Descriptive Study of 2010-2014 China area inbound tourism income

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Abstract:
This paper is to analysis the China province area inbound tourism income from 1995 to 2014 and the data are obtained from Chinese statistical yearbook. Through the descriptive study, it is found that since 2010 for all province areas their inbound tourism incomes increase a lot, and coastline areas attract high tourism incomes. The reasons of the founding are also discussed. Hierarchical Clustering method is used to segment areas by their tourism incomes from 1995 to 2014, and cluster result is also described.

Keywords: China inbound tourism; Tourism income; Area tourism; Hierarchical Clustering.

1. Introduction

Over the decades, tourism has experienced continued growth and deepening diversification to become one of the fastest growing economic sectors in the world. Tourism has become one of the major players in international commerce, and represents at the same time one of the main incomesources for many developing countries.

China located in Asia with 9.6 million square kilo-meters territory, is the world's most populous state, with a population of over 1.381 billion. China is also the largest country with an ancient civilization with 5,000 years of civilization history. This country has a lot tourism resource. China governments always pay much effort on the inbound tourism, as it can take in some foreign income and also lead the world knows China better. In this paper, the authors analyses the distribution of China province area inbound tourism income, and the data are obtained from China statistical yearbook. By the studying on the area inbound tourism incomes; the governments can make some adjustments on their tourism industry to attract more foreign tourists.

China statistic office publishes the yearbook every year and it contains the data for previous year. As the 2016 yearbook are not available now, we have to use the data in 2015 yearbook, so the data is year 2014. The data are downloaded from the following webpage: http://www.stats.gov.cn/tjsj/ndsj/2015/indexch.htm. The yearbook lists the China area yearly tourism income from 1995 to 2014.

2. Hierarchical Clustering

Hierarchical clustering essentially consists of progressively organizing all of the candidate objects into clusters comprising mutually similar objects as determined by some measure of inter-object and inter-cluster similarity, proceeding in succession from the formation of small clusters containing just two objects to large clusters containing many objects. It is characteristic of this procedure that the clusters formed in each step can be graphically displayed in tree diagrams referred to as dendrograms. Hierarchical clustering is widely used as it visuality, but it is less efficient for large observations. In this paper, the dataset only has 31 observations and 6 columns, and it is suitable for hierarchical clustering method. Each observation indicates each China province area, and each column stands for the inbound tourism income in the certain year. The data are transformed by z-score standardized before clustering. By clustering, the 31 countries are grouped into several clusters, and the analysis about these clusters is then performed. The result is useful to show the difference and similarity of these 31 observations.
3. Descriptive study

Bar charts of China area inbound tourism incomes in each year are shown in Figure 1. Each color represents a certain year as shown in the Figure index, and the length of bar for each year is proportional to the tourism incomes. The unit of income is million US dollar. Figure 2 displays the spatial distribution of China area average tourism incomes. The average value of an area is the mean value of 5 years’ from 1995 to 2014, and the color of each province area is proportional to its average value as shown in the figure index.

It can be seen from the Figure 1 that for all the areas the inbound tourism incomes increase all the time, especially from 2010. For many areas, the income amount of 2010 is almost the sum of those of 1995, 2000 and 2005. It is mainly because of the effect of Beijing 2008 Olympic Games and meanwhile at these years China GDP began to rank top 2 in the world, which makes China express a new and surprising impression to the world and then cause more and more tourists visit China. It can also be found from the Figure 1 that Guangdong, Shanghai, Beijing, Zhejiang, Fujian, and Jiangsu are the areas with relative higher tourism incomes than those of other areas. These areas are the richest areas in China and have a lot of international communications. That’s why they have high incomes. Guangdong is close to Hongkong and in China yearbook the tourism income from Hongkong is also counted in the inbound income, thus Guangdong ranks in the top 1. Shanghai and Beijing are the famous international cities with largest airports in the world and they are often the first China stops for majorities of China inbound tourists. These two cities also have a lot of international communications in many domains, such as business, culture and arts. All these make them have top tourism incomes in China. From the Figure 2, it can be the top income areas are all located in the coastline except Beijing. However, the internal China areas have relative low tourism incomes. It reflects that foreign tourists now are mainly interested in China rich areas. Actually, there are a lot wonderful tourism resources in China internal areas, such as Guizhou, Guangxi, Chongqing, Sichuan and Yunan. China central and internal governments should pay much attention to advertisement and service improvement of the internal tourism resources to attract more international tourists.
Figure 1. Bar charts of China area inbound tourism incomes in each year. Each color represents a certain year as shown in the Figure index, and the length of bar for each year is proportional to the tourism incomes. The unit of income is million US dollar.
Figure 2. The spatial distribution of China area average tourism incomes. The average value of an area is the mean value of 5 years’ from 1995 to 2014, and the color of each province area is proportional to its average value as shown in the figure index. The unit of income is million US dollar.

4. Clustering result

After the Hierarchical Clustering, the tree-diagram of Hierarchical Clustering on 6 years’ inbound tourism income are shown in Figure 3, and it demonstrate how the countries are grouped into small groups in detail.
Figure 3. the tree-diagram of Hierarchical Clustering on 6 years’ tourist number to China.

From the figure 3, the 31 areas are grouped into 4 sub-groups. Figure 4 shows the cluster result of 31 areas with their average inbound tourism income amount from 1995 to 2014. The cluster number is ordered by the means value of its average inbound tourism income. It can be seen from Figure 4 that the top 4 clusters have the top province areas with highest inbound tourism income to China, and the areas in top 4 clusters are the top areas found in the section 3. As shown in Figure 4, the mean value of the average tourism income of 31 areas is 1240 million US dollar. The areas in Cluster 1-4 are all above this mean value, however, the areas in Cluster 5 are all below this value except Liaoning, Shandong and Tianjin. The local governments of cluster 5 should pay much attention to increase their tourism income. Figure 6 displays the spatial distribution of clustering results, with Each color indicating a cluster as shown in the color index. Figure 6 displays a spatial pattern that clusters with high inbound tourism income are all located in the coastline areas except Beijing.
Figure 4. The cluster result of 31 province area with their average inbound tourism income from 1995 to 2014.
5. Conclusions

This paper does a descriptive study of China area inbound tourism income from 1995 to 2014. This paper firstly demonstrates that the income of China inbound tourism increased from 1995 to 2014 for all areas, especially since 2010. Guangdong, Shanghai, Beijing, Zhejiang, Fujian, and Jiangsu are found to have relative higher inbound tourism income, while the areas in internal China have relative low income, and China central and these local governments should make some adjustments to increase the tourism incomes. By the Hierarchical Clustering analysis, the 31 province areas are grouped into 6 sub-groups. It shows that the top 4 clusters have the top 6 areas with highest inbound tourism income, while the cluster 5 is the group of areas with relative low tourism income. This paper is just a simple descriptive study, and it can give a little help to government and researchers as a reference.

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