diagram and specific problems to determine the classification.

5. Conclusion

5.1 The conclusion

With the help of the system clustering function in the classification in SPSS20.0, the data in this paper are analyzed in table 1, and the following analysis results are obtained.

5.1.1 Sample validity

Table 2 shows that the total number of samples in this cluster analysis is 31, and the sample efficiency is 100%.

Table 2 case processing summary

case					
effective		missing		total	
N	The percentage	N	The percentage	N	The percentage
31	100.0	0	.0	31	100.0

a. average connection (between groups)

5.1.2 Clustering results

Through the system clustering analysis diagram, this paper selects the X-axis scale as 2, which can be divided into five categories.

Table 3 classification results

The first kind of	The second type of	The third kind	The fourth class	The fifth class
Hainan, Inner Mongolia Qinghai Tibet Ningxia, Xinjiang	Tianjin Jilin Gansu, Heilongjiang	Beijing Shanghai Fujian, Guangdong Guangxi	Jiangsu, Shandong Guizhou	Hebei Shanxi, Liaoning, Zhejiang, Anhui Jiangxi, Henan Hubei Hunan Chongqing Sichuan Yunnan Shanxi

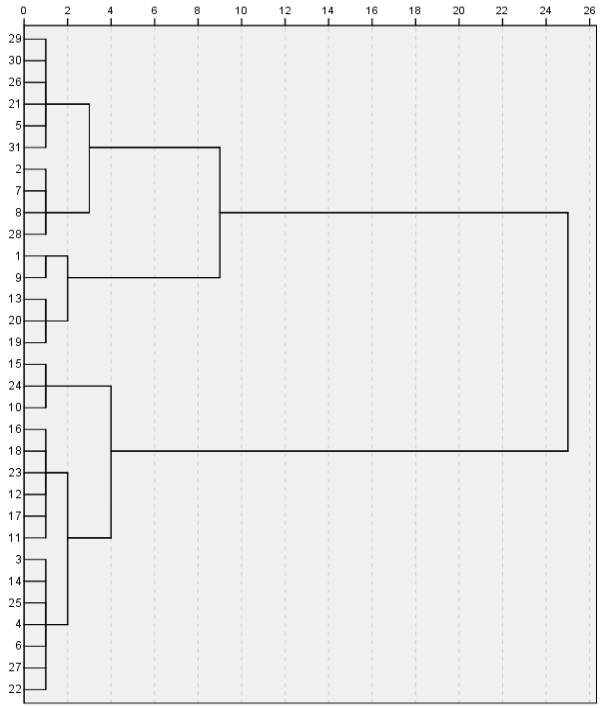

FIG. 1 tree diagram of system clustering analysis

5.2 Discussion

5.2.1 The correlation between the number and income of tourist reception and the economic region is not absolute

From the above clustering results, it is not difficult to see that the tourism reception in a specific region is greatly correlated with the economic region in which the region is located, but this correlation is not absolute. For example, Tianjin, Jilin, Heilongjiang, Gansu, Beijing, Shanghai, Fujian, Guangdong, Guangxi, Jiangsu, Shandong, Guizhou and other provinces and cities belonging to the same category in the classification results are quite different from each other in geographical location, but the tourism reception situation of similar regions is quite similar. Although from the global, total amount, region between the economic development level, geographical location, traffic access degree, is a regional tourist reception ability and the important factor in the development of tourism, so as to reflect on the number of tourism and tourist situation, However, jiangsu, shandong and guizhou belong to the same category of tourism reception, and they are in different economic regions. This similarity is affected by many factors, such as natural scenery, climate and environment, cultural connotation, marketing and publicity, infrastructure and so on.

5.2.2 Coastal areas are the main body of receiving inbound tourists

Shanghai, Fujian, Guangdong, Guangxi, Jiangsu, Shandong, Zhejiang, belong to the third, fourth, and fifth, respectively entry are in more than 4 million people from all over the years, is the highest in the entry visitors reception people, including Zhejiang break through 10 million person-time, break through 30 million person-time, Guangdong coastal areas also for top tourist foreign exchange income in China's 31 provinces and cities area. These provinces and cities belong to China's coastal provinces and cities, while most provinces and cities belong to China's early opening, high degree of economic development, good external traffic conditions. It can be seen that the degree of foreign exchange, economic development and accessibility of a region have a great impact on inbound tourists.

