

Research on Sichuan Tourism Economic Development based on Geographic Information Big Data

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Abstract. In the process of Sichuan Province's transformation from a province with large tourism resources to a province with strong tourism economy, studying and understanding the spatial differences of the development level of tourism economy in the province will help to deeply understand the role of tourism in regional economic development. In the environment of big data, geographic information big data can provide technical support for the development and protection of land and space, and rational use of this technology can also play a role in the rational allocation of land and space resources to a certain extent, so as to achieve scientific planning and accurate control of land and space. The development of tourism in Sichuan Province must start with the cultivation of talents, and constantly expand the core quality of talents, so as to help talents have a high degree of harmony in tourism development. Based on geographic information big data, optimize the spatial layout of tourism resources and tourism elements, formulate effective tourism economic regulation policies, and promote the sustainable and coordinated development of tourism in Sichuan Province.

Keywords: Geographic Information; Big Data; Sichuan Province; Tourism Economic Development.

1. Introduction

With the continuous development of tourism in Sichuan Province, it provides a new vitality for urbanization. Especially in the process of increasing people's spiritual pursuit, it is necessary to continuously expand the spiritual value, so as to realize the significance of tourism development. In the process of Sichuan's transformation from a province with large tourism resources to a province with strong tourism economy, studying and understanding the spatial difference of tourism economic development level in Sichuan province will help to deeply understand the role of tourism in regional economic development. Combining with the opportunity of building a national excellent eco-tourism county, Sichuan province will integrate the development concept of "whole-region scenic spot" into tourism development, rationally develop tourism resources, optimize the structure and spatial layout of tourism development elements, and advocate the sustainable development mode of tourism. To make tourism truly a sustainable development, the development of tourism in Sichuan needs to fully combine the regional environmental characteristics, cultural characteristics and dietary characteristics, and help tourists feel the atmosphere of the city during their tourism [1].

At present, China has grasped the characteristics of the era of big data and adopted certain big data strategies. In a certain period of time, the big data industry will develop rapidly in China, and the integration of big data technologies will also have a certain impact on China's geographic information industry. Geographic information industry is an important part of China's information industry. In the environment of big data, this industry has great potential for development. Therefore, managers of related enterprises must seize this market opportunity to quickly and effectively promote the better development of enterprises [2]. Geographic big data can provide technical support for the development and protection of land and space, and rational use of this technology can also play a role in the rational allocation of land and space resources to a certain extent, thus realizing the scientific planning and precise control of land and space.

Due to the huge geographic data, with the integration of big data technology, these huge data can be integrated, and at the same time, geographic information data will be integrated with other big data. The integration between data will promote the data to be transformed into commercial value, thus

skipping the transformation of online customers into direct customers through other business performances. In this situation, the market scale of geographic information will grow rapidly. In the process, we will gradually improve the functions of public areas and realize the linkage development of multi-industries. Finally, the development of tourism in Sichuan province must start with the cultivation of talents, and constantly expand the core quality of talents, so as to help talents have a high degree of fit in tourism development [3-4]. Optimize the spatial layout of tourism resources and tourism elements, formulate effective tourism economic regulation policies, and promote the sustainable and coordinated development of tourism in Sichuan Province.

2. Analysis on the Advantages of Tourism Economy Development in Sichuan Province

2.1 Large Customer Demand

With the development of urbanization and the improvement of people's economic income and living standard, people's tourism demand is more and more prosperous. Sichuan and its surrounding southwest regions are full of vitality in economic production and consumption, high per capita income and large tourism demand. The development of tourism needs to be constantly explored in the urban atmosphere and effectively improve the quality of talents in the process, which will be conducive to the effective development of urban economic strength [5]. At the same time, the effective development of tourism can basically improve the effective development of urban GDP, and then expand the core value of tourism in Sichuan Province. Sichuan's rich tourism resources and excellent and complete transportation conditions have become one of the tourist destinations selected by tourists in the surrounding areas, which is a very important advantage for the development of tourism economy. It has many well-known tourism resource brands at home and abroad. For example, Chagingsong, a national nature reserve, mainly protects the white lipped deer, a national first-class animal. The total amount of this area accounts for more than 2/3 of the total national reserves. The state key cultural relics protection unit, the Gatuo Temple, has a very important influence and historical status in Kangba Tibetan Area [6-7].

