

# *Spatial and Temporal Evolution Characteristics of High-Quality Tourism Development in China*

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**Abstract:** Since the reform and opening up, China's tourism industry has made great achievements, gradually becoming a strategic pillar industry of the national economy. This article takes 285 prefecture-level cities in China as the research object, constructs five dimensions of innovation, coordination, green, openness, and sharing as the evaluation index system for high-quality development of China's tourism economy, uses entropy method to measure the high-quality development level of cities, and uses descriptive analysis and ArcGIS spatial technology to analyze the spatiotemporal evolution characteristics of high-quality development level of tourism. The main conclusions are as follows: (1) The high quality index value of China's tourism economy is relatively low, with regional differences. (2) The distribution of cities at a relatively high level is sporadic and relatively scattered.

## 1. Introduction

After experiencing the stage of isolated discussion about "scenic spots" and "high" in terms of the understanding of high-quality tourism development in the academic community, the recognition of "high quality" has gradually been constructed, forming a new research perspective. In 1998, Wang Dawu first proposed the theme of high-quality tourism development research. "High quality tourism" was first proposed as a theory at the 18th National Congress of 2018<sup>[1]</sup>. Since then, research has mushroomed, with research content gradually extending from connotation analysis to multiple dimensions such as evaluation and path, and the trend of starting a prairie fire with a single spark gradually rising<sup>[2]</sup>. Currently, scholars' research on high-quality tourism mainly focuses on the systematic theory of high-quality tourism development<sup>[3]</sup>, high-quality rural tourism development<sup>[4]</sup>, high-quality cultural tourism integration development<sup>[5]</sup>, and the measurement of high-quality tourism development level<sup>[6]</sup>. In summary, substantial progress has been made in the research on high-quality tourism development. In terms of system theory of high-quality tourism development<sup>[7]</sup>, the content focuses on the logic, system, and systematic strategic path of high-quality tourism development in the new era<sup>[8]</sup>, but lacks a definition of the concept of high-quality tourism<sup>[9]</sup>; In terms of measuring the level of high-quality tourism development, the evaluation system is mainly

constructed from the internal structure of the tourism industry, and there is a lack of reflection on the impact of the external environment on high-quality tourism development. In addition, generally, research is focused on provincial administrative regions or some macro regions of urban agglomerations, and there is a lack of research on small and medium-sized scales such as prefectural cities.

## **2. Research Methods and Data Sources**

### **2.1. Research Methods**

Entropy method is an objective weighting method that determines the weight of indicators based on the size of information provided by the observed values of each indicator. In information theory, entropy is a measure of uncertain information. From a statistical perspective (which is essentially different from informatics and also from thermodynamic entropy); The greater the degree of dispersion of data, the greater the amount of information and the smaller the entropy value, which should be given greater weight; The smaller the degree of dispersion of data, the smaller the amount of information and the greater the entropy value, which should be given a smaller weight. This paper uses entropy method to determine the optimal weight of research indicators for high-quality tourism development, objectively reflecting the utility value of indicator information entropy.

### **2.2. Data Source**

This article collects panel data from 285 prefecture-level and above cities nationwide from 2010 to 2019. Among them, tourism data and socio-economic data are sourced from the China Tourism Statistical Yearbook, the China Urban Planning Yearbook, the China Urban Construction Statistical Yearbook, the China Cultural Heritage Statistical Yearbook, the official website of the National Bureau of Statistics of the People's Republic of China, the official website of the Ministry of Culture and Tourism of the People's Republic of China, the General Office of the State Council of the People's Republic of China Statistical yearbooks and statistical bulletins of various cities, internet related resource data, etc.

### **2.3. Index system construction**

According to the inherent requirements of high-quality tourism development, and based on the research of domestic and foreign scholars, a high-quality tourism development indicator system is constructed. The tourism high-quality evaluation index constructed in this article is also based on the connotation requirements of high-quality development, combining the characteristics of tourism development, maximizing the development potential of the region, and selecting corresponding indicators from the five directions of innovation, coordination, green, openness, and sharing. The high-quality development of tourism is mainly reflected in five aspects: first, take innovation and development as the first driving force, and take scientific and technological innovation as the driving force to improve the quality of tourism products, improve production efficiency, and promote more new tourism formats such as "Internet plus tourism" to optimize and upgrade the industrial structure; The second is to take coordinated development as the internal requirement, make up for the shortcomings in the development of the tourism industry through coordinated development, tap its advantages, and promote the sustainable development of cultural industries; The third is to take green development as a universal form. Green water and green mountains are golden mountains and silver mountains. Due to the irreproducibility and irreversibility of tourism resources, once they are destroyed, they will be difficult to reverse. Therefore, green sustainable