5.2.3 The internal region is the host of domestic tourists

The internal region here refers to provinces and cities that are neither on the east coast nor without borders. Belong to the fifth class of Hebei, Shanxi, Liaoning, Zhejiang, Anhui, Jiangxi,

Henan, Hubei, Hunan, Chongqing, Sichuan, Yunnan, Shaanxi, 13 provinces and cities in the domestic tourist trips are in more than 500 million people, and distributed evenly between provinces and cities. In the fifth category, except Liaoning, Zhejiang and Yunnan, the other ten provinces and cities are all internal provinces of China. It can be seen that China's internal provinces are the host of domestic tourists.

5.2.4 Both tourist reception and tourism income in western high-altitude areas are low

Inner Mongolia, Hainan, Tibet, Qinghai, Ningxia, Xinjiang belongs to the first class, the six provinces (autonomous regions) in domestic and overseas tourist trips and tourism income in 31 provinces (municipalities directly under the central government, autonomous regions) in the bottom level, in addition to the Hainan as the southeast coastal area, Tibet, Qinghai, the main body in our country rung, an average elevation of 4000 meters, Inner Mongolia, Ningxia, Xinjiang is in the second step, 1000 ~ 2000 meters, the five provinces (autonomous regions) of China's western region, high altitude, the level of GDP in 20 later.

5.2.5 Apart from coastal areas, yunnan is preferred by inbound tourists

Yunnan province is located in the southwest of China, belongs to an important part of the yunnan-guizhou plateau, yunnan-guizhou plateau in 1500 ~ 2000 meters above sea level, large parts of inbound tourism people in 2017 to 2017, second only to the four provinces of guangdong, zhejiang, Shanghai, fujian, in the coastal area in addition to the meteoric rise of the inland provinces in our country is the most popular with foreign tourists in the province.

5.2.6 Uneven spatial distribution of tourist reception

From the domestic and foreign tourist person-times and tourist income of 31 provinces, it can be seen that the spatial distribution of domestic and foreign tourist reception is uneven. From the tourist person-times, domestic tourist reception is concentrated in eastern and central provinces of China, while inbound tourist reception is mainly concentrated in eastern regions. In terms of tourism income, domestic tourism income in eastern China is higher than that in central and western provinces, while inbound tourism income is mainly concentrated in eastern coastal areas. The tourist person-times and tourist income of the economically backward provinces (autonomous regions) in western China are at the bottom level.

5.3 Suggest

5.3.1 Improve infrastructure and develop tourism resources in western China

In the western region has abundant tourism resources in our country, but because of severe natural environment, traffic etc, the economy is not developed, the current in the western region, especially in high altitude is particularly outstanding, therefore, should strive to minimize the damage to the ecological environment of the premise, to perfect our country western region of the infrastructure, including road traffic, network communications, catering accommodation, medical and health care, etc. At the same time, the research, exploration and development of tourism resources should be strengthened to enrich regional tourism products.

5.3.2 Increase regional support and promote coordinated regional development

Governments at all levels should strengthen the economy less developed areas or travel travel support underdeveloped areas, the tourism project development, tourism product development sales, tourism and other stakeholders brigade enterprises increase support, and to give policy support, personnel support, capital support, personnel training and so on aspect of support strength, promote the regional coordinated development.

5.3.3 Strengthen external tourism marketing and expand overseas tourism market.

Chinese governments at all levels should strengthen the grasp of overseas tourism market, strengthen foreign tourism marketing, expand overseas markets, actively promote the development of tourism BBS through cooperation and exchanges with cities, establish a good tourism image,

build foreign tourism brand, actively attract foreign tourists, and increase foreign exchange income of tourism.

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