People's high-tech equipment is more and more complete. As a carrier, information products can well strengthen the relationship between geographic information industry and users. With the reform and improvement of the service model, people's evaluation of the industry is getting higher and higher. The development of tourism economy is still short of professional tourism talents to provide planning for the scientific development of tourism. The existing tourism professionals are poorly treated, leading to the loss of a large number of excellent talents. The lack of professional tourism talents also makes the overall quality of tourism in Zizhong County greatly reduced. The tourism image of Sichuan Province shall be publicized in the regions with concentrated population flow and tourism influence to solve the current situation of tourism shortage in Sichuan Province.

2.2 Rich Tourism Resources

The unique natural conditions of Sichuan Province enable the county to have rich natural tourism resources, many scenic spots, rich levels, and good tourism development conditions. National Baiyun Mountain Scenic Area, provincial Shengling Mountain Geological Park, county-level Luoquan Karst Cave Group, Qingmei Mountain Karst Cave, Longjiang Lake, Songjia Hundred-year Pear Garden Ecological Reserve, etc. Relying on its rich tourism resources and excellent forest ecological environment, it is also an important attraction in the regional tourism system. It not only has the conditions to integrate into the regional tourism system, share development, but also has the convenient conditions to develop into a tourism destination [8]. However, as Sichuan's tourism resources have been locked in the boudoir for a long time, there is no obvious positioning in the overall tourism planning framework, and its tourism location has not received the due attention. As a

sustainable development, tourism needs a beautiful environment and good human resources as a guarantee.

Sichuan Province is located in the transition zone from the Qinghai Tibet Plateau to the Yunnan Guizhou Plateau. The ecological environment is relatively fragile, and the traditional culture is deep and simple. As for the ecological environment and traditional culture on which tourism development depends, we must improve the awareness of protection, do a good job in tourism planning, and develop on the premise of protection. We must not blind and extensive development. Analyze the spatial difference and polarization degree of tourism economic development in Sichuan Province. The height and width of wave crest reflect the difference, and the number of wave crest reflects the polarization degree; Distribution extensibility is used to describe the spatial difference between the city with the highest level of tourism economic development and other cities. The longer the tail, the greater the difference. In addition to these unique natural landscape resources, there are also Daxiangling Nature Reserve, with steep peaks, low valleys and streams, towering ancient trees and ancient temples in the mountains [9].

The beautiful ecological environment and rich natural landscape resources have become the natural advantages of building an ecological livable city. At the same time, Sichuan is a city with a long history, established in the Han Dynasty, with many outstanding people, rich and complete ancient buildings, and distinctive folk customs, making Sichuan a city characterized by cultural tourism.