development has become a new form of tourism development today; Fourth, take open development as the internal driving force, expand cultural openness and exchange, let Chinese tourism go global, and demonstrate China's cultural self-confidence and development strength; The fifth is to take shared development as the fundamental goal, provide richer cultural infrastructure, more diversified cultural products, and better tourism services, so as to continuously meet the multi-level and diversified cultural and tourism needs of the people. Therefore, this article constructs a high-quality tourism development indicator system from the five levels of innovative development, coordinated development, green development, open development, and shared development, as detailed in Table 1 below.

Table 1: Indicator system.

| Primary indicator    | Secondary indicator   | variable |
|----------------------|---|----------|
| Innovative quality   | Number of tourism technology RD personnel                                 | X1       |
|                      | Investment in tourism technology RD funds                                 | X2       |
|                      | Scientific expenditure  | X3       |
|                      | Number of college students per 10000 people                               | X4       |
| Coordination quality | Proportion of tourism revenue in the added value of the tertiary industry | X5       |
|                      | Proportion of added value of tertiary industry in GDP                     | X6       |
|                      | Proportion of total tourism revenue to GDP                                | X7       |
| Green quality        | Per capita park green area  | X8       |
|                      | Urban sewage treatment rate   | X9       |
|                      | Harmless treatment rate of domestic waste                                 | X10      |
|                      | Actual bus and trolley bus operating vehicles at the end of the year      | X11      |
| Open Quality         | Foreign exchange income of foreign tourists                               | X12      |
|                      | Number of foreign tourists received                                       | X13      |
|                      | Actual amount of foreign capital used in the current year                 | X14      |
| Shared Quality       | Per capita tourism income   | X15      |
|                      | Number of beds per 10000 people   | X16      |
|                      | Book collection per 10000 people  | X17      |
|                      | Number of star hotels   | X18      |
|                      | Number of corporate entities in the accommodation and catering industry   | X19      |
|                      | Tourism fixed assets investment   | X20      |

### 3. Results and Analysis

This article uses ArcGIS 10.7 software to visualize the high-quality development level of tourism in various cities. From Figure 1, it can be seen that the high quality index value of China's tourism economy is relatively low, there are regional differences, and the distribution of cities at a relatively high level is sporadic, with a relatively scattered distribution.

From the perspective of spatial dimension, the main presentation is that the eastern region of China is a high level agglomeration area for high-quality tourism development, especially in the southeast coastal areas; The high-quality tourism development in the central region is relatively lower than that in the eastern region, and the spatial distribution is relatively scattered; In the western region, the level of high-quality tourism development is generally low, and only a few

cities are at the medium level of high-quality tourism development, with a relatively scattered distribution.

From a time perspective, the development level of high-quality tourism in 2010-2019 is in a fluctuating upward trend, gradually evolving from a generally low level in 2010 to a medium high level in 2019. Specifically, in 2010, there were 11 cities in the middle and high level, namely Chongqing, Shanghai, Beijing, Shenzhen, Guangzhou, Tianjin, Suzhou, Hangzhou, Nanjing, Dalian, and Taiyuan, all located in the Middle East region of China; In 2016, there were 13 cities at a medium to high level, including Shanghai, Beijing, Shenzhen, Guangzhou, Tianjin, Suzhou, Hangzhou, Chengdu, Chongqing, Dalian, Wuhan, Xi'an, and Nanjing. Most of them are provincial capitals of various provinces. In 2016, there were 13 cities in the middle and high level, namely Shanghai, Beijing, Shenzhen, Guangzhou, Tianjin, Wuxi, Chengdu, Suzhou, Wuhan, Hangzhou, Nanjing, Chongqing, and Xi'an. Compared with 2013, the changes gradually tended to be moderate. In 2019, there were 16 cities in the middle and high level, namely Shanghai, Beijing, Shenzhen, Guangzhou, Chengdu, Suzhou, Wuhan, Wuxi, Hangzhou, Nanjing, Tianjin, Chongqing, Dongguan, Xi'an, Changsha, and Xiamen. Compared with previous years, the level of high-quality tourism development in these cities has significantly improved, and the number of cities at the high level of high-quality tourism development has significantly increased.