3. Research on the Development of Tourism Economy in Sichuan Province based on Geographic Information Big Data

3.1 Development Trend of Tourism Economic Geographic Information Industry in Sichuan Province in the Era of Big Data

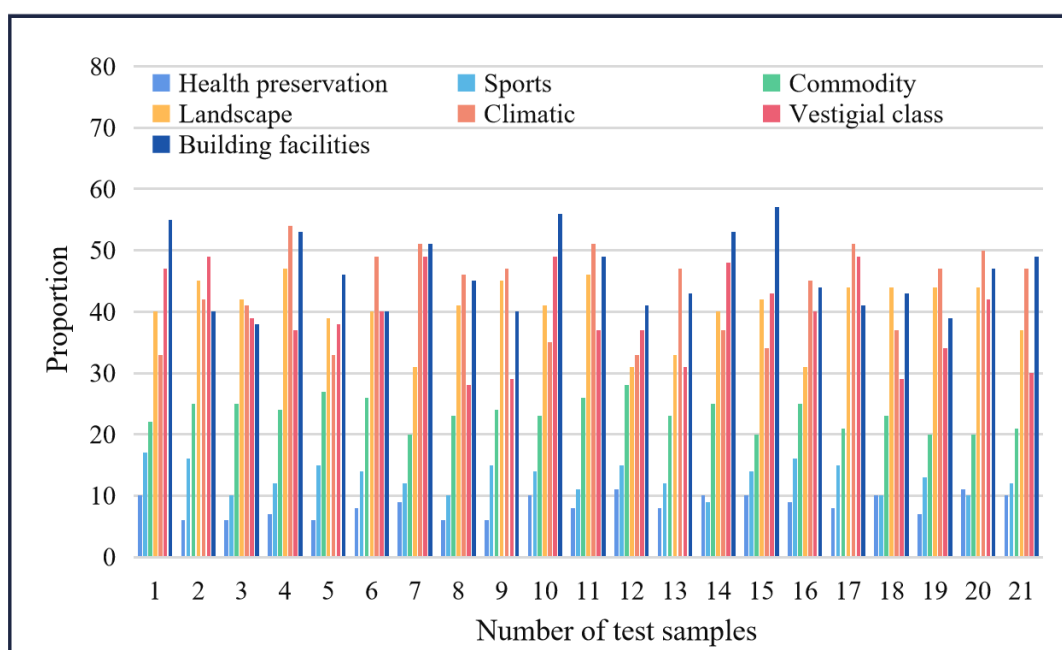


Figure 1. Classified Statistics of Developed Tourism Resources in Sichuan Province

With the development trend of information technology, many IT industries have added geographic information services, which can provide location services and navigation services. This service function is to search for geographic information through maps in the Internet [10]. Outdated data has not been eliminated and covered because of the emergence of new data. On the contrary, due to the need of data mining, it is necessary to accumulate historical data for a long time, which leads to the doubling of "historical data" and the formation of huge data accumulation. From the current situation,

the growth trend of geographic big data is very optimistic, and the growth rate will also be accelerated, and its growth trend will be shown in the following three aspects: First, the data of remote sensing data, trajectory data, map data, etc. will constantly show an upward trend [11].

Sichuan province is rich in tourism resources, unique in natural landscape and beautiful in mountains and rivers, and it is a golden tourist area with gratifying development prospects in the west. The development of tourism resources is a development and construction activity to excavate and improve the value of tourism resources to make them more attractive. The classified statistics of developed tourism resources in Sichuan Province are shown in Figure 1.

Different from other data, geographic data not only contains spatial information such as topology, distance and direction, but also has spatial autocorrelation. Once integrated with other big data, it can reveal many valuable information. In the age of big data, the commercial value of geographic big data will rapidly increase. Based on this, the natural resources and planning management departments of Sichuan Province have carried out in-depth research on the rational use of land and space, aiming to protect the existing land and space resources, strengthen the protection of the ecological environment, and avoid the shortage of land and resources due to excessive development and irreversible negative impact on the local ecological environment protection to the greatest extent. From the perspective of the technical effect of the geographic information big data platform, the competent department of natural resources and planning in Sichuan Province can maximize the advantages of the platform, especially in the aspect of geographic information data analysis, the analysis results are accurate and scientific to reduce the generation of external factors that affect planning decisions. Detect the relevant geographic information data, and combine this method to reduce the planning decision error.