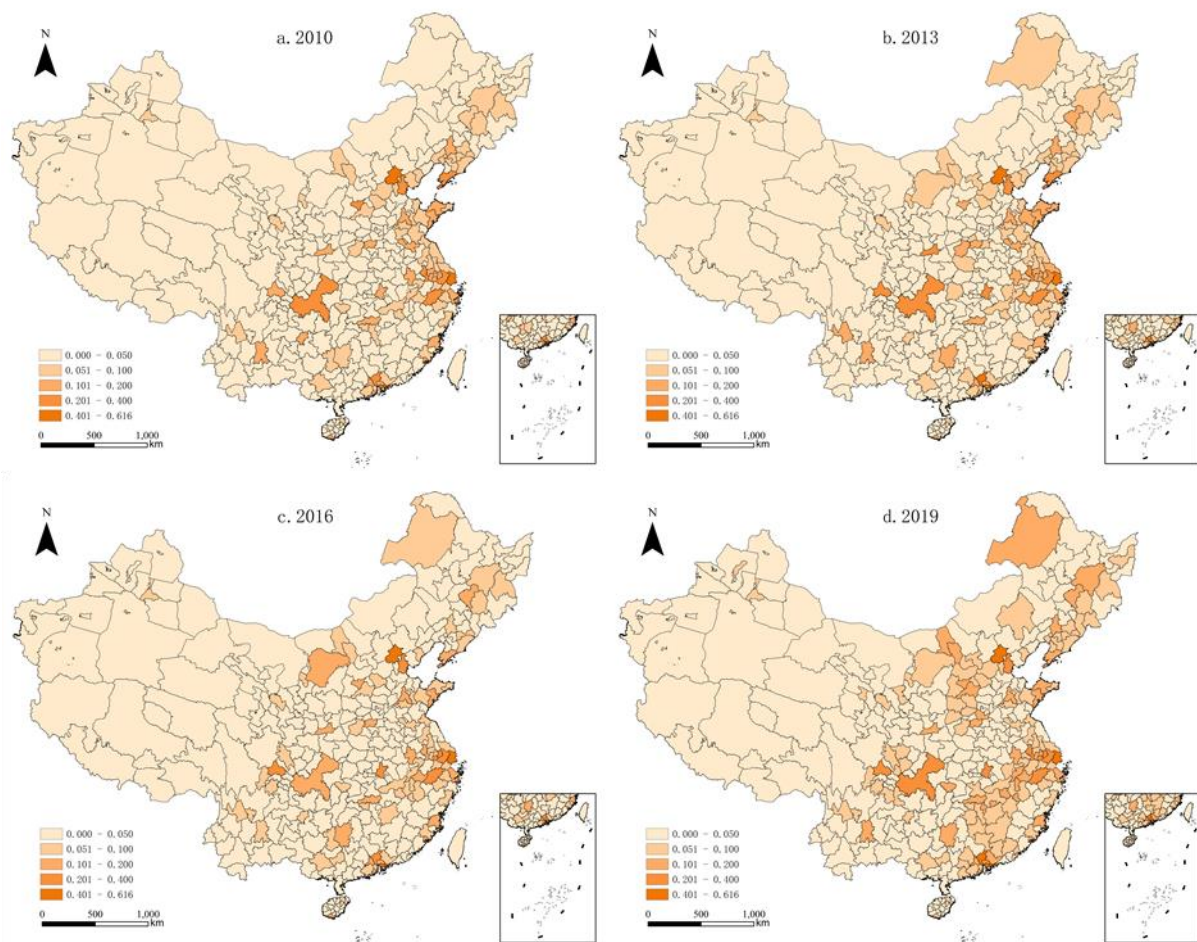


Figure 1: Spatial and temporal distribution of high-quality tourism development level.

Overall, from a time perspective, the level of high-quality tourism development presents a dynamic upward trend. The range of change from 2010 to 2013 is relatively large, while the range of change from 2013 to 2016 is relatively small. The range of change from 2016 to 2019 has a trend

of increasing. From a spatial perspective, the southeast coastal region is a high concentration area for high-quality tourism development, followed by the central region, and finally the western and remote regions. Moreover, high-level areas are mainly distributed in some provincial capital cities such as Shanghai, Beijing, Shenzhen, Guangzhou, Tianjin, Wuxi, Chengdu, Suzhou, Wuhan, Hangzhou, Nanjing, Chongqing, and Xi'an, especially Shanghai, Beijing, Chengdu, Chongqing, Xi'an, Suzhou. From 2013 to 2019, these cities in Wuhan were in a medium to high level of high-quality tourism development.

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