3.2 Integration of Big Data Technology and Geographic Information Technology of Tourism Economy in Sichuan Province

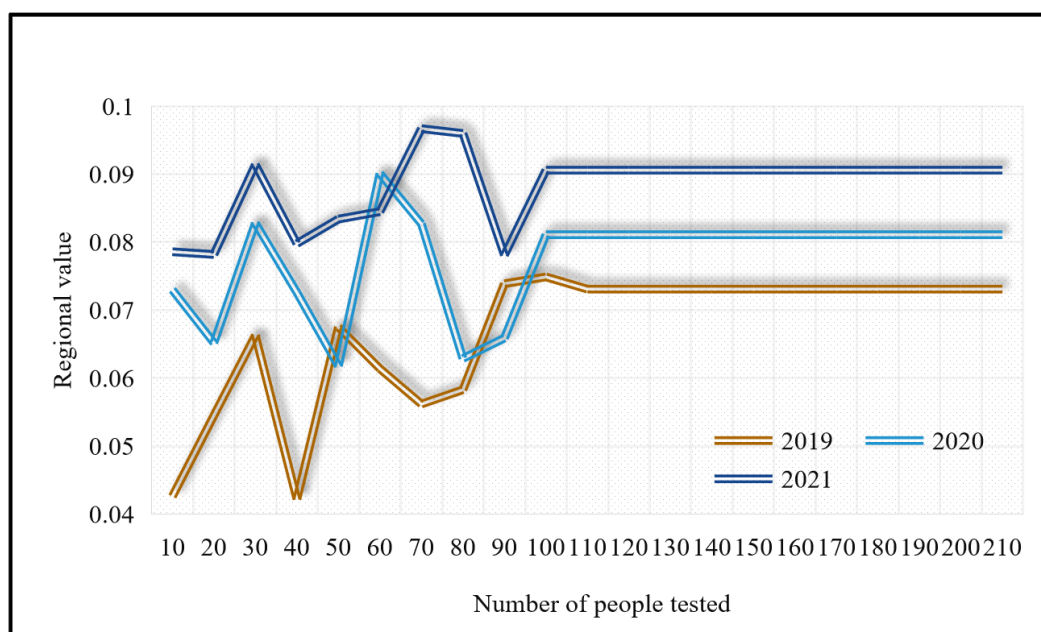


Figure 2. Distribution of nuclear density of total tourism income per capita in Sichuan Province

The main way of big data application is to mine the hidden information behind the data through a series of mathematical analysis methods and machine learning methods. Firstly, define the six functions of tourism and improve the infrastructure construction of tourist destinations; Seize the tourism development policy, industry and market opportunities, give full play to the advantages of local resources combination, and establish a perfect tourism product system in Sichuan Province; Expand financing channels and promote project construction; Optimize the functional structure, optimize the format, highlight the core brands, avoid single products, and implement scale development and regional linkage; Aim at the eco-tourism market, enrich the product level,

implement special marketing, and expand the tourism, leisure and holiday industry chain in Sichuan Province. For the application of geographic information industry, discovering spatial knowledge is a technology that uses spatial data mining methods to extract unknown information from big data in advance. In reality, we may not have obvious identity with the knowledge results obtained from big data analysis, or even have a big deviation from our own prior knowledge, which makes us question the scientificity of applied information. As can be seen from Figure 2, on the whole, the density function center of Sichuan's total per capita tourism income from 2019 to 2021 moved to the right, and the change trend gradually became gentle and the width became larger. This shows that the development level of tourism economy in Sichuan has gradually improved, polarization phenomenon has disappeared, but regional differences have gradually increased.

Under the premise of considering the interaction between tourism economic regions in Sichuan Province, the possibility of maintaining its own development level of regional tourism economy in Sichuan Province is the greatest, and the low-level and high-level regions are relatively stable, which is manifested by the largest value on the diagonal in the transition probability matrix, that is, no matter what neighborhood a region is in, it is at a certain development level at the beginning of the research, and its probability of continuing to belong to a certain level in the following years is far greater than that of transferring to other levels. Encourage students majoring in big data technology and application in various industries to take courses related to surveying and mapping and geographic information, and constantly strengthen the cross-integration between disciplines and professions.

4. Conclusion

The era of big data has come, and a full analysis of the characteristics of big data technology shows that a better combination of geographic information industry and information technology can greatly promote the development of geographic information industry. The geographic information industry has relatively high requirements for information technology. It has always been at the forefront of IT technology, which has also achieved real-time information release and improved user satisfaction. In the big data environment, many managers of the geographic information industry seize the market opportunity, improve the quality of Sichuan's cultural tourism resources, and try to improve the protection level of resources to promote development and protection. At the same time, in order to enhance the core competitiveness of Sichuan's tourism resources, create unique tourism products, and be in a favorable position in regional tourism competition, it is necessary to conduct in-depth analysis of Sichuan's regional tourism resources, seek differences and characteristics, and shape personality. To improve the supervision mechanism and reward mechanism for industry practitioners, actively guide the good service behavior of practitioners, the overall service quality of tourism practitioners can be evaluated quarterly, the work quality of tourism practitioners can be checked accordingly according to the tourists' rating indicators, and the tourism petition and complaint mechanism should be improved. Unqualified practitioners should be warned actively, and excellent tourism practitioners should be rewarded. Considering the current situation, it is possible to develop the integration of big data and geographic industry, which will become the future development trend. Therefore, relevant professionals should actively grasp the characteristics of big data technology and actively innovate the technical products integrated with the development of Sichuan's tourism economy.

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